2550 Ventura Avenue
Santa Rosa, CA 95403

p: (707) 565-1900
f: (707) 565-1017

Scott Orr
Director

Michelle Arellano
Administration

Nathan Quarles
Engineering and Construction

Cecily Condon
Planning

Steve Mosiurchak
Fire Marshal

April 2, 2026

To: Interested Agencies

The following application has been filed with the Sonoma County Permit and Resource Management Department.

File Number:	**CPH26-0005**
Applicant Name:	**Ernest Ricioli**
Owner Name:	**KELLER ELWOOD F TR & KELLER GLORIA M TR**
Site Address:	**28165 Hwy 116, Jenner**
APN:	**097-150-004**
Zoning:	**LEA CC B6 160/640 (Ac/DU)/Ac MIN, F1 F2 LG/116 RC100/50 C200/100 SR VOH**

Project Description: Coastal Permit for bank stabilization within the 100 foot Riparian Corridor setback along Sheephouse Creek on a 11.5 acre parcel. Proposal includes enhancement of riparian and instream riparian habitat, reduce future sediment delivery, and restore and protect the structural integrity of the stream bank where an unpaved access road is vulnerable to collapse.

We are submitting the above application for your review and recommendation. Additional information is on file in this office.

Responses to referrals should include a combination of any or all of the following details:

(1) Statement of any environmental concerns or uncertainties your agency may have with the project.
(2) Comments you wish to make regarding the merits of the project.
(3) Identification of any missing information or application submittals that will preclude you from providing conditions and mitigations for this project in the future.
(4) Your proposed conditions of approval and/or mitigations for this project.

After reviewing this application, please respond to the planner with your *marked* response below:

[ ] Conditions will be provided and no further information is necessary.
[ ] Conditions will be provided and additional information is necessary.
[ ] Comments and/or concerns.
[ ] No comments or conditions.

Responsible agencies under CEQA are requested to indicate whether permits will be required for this project.

Your comments will be appreciated by April 17, 2026, and should be sent to the attention of:

CPH26-0005, Robert Pennington (Robert.Pennington@sonomacounty.gov). The Project Planner can also be reached at (707) 565-1352. **If no response is received by April 17, 2026, it will be assumed that no comments or conditions will be provided.**

Please send a copy of your comments to the applicant(s) or their representatives as indicated on the attached Planning Application.

[X] Grading and Storm Water
[X] Management Group
[X] Natural Resources
[X] Dist. 5 Director and Commissioners
[X] Trans Authority/RCPA
[X] Transit/BPAC
[X] Caltrans-State Dept of Transportation
[X] Local Fire District – Monte Rio FPD
[X] Recology Sonoma Marin (Disposal)
[X] State Coastal Commission – Appealable? Yes
[X] State Dept of Fish and Wildlife
[X] Regional Water QCB: North Coast
[X] U.S. Army Corps of Engineers
[X] Sonoma MOAG
[X] Tribal Notification

Planning Application
PJR-001

Application Type(s):

- ☐ Admin Cert. Compliance
- ☐ Ag. or Timber Preserve/Contract
- ☐ Conditional Cert. of Compliance
- ☐ Cert. of Modification
- ☒ Coastal Permit
- ☐ Zoning Permit for: _____
- ☐ Design Review Admin.
- ☐ Design Review Full
- ☐ General Plan Amendment
- ☐ Lot Line Adjustment
- ☐ Major Subdivision
- ☐ Minor Subdivision
- ☐ Voluntary Merger
- ☐ Ordinance Interpretation
- ☐ Second Unit Permit
- ☐ Specific/Area Plan Amendment
- ☐ Use Permit
- ☐ Variance
- ☐ Zone Change
- ☐ Other: _____

File # _____

By placing my contact information (name, address, phone number, email address, etc.) on this application form and submitting it to Sonoma County PRMD, I understand and authorize PRMD to post this application to the internet for public information purposes, including my contact information.

PRINT CLEARLY

APPLICANT			OWNER (IF OTHER THAN APPLICANT)		
Name	Ernest Ricioli		Name	Gloria Keller	
Mailing Address	2220 Laughlin Road		Mailing Address	745 Nebraska Drive	
City	Windsor	State CA Zip 95492	City	Santa Rosa	State CA Zip 95405
Day Ph	(707) 528-7525	Email ernierici@aol.com	Day Ph	(707) 484-5019	Email jmichaelkel@comcast.net
Signature		Date 3/11/26	Signature	Gloria Keller	Date 3-1-26

Billing Responsible Party (At-Cost Only) ☒ Applicant ☐ Owner ☐ Other: _____

OTHER PERSONS TO RECEIVE CORRESPONDENCE

Name/Title	Shannon Weese, North Bay Program Manager		Name/Title	Tyler Cole, Staff Geologist	
Mailing Address	1150 Industrial Ave, Suite C		Mailing Address	1150 Industrial Ave, Suite C	
City	Petaluma	State CA Zip 94952	City	Petaluma	State CA Zip 94952
Day Ph	(707) 773-1385 ext 73	Email shannonw@pacificwatershed.com	Day Ph	(707) 773-1385 ext 71	Email tylerc@pacificwatershed.com

PROJECT INFORMATION

Address(es): 28165 Hwy 116 — City: Jenner, CA

Assessor's Parcel Number(s): 097-150-004

Project Description: This project proposes to repair three identified bank failure locations along a streamside easement road through the Keller property (APN 097-150-004) that provides year-round access to the Ricioli residence (APN 097-150-003). The bank failures occurred at outside bends of mainstem Sheephouse creek where stream velocity is highest during periods of high flow. Proposed bank stabilization treatments are designed to enhance riparian and instream aquatic habitat complexity, reduce future sediment delivery, and restore and protect the stability of the stream banks. SEE BASIS OF DESIGN MEMO AND CONSTRUCTION PLANS

Acreage 0.18	Number of new lots proposed n/a
Site Served by Public Water? ☐ Yes ☒ No	Site Served by Public Sewer? ☐ Yes ☒ No

TO BE COMPLETED BY PRMD STAFF

Planning Area	Supervisorial District	☐ Critical Habitat ☐ Urban Service	Groundwater Availability	☐ 1 / 2 ☐ 3 / 4
Current Zoning		☐ NPDES ☐ Williamson Act		
		Specific/Area Plan	Subject to CEQA	☐ EX ☐ YES
General Plan Land Use		Parcel Specific Policy		
Application resolve planning violation? ☐ Yes ☐ No		Violation? ☐ Yes ☐ No	File No.	
Previous Files		Penalty application? ☐ Yes ☐ No		
Application accepted by		Date		
Approved by		Date		

Coastal Permit Application Requirements

PJR-035

PURPOSE:

The purpose of this form is to identify the information and materials to be submitted with a Coastal Permit application.

Coastal permits are required for development on parcels located within the Coastal Zone (parcels with "Coastal Combining" or "CC" on County zoning maps). Development is defined in the Sonoma County Coastal Zoning Ordinance, Section 26C-12. Some development projects may be exempted or excluded from a coastal permit requirement. Inquire at the Permit and Resource Management Department (PRMD), Zoning Cubicle, for more details.

PROCEDURE:

Coastal permits are processed either administratively without a hearing, or with a public hearing, typically by the Board of Zoning Adjustments. Examples of administrative reviews include residences on the east side of Highway 1 and residences within established communities. Examples of projects requiring public hearings include residences on the west side of Highway 1, subdivisions, use permits, and commercial and industrial proposals. Project referrals are sent to various agencies for review. Based on those responses and staff review, additional reports or information may be required (see p. 3 for examples). All coastal permit applications include public notice to neighbors in the vicinity of the subject property and other parties who have requested notice. Some coastal permits are appealable to the Coastal Commission, so they will not receive final approval until the end of an appeal period with the California Coastal Commission.

Often coastal permit applications that require a public hearing are also subject to environmental review in accordance with the California Environmental Quality Act (CEQA). Project Review staff will determine if environmental review is required for the proposed project. If environmental review is required, staff will prepare an initial study to determine if there are potential environmental impacts. If no significant environmental impacts will result from the proposed project, a Negative Declaration will be prepared by staff. If potential environmental impacts are identified during the preparation of the initial study, mitigations will be established to reduce those impacts to a less than significant level.

REQUIRED APPLICATION MATERIALS:

The following items are required to process coastal permit applications. Your application will not be accepted unless all required materials are provided.

1. **Completed application form PJR-001.** The application must be signed by the applicant and property owner.

2. **Proposal statement.** This should be a one or two page letter fully describing the current use of the property and how you propose to change it. This should include information regarding the kind of use, the structures proposed, magnitude or size of the use, the intensity of the use and the frequency of the use. Discuss changes in noise, traffic and site appearance that will result from the proposal, quantified where possible. Indicate any planned future use beyond the present proposal. In addition, applicants must complete the attached Supplemental Information pages.

3. **Site plan.** Provide three full-sized site plans (either 24 in. X 36 in. or 11 in. X 17 in.).

All plans must be legible, drawn to scale and folded to 8 ½ in. x 11 in. Preparation of the required site plan by a draftsperson, architect, landscape architect or engineer is strongly recommended. If the existing site is to be significantly modified by the proposed project (i.e. removal of existing buildings, extensive grading and removal of vegetation), both an existing site plan and a proposed site plan should be submitted.

Site plans must include the following:

- Name, address and telephone number of applicant and draftsperson.
- Scale, north arrow, and dimensions of all property lines. (An engineer's scale of 1 in. = 10 ft. or 20 ft. is recommended to clearly show the development area). For larger parcels, a vicinity map may be used to depict the entire property.
- Location and identification of all existing and proposed buildings, structures, etc., including their dimensions and distances to property lines. Identify land uses on adjacent properties and depict buildings, structures, etc. within 50 ft. of the subject property.
- Location, width, name and status (public or private) of all existing and proposed roads and easements lying within, adjacent to or serving the site, showing route of access from the road.
- Location of streams, ditches, drainage facilities and other water courses, ponding areas, or areas subject to periodic inundation.
- Lines indicating the direction of slope and approximate percent of grade. Topographic lines are recommended.
- Location of any existing or proposed wells and septic systems including distances to waterways, drainage courses, cut/fill areas, structures and roadways.
- Location and dimensions of all parking areas and driveways from adjacent roadways.
- Locate and Identify all existing trees in the development area. The following trees greater than 9 inches diameter at breast height are protected by the Sonoma County Tree Protection Ordinance: big leaf maple, black oak, blue oak, coast live oak, interior live oak, madrone, oracle oak, Oregon oak, redwood, valley oak and California bay. If the project is of such a large scale that it is not possible to identify all protected trees, the dripline of tree masses with species identified shall be shown on the site plan. More detailed information may be required during processing of the application.

4. **Reduced site plan.** Provide one reduced-size site plan (8 ½ in. X 11 in.). This reduced site plan must clearly depict the information shown on the full-sized site plan.

5. **Preliminary architectural plans.** Provide three full-sized copies of all architectural elevations and floor plans. Structural plans are not required until application is made for building permits. The elevations must identify the type and color of the roof and other exterior materials. All mechanical equipment, exterior lights, trash enclosures and other exterior structures must be shown on these plans. A section is required for each structure showing the location of natural grade underneath the structure; the building's height must be identified on the section (measured from the average of the highest and lowest points of the lot covered by the structure to the topmost point of the roof).

6. **Location/vicinity map**. Provide one 8 ½ in. X 11 in. location/vicinity map (locator map or road map) showing where the project is located in relation to nearby lots, streets, highways and/or major natural features.

7. **Assessor's parcel map.** Provide one 8 ½ in. X 11 in. copy of the current Assessor's Parcel Map with the project site shown. Maps may be obtained from the County Assessor's Office or PRMD.

8. **USGS quad map with the site outlined.** Provide one 8 ½ in. X 11 in. excerpt of a USGS quad map with the project site identified. Maps may be obtained from PRMD. Check current fee schedule for cost.

9. **Architectural Review Committee.** Construction of new homes in subdivisions of Bodega Harbor, Sereno Del Mar, Timber Cove, and The Sea Ranch are subject to **architectural review** by the homeowner's association. Evidence of such approval must accompany this application.

10. **Preliminary grading and drainage plans.** Preliminary grading and drainage plans are often required. The grading plan prepared by a registered civil engineer should show existing and proposed contours, the amount of proposed excavation and fill (in cubic yards) and any necessary deposition sites, on or offsite. Drainage plans should show drainage patterns for all runoff from the site, location of drainage swales, ditches, and culverts, and the size of all drainage structures. The plan should also describe how grading will be conducted so as to minimize erosion during and after construction.

11. **Stormwater Management Submittals**. Provide description of stormwater management including runoff, treatment, drainage, and flood control. If applicable, provide location of existing wetlands and measures to avoid. An alternative analysis should be required demonstrating why the wetlands cannot be avoided.

12. **Filing fee.** See current PRMD Project Review fee schedule.

ADDITIONAL REQUIREMENTS:

The following are examples of additional reports or information that may be required in order for PRMD to complete the processing of your application for a Coastal Permit. Applicants will be notified by their assigned Project Review planner if such reports or information is required.

1. **Archaeological Report.** Required for all projects where the Sonoma State University Northwest Information Center recommends that a survey be performed.

2. **Biotic Report.** Required if an endangered species, Environmentally Sensitive Habitat Area (ESHA), stream, creek, wetland, or sand dune occupies any portion of the site or is within 300 feet of development.

3. **Landscape Plan.** Required where the project is visible from a designated Scenic Resource area, a scenic corridor, or public view area to screen the project.

4. **Story Pole Placement.** Required for projects within designated Scenic Resource areas, scenic corridors, or visible from public areas.

5. **Water/Sewer Service Letter.** Must be included with the application if water or sewer services are proposed to be provided by a service district, public agency, or community system.

6. **Geotechnical Investigation.** For development within 100 feet of a bluff or in an area of high geologic hazard, a comprehensive, site-specific geology and soils report must be submitted in accordance with the Interpretive Guidelines adopted by the Coastal Commission (Geologic Stability of Blufftop Development). Copies of the guidelines are available at PRMD. The report must determine what there will be no significant impact from grading, site preparation, drainage, leachfields and foundation plans.

Coastal Permit Application
Supplemental Information

PURPOSE:

This form is to be completed by applicants in order to provide additional information regarding a Coastal Permit application. The more details that are provided, the easier it will be to promptly process the Coastal Permit application. Please answer all questions. Indicate "Not Applicable" or "N/A" for those questions which do not pertain to the proposed project. It is important that applicants provide complete answers to all questions.

1. Are there existing structures or improvements on the property? ☑ Yes ❑ No
   If yes, describe below and identify the use and size of each structure or improvement.

   n/a - No proposed work to existing residence or existing outbuildings.

2. Describe the project and include structure sizes(s) (in square feet), improvements such as wells, septic systems, grading, vegetation removal, roads, driveways, propane tanks, oil tanks, water storage tanks, solar panels, etc.

   This project proposes to repair three identified bank failure locations along a streamside easement road through the Keller property (APN 097-150-004) that provides year-round access to the Ricioli residence (APN 097-150-003), located along the east bank of Sheephouse Creek.

   See Excavation Table: Grading Plans, Sheet G-1 for estimated project disturbance area.

3. Is any grading or road/driveway construction planned? ☑ Yes ❑ No (Work will occur at 3 locations along the existing driveway)

   Estimate the amount of grading in cubic yards: (See Excavation Table: Sheet G-1)

   If greater than 50 cubic yards or if greater than 2 feet of cut or 1 foot of fill will result, a grading plan and permit will be required. ✓ GRD23-0132

   Estimate the length of the proposed road/driveway: _____ feet.

   work will occur at 3 locations along the existing 0.25 mi driveway:
   Site 1: 85 ft road length
   Site 2: 35 ft road length
   Site 3: 50 ft road length
   Total: 170 ft road length
   (See grading plan sheets)

4. Will vegetation be removed on areas other than the building sites and roads?
   ❑ Yes ☑ No

   If yes, explain: _____

5. Are there any water courses, anadromous fish streams, sand dunes, rookeries, marine mammal haul-out areas, wetlands, riparian areas, rare or endangered plants, animals or habitat which support rare and endangered species located on the project site or within 100 feet of the project site? If yes explain:

The three project sites are located along the east bank of Sheephouse Creek. See attached biological resources review memo from Swift Biological.

6. How many trees will be removed to implement the project: _____. Indicate on the site plan all trees to be removed which are greater than 9 inches in diameter (measured four feet from the ground). If applicable, please indicate on the site plan the size, location and species of all on-site trees that provide screening from public view areas.

7. Will the proposed development be visible from:

❑ A. State Highway 1? ❑ Yes ☑ No
❑ B. Other Scenic Corridor? (see list below) ❑ Yes ☑ No
❑ C. Park, beach, or recreation area? ❑ Yes ☑ No

If you answered yes, explain _____

Scenic Corridors: Stewarts Point-Skaggs Springs Road, Fort Ross Road, Myers Grade/Seaview Road, Highway 116, Willow Creek (paved portion), Coleman Valley Road, Bay Hill Road, Bodega Highway and Petaluma-Valley Ford Road.

8. Height of structure(s) in feet (measured from average grade to the highest point of the structure). Identify height of building(s) on architectural elevations:

All proposed work is underground and along the streambanks.

9. Describe all exterior materials and colors of all proposed structures

Siding material n/a Color _____

Trim material n/a Color _____

Chimney material n/a Color _____

Roofing material n/a Color _____

Window frame material n/a Color _____

Door material n/a Color _____

Fencing material n/a Color _____

Retaining wall material n/a Color _____

Other exterior materials n/a Color _____

10. Will there be any new exterior lighting? ❑ Yes ☑ No
If yes, provide lighting details and specifications for all exterior lighting fixtures. All lighting fixtures must be downcast and shielded to prevent light and glare beyond the parcel boundaries. Identify the location of all exterior lighting on the site plan or building plan.

_____

_____

_____

_____

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

Total square footage of all structures: n/a

Estimated employees per shift: _____

Estimated shifts per day: _____

Type of loading facilities proposed: _____

Will the proposed project be phased? ❑ Yes ❑ No

If Yes, explain your plans for phasing: _____

_____

_____

_____

_____

Parking will be provided as follows: n/a

Number of Spaces:

Existing: _____ Proposed: _____ Total: _____

Number of standard spaces: _____ Size: _____

Number of handicapped spaces: _____ Size: _____

12. What will be the method of sewage disposal?
❑ Community sewage system, specify _____

❑ Septic Tank (indicate primary and replacement leachfields on plot plan)

❑ Other, specify n/a

13. What will be the domestic water source?

❑ Community water system, specify supplier: _____

❑ Well ❑ On-site ❑ Off-site

❑ Spring ❑ On-site ❑ Off-site

❑ Other, specify n/a

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

Electricity:

❑ Utility Company (service exists to the parcel)
❑ Utility Company requires extension of services to site: _____ feet _____ miles
❑ On Site generation, Specify: _____
☑ None

Gas:

❑ Utility Company/Tank
☑ None

SHEEPHOUSE CREEK BANK-FAILURE ASSESSMENT AND DESIGN PROJECT

PROJECT LOCATION: 28165 HWY 116, JENNER, CA 95450
SONOMA COUNTY APN 097-150-004

PROJECT OBJECTIVE

TO STABILIZE AND RESTORE ERODING STREAMBANK ALONG SHEEPHOUSE CREEK, AN IMPORTANT SALMONID BEARING STREAM, TO ITS PREVIOUS LOCATION USING METHODS THAT ENHANCE AQUATIC AND RIPARIAN HABITAT. EXISTING CONCRETE BLOCKS WILL BE REMOVED AND BOULDER-BALLASTED WOOD STRUCTURES (LOGS AND LOGS WITH ROOTWADS) WILL BE INSTALLED AT THREE PROJECT SITES. SHALLOW WATER AND OVERHANGING BANK HABITAT, AS WELL AS LOW-VELOCITY AREAS, ARE SOME OF THE ECOLOGICAL BENEFITS PROVIDED BY THESE WOOD STRUCTURES. IN-STREAM OBSTRUCTIVE FEATURES ALSO CONTRIBUTE TO THE CREATION OF SCOUR POOLS AND AGGRADATION ZONES, BOTH OF WHICH ENHANCE HABITAT VARIABILITY AND HELP MAINTAIN A FUNCTIONING FLUVIAL ECOSYSTEM.

PREPARED FOR

ERNIE RICIOLI
2740 LAUGHLIN RD
WINDSOR, CA 95492
ERNIERICI@AOL.COM (707) 337-0598

WILLIAM RICIOLI
2200 LAUGHLIN RD
WINDSOR, CA 95492
BILLRICI@AOL.COM (707) 292-2205

EXCAVATION TABLE	CUT (CY)	FILL - RSP, BALLAST, & NATIVE BACKFILL (CY)	NET EARTHWORK (CY RSP)	POTENTIAL DISTURBANCE AREA (SQFT)
SITE 1	35	60	25	3,850
SITE 2	15	45	30	1,600
SITE 3	65	80	15	2,250
TOTAL	115	185	70	7,700

*NOTE: EXCAVATION VALUES ARE APPROXIMATIONS AND EXACT EARTHWORK AMOUNTS ARE SUBJECT TO CHANGE DEPENDING ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. THE 1.5" ROAD ROCK USED TO RESTORE INCIDENTAL DAMAGES TO THE ROAD WAS NOT INCLUDED IN THESE EARTHWORK CALCULATIONS.

GRADING PERMIT NUMBER: GRD23-0132

PROPERTY OWNER CONTACT INFORMATION

GLORIA KELLER C/O MICHAEL KELLER
JMICHAELKEL@COMCAST.NET
(707) 484-5019

100% DESIGN SUBMITTAL

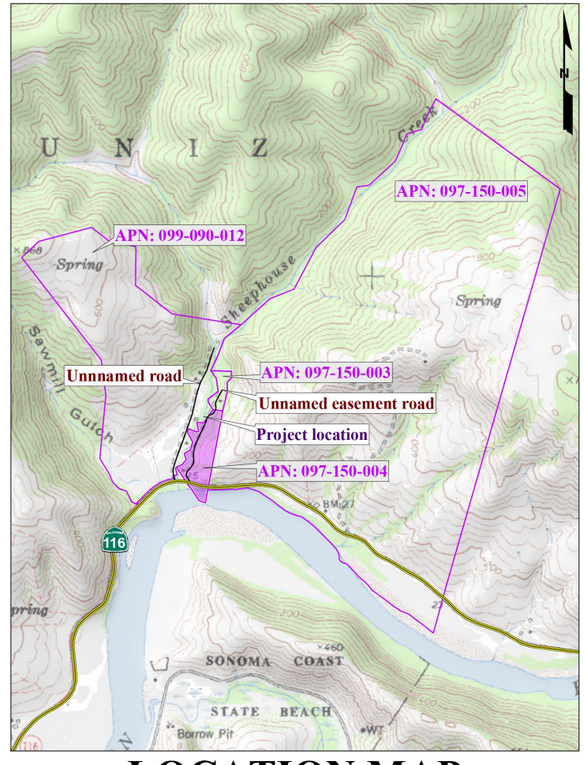
SHEET INDEX

VICINITY MAP

NOT TO SCALE

SURVEY DATUM

HORIZONTAL COORDINATES AND VERTICAL ELEVATIONS ARE RELATIVE TO ARBITRARY VERTICAL DATUM.



LOCATION MAP

USGS 7.5 MINUTE QUADRANGLE
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

PACIFIC WATERSHED ASSOCIATES, INC.
P.O. BOX 4433
ARCATA, CALIFORNIA 95518
PH: (707) 839-5130 FX: (707) 839-8168
www.pacificwatershed.com

DRAWING DESCRIPTION: COVER PAGE & SHEET INDEX

PROJECT LOCATION: SHEEPHOUSE CREEK SONOMA COUNTY, CA

PWA JOB NO.: 10456

G-1

P:\CAD\10456_Sheephouse_Creek\10456_Sheephouse_Creek_Updated.dwg

GENERAL NOTES

1. THE CONTRACTOR SHALL HAVE SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
2. THE CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT EXCAVATION, GRADING, AND FILL WORK IS CONSISTENT WITH ALL APPLICABLE PERMITS, THE CALIFORNIA BUILDING CODE, CALIFORNIA FISH AND GAME CODE, CALIFORNIA WATER CODE, AND OTHER LOCAL CODES AND REQUIREMENTS.
3. A COPY OF THE PLANS, SPECIFICATIONS, AND ALL PERMITS SHALL BE KEPT ON-SITE AT ALL TIMES WHEN EXCAVATION AND CONSTRUCTION WORK ARE ONGOING.
4. IF GROUND DISTURBANCE WILL OCCUR BETWEEN OCTOBER 15 AND MAY 15, THE MATERIALS CALLED OUT IN THE EROSION CONTROL PLAN SHALL BE PRESENT ON SITE BEFORE EXCAVATION COMMENCES. THE CONTRACTOR IS RESPONSIBLE FOR MONITORING WEATHER AND IMPLEMENTING THE BEST MANAGEMENT PRACTICES (BMPS) SPECIFIED IN THE EROSION CONTROL PLAN. BMPS SHALL BE IN PLACE NO LESS THAN 24 HOURS PRIOR TO A PREDICTED RUNOFF GENERATING STORM (>0.1 INCHES OF PRECIPITATION). THE CONTRACTOR SHALL BE SOLELY LIABLE FOR VIOLATIONS OF ENVIRONMENTAL PERMITS AND CODES RESULTING FROM FAILURE TO IMPLEMENT BMPS IN A TIMELY MANNER.
5. THE CONTRACTOR SHALL IDENTIFY THE EXCAVATION BOUNDARIES AND DIRECTIONS TO THE EXCAVATION AREA USING WHITE PAINT IN ACCORDANCE WITH THE REQUIREMENTS OF USA NORTH 811. NOTIFICATION TO USA NORTH 811 SHALL BE MADE NO LESS THAN 2 WORKING DAYS AND NOT MORE THAN 14 CALENDAR DAYS BEFORE DIGGING COMMENCES. USA NORTH 811 MEMBERS WILL IDENTIFY THE LOCATIONS OF UNDERGROUND UTILITIES ONCE THE CONTRACTOR RECEIVES A USA TICKET NUMBER BY CALLING 811 OR APPLYING ONLINE AT HTTP://USANORTH811.ORG/. IF THERE IS UNCERTAINTY REGARDING THE LOCATION OF UNDERGROUND UTILITIES WITHIN THE PERIMETER OF THE EXCAVATION AREA, THE CONTRACTOR SHALL HIRE A QUALIFIED PRIVATE UTILITY LOCATING SERVICE.
6. IF OVERHEAD UTILITIES ARE PRESENT, THE CONTRACTOR SHALL DETERMINE IF THE UTILITIES WILL INTERFERE WITH EQUIPMENT OPERATIONS. IF OVERHEAD UTILITIES COULD POTENTIALLY INTERFERE WITH EQUIPMENT OPERATIONS, THE CONTRACTOR SHALL PROVIDE A SPOTTER WHO SHALL BE CAPABLE OF COMMUNICATING CLEARANCE DISTANCES AND UNSAFE CONDITIONS TO THE EQUIPMENT OPERATOR.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL DAMAGE TO OVERHEAD AND UNDERGROUND UTILITIES. IN THE EVENT OVERHEAD OR UNDERGROUND UTILITIES ARE DAMAGED THE CONTRACTOR SHALL CEASE EXCAVATION AND CALL 911 IMMEDIATELY.
8. IN THE EVENT THAT ARCHAEOLOGICAL RESOURCES ARE ENCOUNTERED DURING EXCAVATION, ALL EXCAVATION WORK SHALL CEASE UNTIL A QUALIFIED ARCHAEOLOGICAL OR TRIBAL MONITOR IS CONSULTED. EXCAVATION WORK SHALL RESTART ONLY UPON THE APPROVAL OF THE QUALIFIED ARCHAEOLOGIST OR TRIBAL MONITOR. IF HUMAN REMAINS OR EVIDENCE OF HUMAN BURIAL ARE ENCOUNTERED THE CONTRACTOR SHALL ALSO CONTACT THE COUNTY CORONER.
9. IF HAZARDOUS MATERIALS, DRUMS, OILY LIQUIDS, UNUSUALLY ODORS, OR EVIDENCE OF NATURALLY OCCURRING ASBESTOS IS ENCOUNTERED DURING EXCAVATION, WORK SHALL CEASE AND THE CONTRACTOR SHALL CONTACT THE ENGINEER AS SOON AS POSSIBLE. EXCAVATION SHALL RESUME ONLY UPON THE APPROVAL OF THE ENGINEER.
10. MATERIAL STORAGE AND HANDLING PROCEDURES SHALL CONFORM WITH THE MANUFACTURER'S RECOMMENDATIONS AND/OR THE INDUSTRY'S GENERALLY ACCEPTED BEST MANAGEMENT PRACTICES.
11. DETAILS AND NOTES ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES OR TYPICAL DETAILS.
12. DRAWINGS SHALL NOT BE SCALED. DRAWINGS ARE GENERALLY TO SCALE AND NOT TO SCALE IS SHOWN ONLY WHERE DRAWING IS OBVIOUSLY OUT OF SCALE. WRITTEN DIMENSIONS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER GRAPHICAL SCALES SHOWN ON DRAWINGS.
13. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
14. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A CLEAN, SAFE, AND ORDERLY JOB SITE.
15. ANY TEMPORARY CONSTRUCTION ACCESS ROUTES SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS ONCE WORK IS COMPLETED.
16. THE GENERAL CONTRACTOR SHALL THOROUGHLY INVESTIGATE THE SITE AFTER CLEARING AND GRUBBING IS COMPLETE AND BEFORE CONSTRUCTION COMMENCES. IF BURIED STRUCTURES SUCH AS CULVERTS, WOODY DEBRIS, FOUNDATIONS, CESSPOOLS, OR LARGE ROCKS ARE ENCOUNTERED, CONSTRUCTION SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
17. THE ENGINEER SHALL NOT BE HELD LIABLE FOR CONSTRUCTION SITE SAFETY MATTERS, THE CONTRACTOR'S AND THEIR SUBCONTRACTORS ERRORS AND OMISSIONS, NOR FOR FAILURE OF THE CONTRACTOR AND THEIR SUBCONTRACTOR'S FAILURE TO ADHERE TO THE CONSTRUCTION CONTRACT, SPECIFICATIONS, AND DRAWINGS.
18. ELEVATIONS SHOWN ON THE DRAWINGS ARE RELATIVE TO THE LOCAL GROUND CONDITIONS AND TEMPORARY BENCHMARKS WERE ESTABLISHED FOR THE PURPOSE OF CONSTRUCTION.
19. THE CLIENT SHALL BE RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FOR CONSTRUCTION. PACIFIC WATERSHED ASSOCIATES SHALL NOT BE LIABLE FOR ANY FINES, FEES, OR VIOLATIONS DUE TO CONSTRUCTION COMPLETED WITHOUT THE REQUIRED PERMITS.
20. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MINIMIZE EROSION AND PREVENT THE DELIVERY OF SEDIMENT OR OTHER POLLUTANTS TO SURFACE WATERS OR OTHER SENSITIVE AREAS.
21. WORK WILL BE CONDUCTED DURING DRY WEATHER PERIODS WHEN ALL GRADING, EROSION CONTROL, AND SITE STABILIZATION MEASURES CAN BE IMPLEMENTED PRIOR TO RAINFALL.
22. CONTRACTOR SHALL KEEP PROJECT AREAS GENERATING DUST WATERED DURING THE TERM OF CONSTRUCTION.
23. SOLID WASTE, SUCH AS TRASH, DEBRIS, AND SANITARY WASTE SHALL BE PLACED IN CONTAINERS AND REMOVED FROM THE SITE PERIODICALLY OR DISPOSED OF AS DIRECTED BY THE LANDOWNER.
24. IF RAINFALL GREATER THAN 1 INCH IN A 24 HOUR PERIOD IS FORECAST PRIOR TO THE COMPLETION OF GRADING, OR IF ACCUMULATED PRECIPITATION HAS MADE FILL MATERIALS UNSUITABLE FOR COMPACTION AND STABLE CONSTRUCTION, THE SITE WILL BE STABILIZED AND PROTECTED FROM SURFACE EROSION. PLASTIC SHEETING WILL BE USED TO COVER ALL FILL STOCKPILES AND UNFINISHED SLOPES AND SECURED BY PLACEMENT OF MULTIPLE HEAVY OBJECTS.

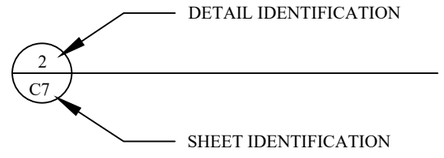
INSPECTIONS

1. EXCAVATION
3. LARGE WOOD STRUCTURE INSTALLATION
4. FINISHED GRADE
5. EROSION CONTROL MEASURES

LEGEND

- 1+00 — ALIGNMENT STATIONING (FEET)
- 10 — EXISTING CONTOUR WITH ELEVATION
- 10 — PROPOSED CONTOUR WITH ELEVATION
- LIMIT OF GRADING
- LIMIT OF DISTURBANCE
- SURVEY CONTROL POINT
- 2 / C7 — SECTION LABEL (DETAIL #, SHEET #)
- LOG (HORIZONTAL/SKEWED INTO PAGE)
- LOG WITHOUT ROOTWAD
- LOG WITH ROOTWAD
- RIPARIAN PLANTING ZONE
- TEMPORARY STAGING/STOCKPILE AREA

PROFILE/SECTION LABELS



ABBREVIATIONS

APPROX, ~	APPROXIMATELY
CA	CALIFORNIA
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CP	CONTROL POINT (SURVEY)
CY	CUBIC YARDS
DIA	DIAMETER
EG	EXISTING GRADE
EL	ELEVATION
<E>	EXISTING
FG	FINISHED GRADE
FT	FOOT OR FEET
LOD	LIMIT OF DISTURBANCE
MAX/MIN	MAXIMUM/MINIMUM
NTS	NOT TO SCALE
PT#	POINT NUMBER
<P>	PROPOSED
RD	ROAD
STA	STATION
SF	SQUARE FEET
TYP	TYPICAL
(3 : 1)	(HORIZONTAL:VERTICAL)

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

SPECIAL NOTE

FACING ROCK, OR EXPOSED ROCK SLOPE PROTECTION SHALL BE AESTHETICALLY PLEASING OR MATCH NEARBY NATIVE MATERIAL.

ANY IMPACT TO MRS. KELLER'S PROPERTY OUTSIDE THE AREA OF WORK WILL BE MITIGATED AND RETURNED TO ITS NATURAL CONDITION.

ESTIMATED QUANTITIES FOR INFORMATIONAL PURPOSES ONLY

POTENTIAL DISTURBANCE AREA FOR ALL THREE SITES: 7,700 SQFT

	DESCRIPTION	UNIT	EST. QTY.
ESTIMATE OF QUANTITIES	Min. 15' x 20" DBH REDWOOD (NO ROOTWAD)	EACH	4
	22' x 24" DBH REDWOOD (NO ROOTWAD)	EACH	1
	25' x 24" DBH REDWOOD (NO ROOTWAD)	EACH	6
	12' x 24" DBH REDWOOD (WITH ROOTWAD)	EACH	12
	25' x 24" DBH REDWOOD (WITH ROOTWAD)	EACH	1
	24" MINUS ROCK (IMPORTED)	CY	70
	24" MINUS ROCK (REPURPOSED)	CY	25
	3/4" MINUS CLASS 2 AGGREGATE BASE	CY	50

*1.5" MINUS AGGREGATE BASE IS AN INCIDENTAL CONSTRUCTION MATERIAL TO BE USED ONLY IF THE EXISTING ROAD IS DISTURBED DURING CONSTRUCTION AND REQUIRES REPAIR.

DATE 3/6/2026 | NOTES PREPARED BY PWA | FIGURES CREATED BY PWA

PACIFIC WATERSHED ASSOCIATES

PACIFIC WATERSHED ASSOCIATES, INC.
P.O. BOX 4433
ARCATA, CALIFORNIA 95518
PH: (707) 839-5130 FX: (707) 839-8168
www.pacificwatershed.com

DRAWING DESCRIPTION: CONSTRUCTION NOTES

PROJECT LOCATION: SHEEPHOUSE CREEK SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-1

P:\CAD\10456_Sheephouse_Creek\10456_Sheephouse_Creek_Updated.dwg

SURVEY NOTES

1. TOPOGRAPHIC DATA COLLECTED USING LEICA TCRA 1101 PLUS TOTAL STATION.
2. DATES OF SURVEY 12/18/20 AND 12/19/2020.
3. SURVEY PERSONNEL: RS, KS, OC
4. CONTOUR INTERVAL = 1 FT. ALL ELEVATIONS RELATIVE TO ARBITRARY VERTICAL DATUM.
5. THIS IS NOT A BOUNDARY SURVEY AND DOES NOT MEET THE LEGAL REQUIREMENTS OF A BOUNDARY SURVEY AS DESCRIBED IN PROFESSIONAL LAND SURVEYORS' ACT.
6. ALL SURVEY CONTROL POINTS ARE NAILS IN THE GROUND.

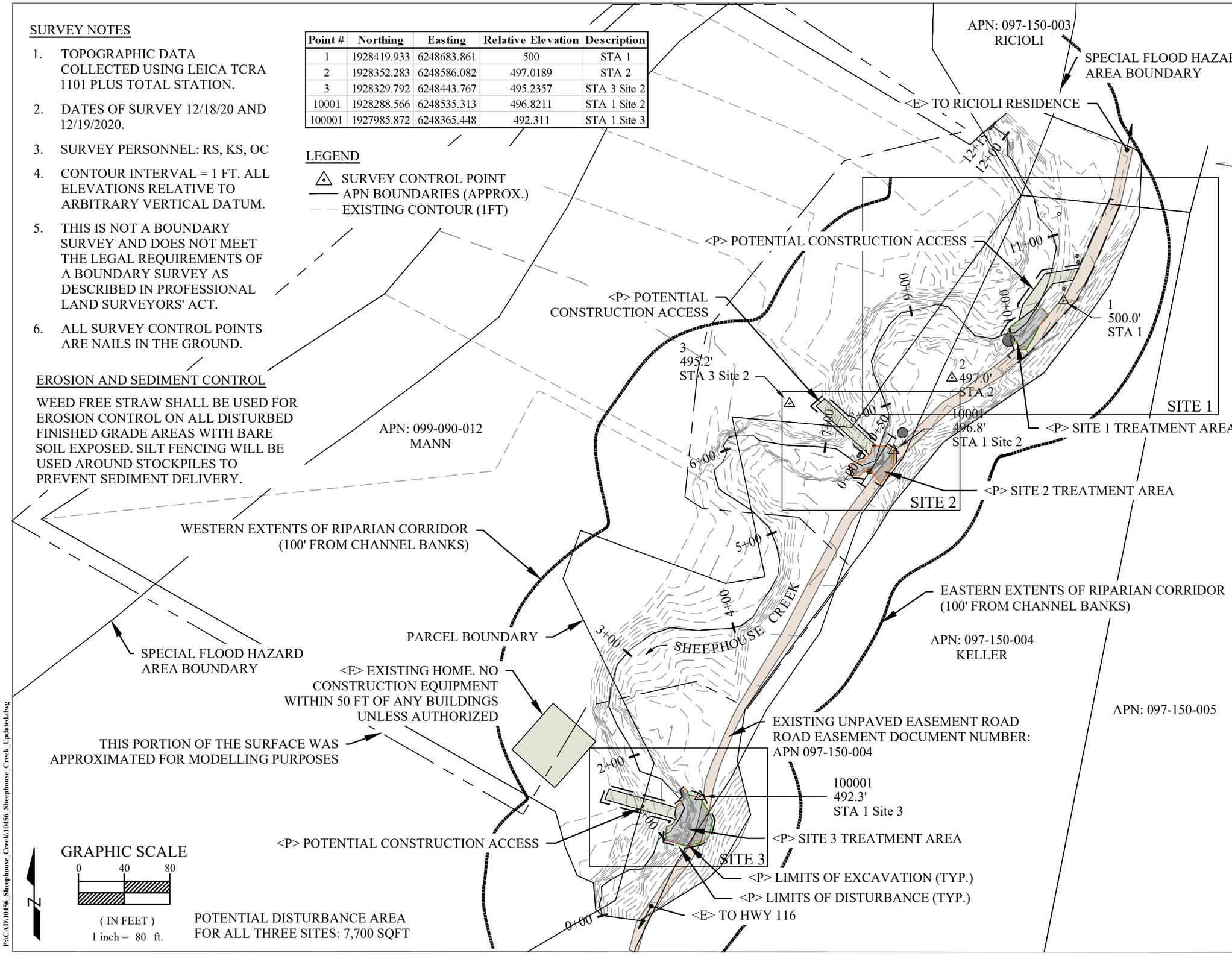
EROSION AND SEDIMENT CONTROL

WEED FREE STRAW SHALL BE USED FOR EROSION CONTROL ON ALL DISTURBED FINISHED GRADE AREAS WITH BARE SOIL EXPOSED. SILT FENCING WILL BE USED AROUND STOCKPILES TO PREVENT SEDIMENT DELIVERY.

Point #	Northing	Easting	Relative Elevation	Description
1	1928419.933	6248683.861	500	STA 1
2	1928352.283	6248586.082	497.0189	STA 2
3	1928329.792	6248443.767	495.2357	STA 3 Site 2
10001	1928288.566	6248535.313	496.8211	STA 1 Site 2
100001	1927985.872	6248365.448	492.311	STA 1 Site 3

LEGEND

- SURVEY CONTROL POINT
- APN BOUNDARIES (APPROX.)
- EXISTING CONTOUR (1FT)



REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION: OVERVIEW

PROJECT LOCATION: SHEEPHOUSE CREEK SONOMA COUNTY, CA

PWA JOB NO.: 10456

PG 3 OF 16

C-2

P:\CAD\10456_Sheephouse_Creek\10456_Sheephouse_Creek_Updated.dwg

GRAPHIC SCALE

0 10 20

(IN FEET)

1 inch = 20 ft.

1 FT CONTOUR INTERVALS

LEGEND

- SURVEY CONTROL POINT
- APN BOUNDARIES (APPROX.)
- EXISTING CONTOUR (1FT)

APN: 099-090-012
MANN

APN: 097-150-003
RICIOLI

APN: 097-150-004
KELLER

APN: 097-150-005

PARCEL BOUNDARY

<E> RETAIN SILL LOG

<E> RETAIN FALLEN ALDER, 12-18" DIA.

<E> ALDER, 12-18" DIA.

<E> FALLEN ALDER, 12-18" DIA.TO
BE REPURPOSED IF POSSIBLE

<E> ~25 CY ROCK SLOPE
PROTECTION TO BE REPURPOSED

<E> STUMP, TO BE REPURPOSED

<E> 5' DIA. STUMP, UPRIGHT

<E> UNPAVED ROAD

<E> SPECIAL FLOOD HAZARD
AREA BOUNDARY

11+00

10+00

9+00

8+00

SHEEPHOUSE CREEK

498 494 493 495 496 500 497 492 505 580

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
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FIGURES CREATED BY PWA

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DRAWING DESCRIPTION:
SITE 1
EXISTING CONDITIONS

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-3

P:\CAD\10456_Sheephouse_Creek\10456_Sheephouse_Creek_Updated.dwg

NOTES

EXACT STRUCTURE PLACEMENT MAY VARY FROM PLANS DUE TO FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. ANY ADAPTATIONS MUST BE APPROVED BY THE ENGINEER OR THEIR DESIGNATED REPRESENTATIVE.

SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM PLANS DEPENDING UPON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.

BRACING USING EXISTING TREES OR INSTALLED VERTICAL PILES WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE STABILITY.

FILLER LOGS AND TREE TOPS WILL BE INSTALLED AT "RACKING" LOCATIONS TO EMULATE NATURAL DEBRIS ACCUMULATIONS.

COLOR AND SHAPE OF PURCHASED RIP RAP SHOULD MIMIC NATIVE MATERIALS AS CLOSELY AS POSSIBLE.

DISTURBANCE AREA WILL BE KEPT TO A MINIMUM AND SITE AESTHETICS SHALL BE PRESERVED AS MUCH AS POSSIBLE.

FOR ANCHORING OPTIONS SEE SHEET C-12.

~~~~

1 FT CONTOUR INTERVALS.

APN: 099-090-012
MANN

APN: 097-150-003
RICIOLI

APN: 097-150-004
KELLER

APN: 097-150-005

<P> POTENTIAL WATER DIVERSION LOCATION, SEE SHEET C-13 FOR DETAILS

<P> TEMPORARY STAGING/STOCKPILING LOCATION ALONG ROAD WITHIN DISTURBANCE AREA

<E> BAY, 18-24" DIA.

<P> ANY DISTURBED BANK RESULTING FROM CONSTRUCTION ACCESS IS TO BE RESTORED TO ITS ORIGINAL SHAPE AND MULCHED

<E> RETAIN ALDER, 18-24" DIA.

<P> 50 CY OF 24" MINUS RIP RAP PLACED TO PROTECT BANK. (INCLUDES ~25 CY REPURPOSED)

<P> RESTORED BANK SLOPE ~1:1

<P> BACKFILL WITH SLASH AND 24" MINUS ROCK, REPLANT WITH NATIVE WOODY PLANTS

<P> ROTATE EXISTING STUMP 180 DEGREES SO THE ROOTWAD FACES THE CREEK

<P> IF ROAD SURFACE IS DAMAGED AS A RESULT OF CONSTRUCTION, RESTORE ROAD TO ORIGINAL GRADE AND WIDTH. RESURFACE WITH 6" MAXIMUM LAYER OF 1.5" MINUS ROCK IF NEEDED.

<E> RETAIN 5' DIA. STUMP, UPRIGHT

<E> SPECIAL FLOOD HAZARD AREA BOUNDARY

SHEEPHOUSE CREEK

1+00 · 8+00 · 9+00 · 10+00 · 11+00 · 0+00

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 20 ft.

LEGEND
- LIMIT OF DISTURBANCE
- LIMIT OF GRADING
- APN BOUNDARIES
- EXISTING CONTOURS
- POTENTIAL CONSTRUCTION ACCESS ROUTE

POTENTIAL DISTURBANCE AREA: 3,850 SQFT

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION:
SITE 1
PROPOSED SITE PLAN

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-4

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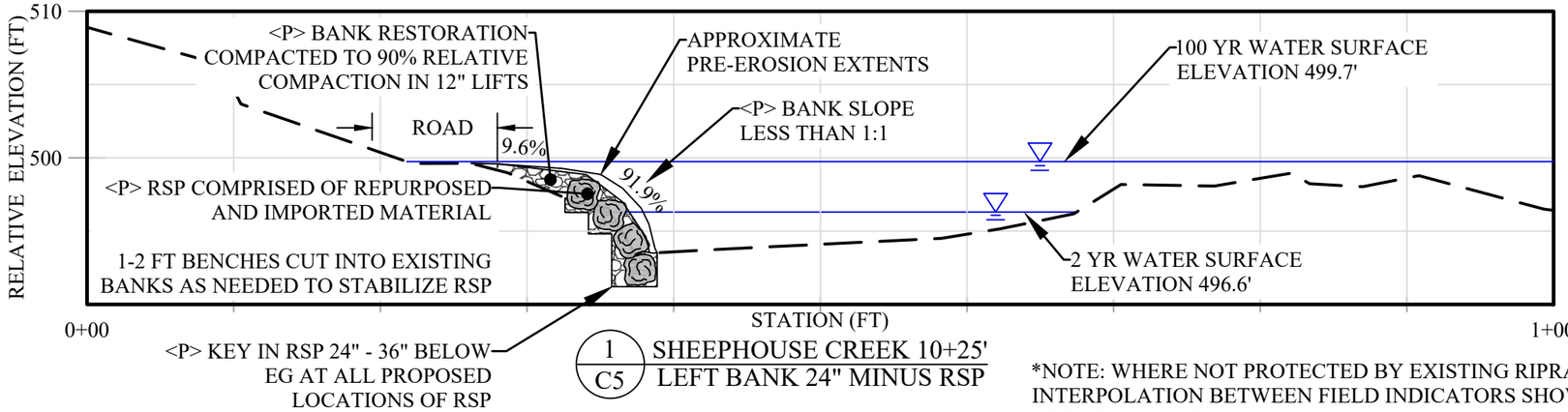
EXISTING GRADE

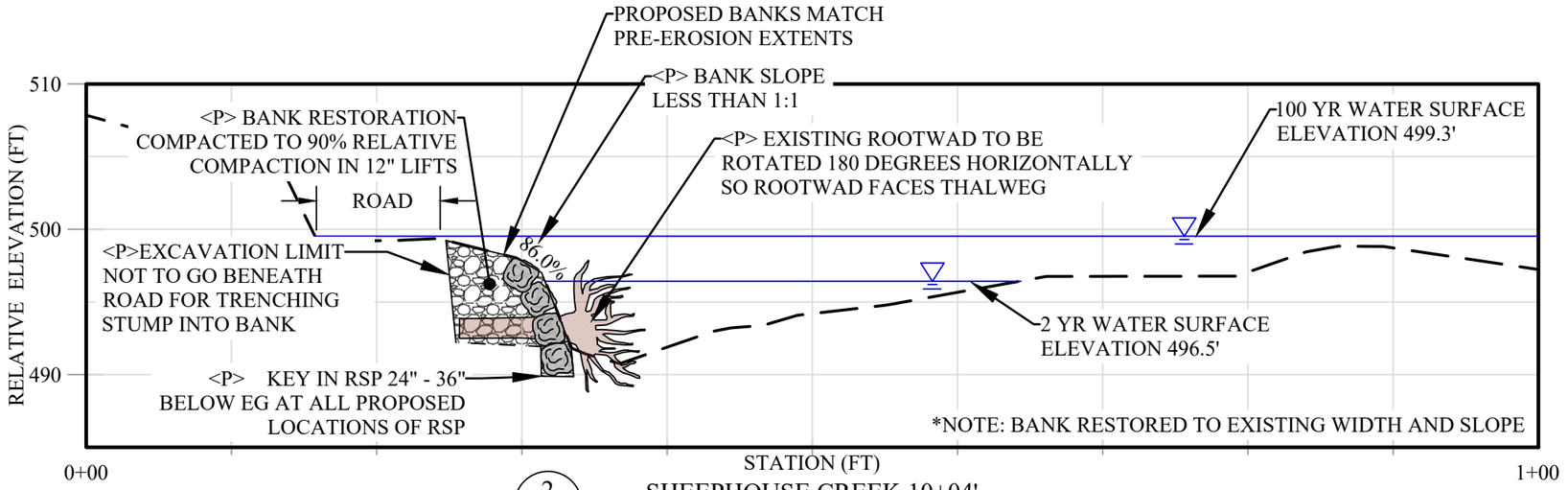
PROPOSED GRADE



1 / C5 SHEEPHOUSE CREEK 10+25'
LEFT BANK 24" MINUS RSP

*NOTE: WHERE NOT PROTECTED BY EXISTING RIPRAP, INTERPOLATION BETWEEN FIELD INDICATORS SHOW ±2' BANK EROSION IN RECENT YEARS.

BANK RESTORED ~1.5'. NO EXPANSION OF ROAD WIDTH ALLOWED.



2 / C5 SHEEPHOUSE CREEK 10+04'
STUMP WITH ROOTWAD AND BALLAST

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 10'

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REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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www.pacificwatershed.com

DRAWING DESCRIPTION:
SITE 1
SECTIONS

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-5

GRAPHIC SCALE

0 5 10

(IN FEET)

1 inch = 10 ft.

N

1 FOOT CONTOUR INTERVALS

LEGEND

- SURVEY CONTROL POINT
- APN BOUNDARIES (APPROX.)
- EXISTING CONTOUR (1FT)

APN: 099-090-012
MANN

APN: 097-150-004
KELLER

PARCEL BOUNDARY

8+00

7+00

<E> RETAIN FALLEN CHANNEL-SPANNING ALDER, 12-18" DIA.

<E> RETAIN FLOODPLAIN WOODY DEBRIS WITH ROOTWAD, 18-22" DIA.

<E> RETAIN WOODY DEBRIS, 12-18" DIA.

<E> RETAIN (2) ALDERS, 8-10" DIA.

<E> RETAIN APPROX. 5' DIA. REDWOOD

S H E E P H O U S E C R E E K

<E> SPECIAL FLOOD HAZARD AREA BOUNDARY

<E> RETAIN BAY TREE CLUSTER

<E> RETAIN FLOODPLAIN WOODY DEBRIS ~6" DIA.

<E> UNPAVED ROAD

490 491 492 493 495 500

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION:
SITE 2
EXISTING CONDITIONS

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-6

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NOTES

EXACT STRUCTURE PLACEMENT MAY VARY FROM PLANS DUE TO FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. ANY ADAPTATIONS MUST BE APPROVED BY THE ENGINEER OR THEIR DESIGNATED REPRESENTATIVE.

SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM PLANS DEPENDING UPON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.

BRACING USING EXISTING TREES OR INSTALLED VERTICAL PILES WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE STABILITY.

FILLER LOGS AND TREE TOPS WILL BE INSTALLED AT "RACKING" LOCATIONS TO EMULATE NATURAL DEBRIS ACCUMULATIONS.

COLOR AND SHAPE OF PURCHASED RIP RAP SHOULD MIMIC LOCAL MATERIALS AS CLOSELY AS POSSIBLE.

DISTURBANCE AREA WILL BE KEPT TO A MINIMUM AND SITE AESTHETICS SHALL BE PRESERVED AS MUCH AS POSSIBLE.

FOR ANCHORING OPTIONS SEE SHEET C-12.

~~~

1 FT CONTOUR INTERVALS.

APN: 097-150-004
KELLER

APN: 099-090-012
MANN

8+00

<P> ROAD TO BE UTILIZED AS TEMPORARY STAGING/STOCKPILING LOCATION

<E> RETAIN FLOODPLAIN WOOD

<P> POTENTIAL WATER DIVERSION LOCATION, SEE SHEET C-13 FOR DETAILS

<E> RETAIN APPROX. 5' DIA. REDWOOD

<P> ANY DISTURBED BANK RESULTING FROM CONSTRUCTION ACCESS IS TO BE RESTORED TO ITS ORIGINAL SHAPE AND MULCHED

<E> 6-8" ALDER TBR

0+50

2
C8

7+00

S H E E P H O U S E C R E E K

<E> 4" ALDER TBR

<P> TRENCHED 22' X 24" DIA SCOUR LOG WITHOUT ROOTWAD, TOP ELEVATION 490'. DRIVEN INTO BANK AND ROOTS OF BAY CLUSTER FOR STABILITY.

<E> SPECIAL FLOOD HAZARD AREA BOUNDARY

<P> RESTORED BANK SLOPE ~1:1

<P> 30 CY OF 24" MINUS RSP,WITH GENERAL FILL INCLUDING SLASH, AND BACKFILL. REVEGETATE WITH NATIVE WOODY PLANTS

<E> RETAIN FLOODPLAIN WOOD

<P> 25' X 24" DIA. REDWOOD WITH ROOTWAD TRENCHED INTO BANK.

1
C8

<E> RETAIN BAY CLUSTER

0+00

<P> (2) 12' X 24" DIA. REDWOOD WITH ROOTWAD TRENCHED INTO BANK

<P> ROAD TO BE UTILIZED AS TEMPORARY STAGING/STOCKPILING LOCATION AS NEEDED

<P> IF ROAD SURFACE IS DAMAGED AS A RESULT OF CONSTRUCTION, RESTORE ROAD TO ORIGINAL GRADE AND WIDTH. RESURFACE WITH 6" MAXIMUM LAYER OF 1.5" MINUS ROCK IF NEEDED.

GRAPHIC SCALE
0 5 10
(IN FEET)
1 inch = 10 ft.

N

LEGEND

- LIMIT OF DISTURBANCE
- LIMIT OF GRADING
- APN BOUNDARIES
- EXISTING CONTOURS
- POTENTIAL CONSTRUCTION ACCESS ROUTE

POTENTIAL DISTURBANCE AREA: 1,600 SQFT

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REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION:
SITE 2
PROPOSED SITE PLAN

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-7
~~~
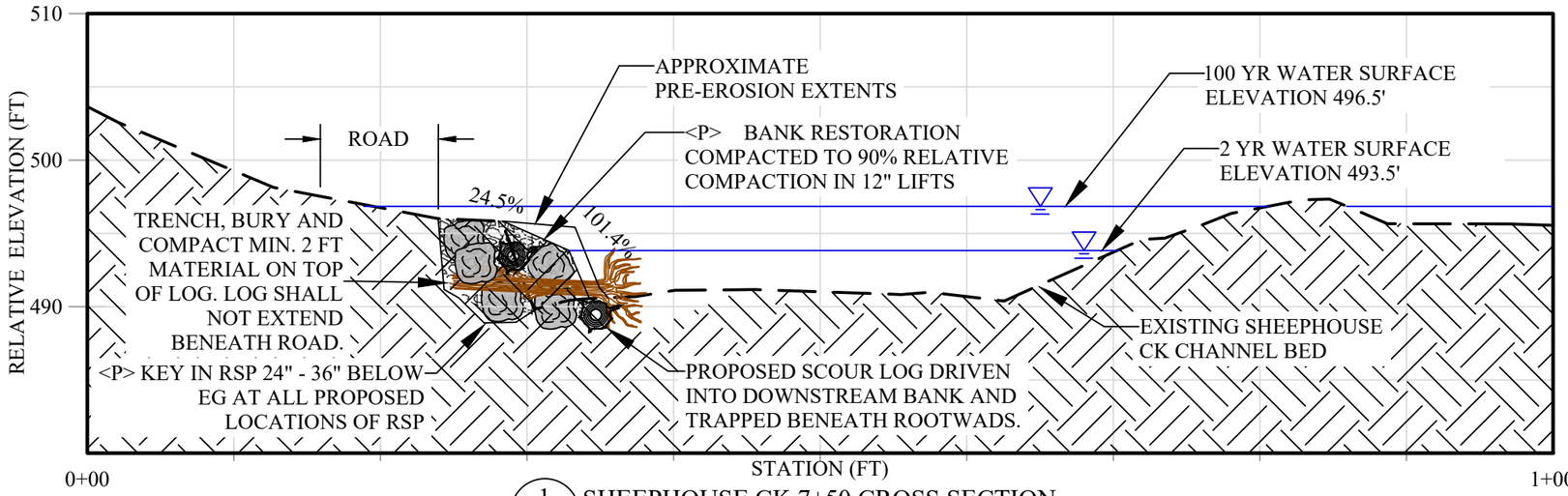

EXISTING GRADE

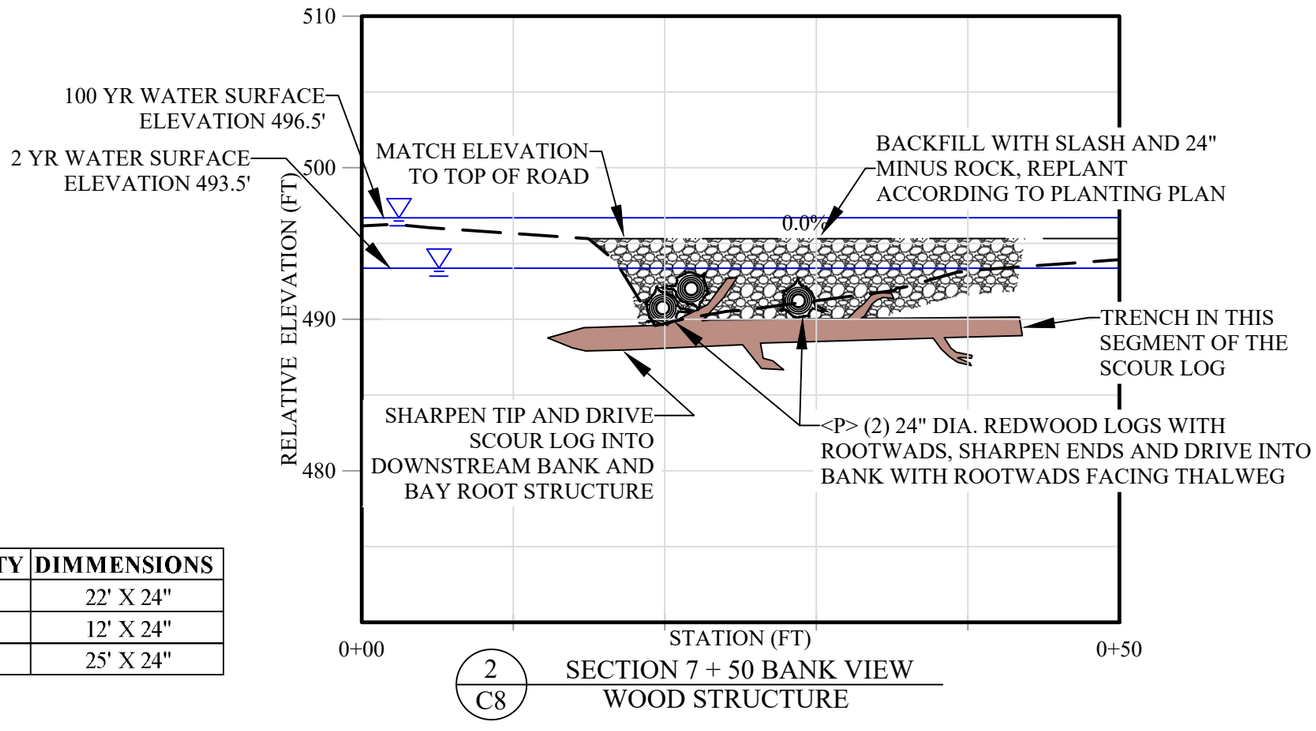
PROPOSED GRADE



1 / C8 SHEEPHOUSE CK 7+50 CROSS SECTION
WOOD STRUCTURE

*NOTE: INTERPOLATION BETWEEN FIELD INDICATORS SHOW 4-5 FT BANK EROSION IN RECENT YEARS.

BANK RESTORED ~4'. NO EXPANSION OF ROAD WIDTH ALLOWED.



2 / C8 SECTION 7 + 50 BANK VIEW
WOOD STRUCTURE

LOG TYPE	QUANTITY	DIMMENSIONS
FOOTER	1	22' X 24"
UPSTREAM ROOTWAD	2	12' X 24"
DOWNSTREAM ROOTWAD	1	25' X 24"

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 10'

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION: SITE 2 SECTIONS

PROJECT LOCATION: SHEEPHOUSE CREEK SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-8

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GRAPHIC SCALE
0 5 10
(IN FEET)
1 inch = 10 ft.
1 FOOT CONTOUR INTERVALS

N

2+00

<E> RETAIN FALLEN ALDER, ~16-18" DIA.

<E>RETAIN FALLEN ALDER, ~12" DIA.

<E> LOG BARRIER TO BE RESTORED TO ORIGINAL LOCATION

<E> ELDERBERRY

PARCEL BOUNDARY

APN: 099-090-012
MANN

APN: 097-150-004
KELLER

<E> ROCK SLOPE PROTECTION TO BE REPURPOSED AS BACKFILL IN CRIB WALL

<E> 4" ALDER TBR

<E> CONCRETE SLAB TO BE REMOVED

<E> 7" ALDER TBR

S H E E P H O U S E C R E E K

<E> RETAIN STUMP

<E> UNPAVED ROAD

<E> SPECIAL FLOOD HAZARD AREA

<E> RETAIN (3) 10-12" DIA ALDERS

490 485 500 495

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

PACIFIC WATERSHED ASSOCIATES

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PH: (707) 839-5130 FX: (707) 839-8168
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DRAWING DESCRIPTION:
SITE 3
EXISTING CONDITIONS

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-9

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NOTES

EXACT STRUCTURE PLACEMENT MAY VARY FROM PLANS DUE TO FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. ANY ADAPTATIONS MUST BE APPROVED BY THE ENGINEER OR THEIR DESIGNATED REPRESENTATIVE.

SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM PLANS DEPENDING UPON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.

BRACING USING EXISTING TREES OR INSTALLED VERTICAL PILES WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE STABILITY.

FILLER LOGS AND TREE TOPS WILL BE INSTALLED AT "RACKING" LOCATIONS TO EMULATE NATURAL DEBRIS ACCUMULATIONS.

COLOR AND SHAPE OF PURCHASED RIP RAP SHOULD MIMIC LOCAL MATERIALS AS CLOSELY AS POSSIBLE.

DISTURBANCE AREA WILL BE KEPT TO A MINIMUM AND SITE AESTHETICS SHALL BE PRESERVED AS MUCH AS POSSIBLE.

FOR ANCHORING OPTIONS SEE SHEET C-12.

~~~~

1 FT CONTOUR INTERVALS.

PARCEL BOUNDARY

APN: 099-090-012
MANN

APN: 097-150-004
KELLER

SHEEPHOUSE CREEK

<P> ROAD NORTH OF SITE 3 TO BE UTILIZED AS TEMPORARY STAGING/STOCKPILING LOCATION AS NEEDED

<E> RETAIN FALLEN ALDER, ~16-18" DIA.

<P> RETAIN FALLEN ALDER, ~12" DIA.

<P> POTENTIAL WATER DIVERSION LOCATION, SEE SHEET C-13 FOR DETAILS

<P> ANY DISTURBED BANK RESULTING FROM CONSTRUCTION ACCESS IS TO BE RESTORED TO ITS ORIGINAL SHAPE AND MULCHED

<P> APPROX. 70 CY 24" MINUS ROCK MIXED WITH NATIVE BACKFILL, RECOMPACT

<P> RESTORED BANK SLOPE ~1:1

<P> (2) 25' X 24" DIAMETER LOGS WITH TOP ELEVATION OF 482'

SPECIAL NOTE
LARGE WOOD CRIB WALL WILL BE CONSTRUCTED IN 5 LAYERS. EACH LAYER WILL HAVE VOIDS BACKFILLED WITH NATIVE MATERIAL.

<E> EXISTING LOG BARRIER

<P> (2) 25' X 24" DIAMETER LOGS WITH TOP ELEVATION OF 486'

<E> ELDERBERRY

<P> 5 CY OF 24" MINUS ROCK SLOPE PROTECTION

<P> (2) 25' X 24" DIAMETER LOGS WITH TOP ELEVATION OF 490'

<P> RIPARIAN PLANTING AREA

<P> (5) 12' X 24" DIAMETER LOGS WITH ROOTWADS WITH TOP ELEVATION OF 488', TYP.

<P> IF ROAD SURFACE IS DAMAGED AS A RESULT OF CONSTRUCTION, RESTORE ROAD TO ORIGINAL GRADE AND WIDTH. RESURFACE WITH 6" MAXIMUM LAYER OF 1.5" MINUS ROCK IF NEEDED.

C11

<P> (5) 12' X 24" DIA. LOGS WITH ROOTWADS WITH TOP ELEVATION OF 484', TYP.

<P> (4) 20" DIA. VERTICAL PILES, TYP.

<P> 2.5' DEEP WRAPPED SOIL LIFT PLANTED WITH NATIVE WOODY PLANTS

<P> 5 CY OF 24" MINUS ROCK SLOPE PROTECTION

<P>THIS SEGMENT OF ROAD BETWEEN HIGHWAY 116 AND SITE 3 IS NOT TO BE USED FOR STAGING/STOCKPILING, ONLY USE THE SEGMENT OF ROAD NORTH OF SITE 3 AS INDICATED ABOVE

1+00

485 485 490 495 500

GRAPHIC SCALE
0 5 10
(IN FEET)
1 inch = 10 ft.

N

LEGEND
- LIMIT OF DISTURBANCE
- LIMIT OF GRADING
- APN BOUNDARIES
- EXISTING CONTOURS
- POTENTIAL CONSTRUCTION ACCESS ROUTE

POTENTIAL DISTURBANCE AREA: 2,250 SQFT

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

PACIFIC WATERSHED ASSOCIATES

PACIFIC WATERSHED ASSOCIATES, INC.
P.O. BOX 4433
ARCATA, CALIFORNIA 95518
PH: (707) 839-5130 FX: (707) 839-8168
www.pacificwatershed.com

DRAWING DESCRIPTION:
SITE 3
PROPOSED SITE PLAN

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-10

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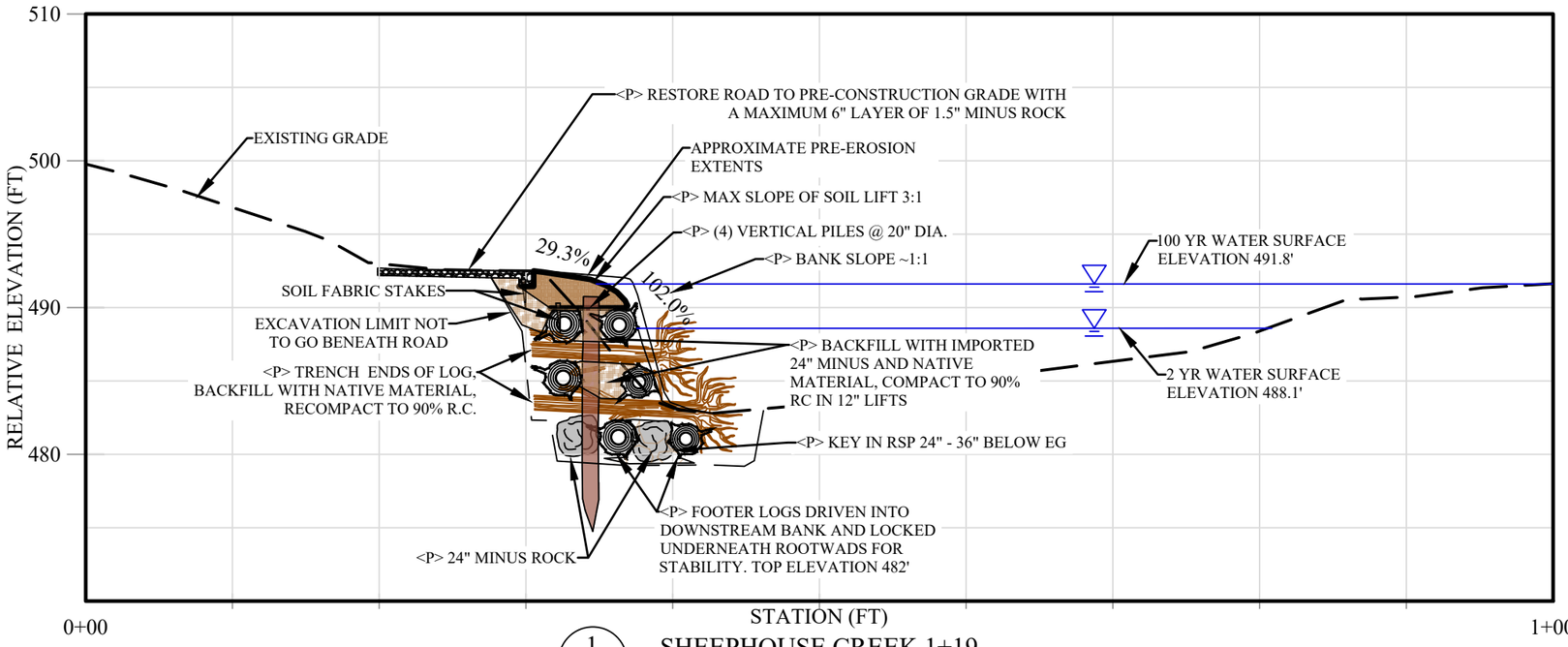
EXISTING GRADE

PROPOSED GRADE



1 / C11 SHEEPHOUSE CREEK 1+19
CRIB WALL WOOD STRUCTURE

LOG TYPE	QUANTITY	DIMMENSIONS
PILE	4	15' X 20"
FOOTER	6	25' X 24"
ROOTWAD	10	12' X 24"

*NOTE: INTERPOLATION BETWEEN FIELD INDICATORS SHOW ±6' BANK EROSION IN RECENT YEARS.

BANK RESTORED ~5'. NO EXPANSION OF ROAD WIDTH ALLOWED.

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 10'

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C 93662
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DRAWING DESCRIPTION:
SITE 3
SECTIONS

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-11

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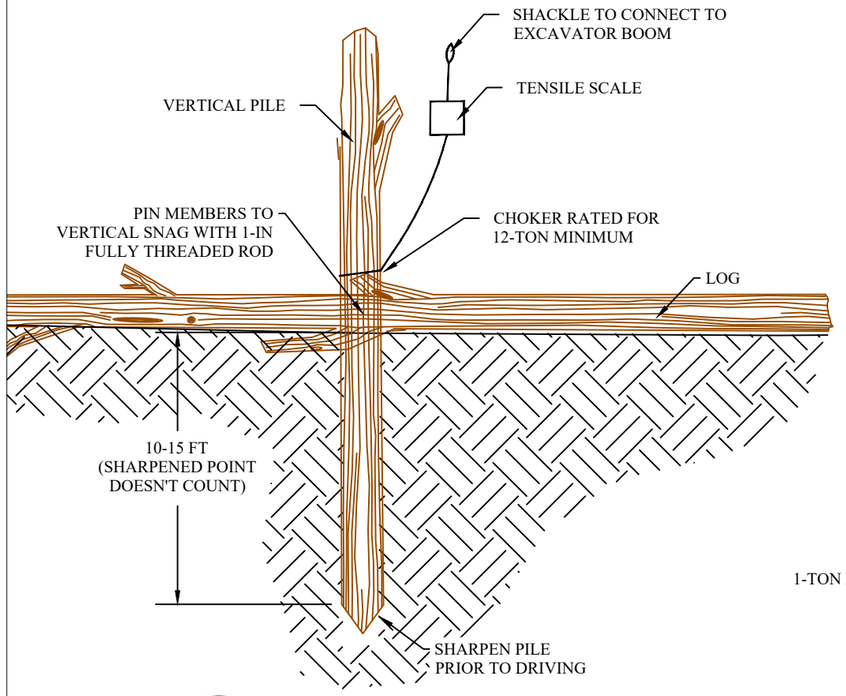
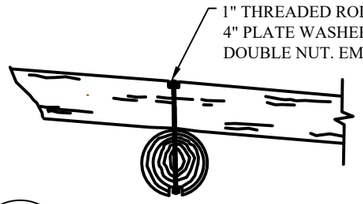
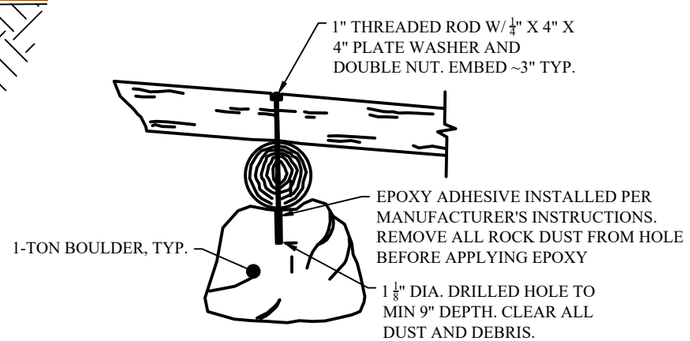


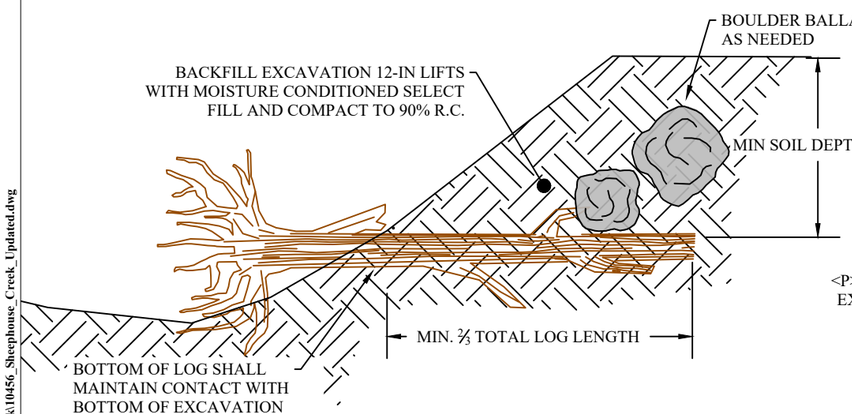
1 / C12 TYPICAL ANCHORING DETAIL
VERTICAL PILES OR DEADMAN
NOT TO SCALE



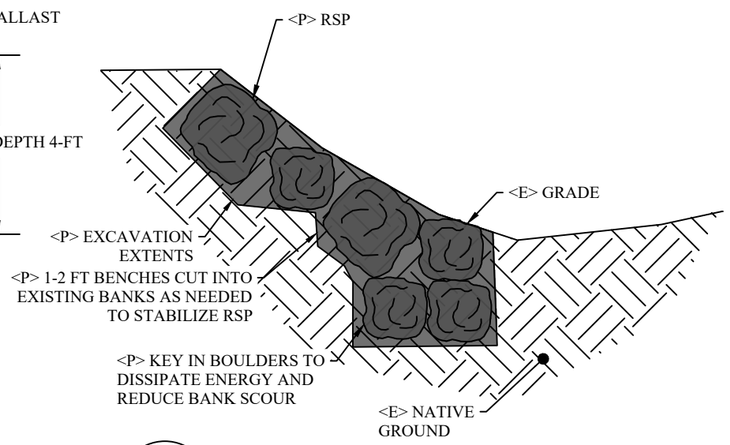
3 / C12 TYPICAL ANCHORING DETAIL
LOG TO LOG
NOT TO SCALE



4 / C12 TYPICAL ANCHORING DETAIL
LOG TO LOG TO BOULDER
NOT TO SCALE



2 / C12 TYPICAL ANCHORING DETAIL
BURIED LOG BALLAST
NOT TO SCALE



5 / C12 TYPICAL ANCHORING DETAIL
KEYING IN BOULDERS
NOT TO SCALE

LOG PILES

LOG PILES SHALL BE INSTALLED USING VIBRATORY PILE DRIVING EQUIPMENT.

INSTALLATION BY EXCAVATOR OR HAMMERING WILL NOT BE ALLOWED.

LOG PILES SHALL BE MINIMUM 10-INCH DIAMETER AT SCALED END.

DIAMETER OF LOG AT GRIP POINT SHALL BE WITHIN THE RANGE OF 12-14-INCH.

RIGGING
PILE TESTING RIGGING SHALL CONFORM TO THE TENSION SCALE MANUFACTURER'S RECOMMENDATIONS.
CHOKERS, CABLES, AND SHACKLES SHALL HAVE MINIMUM WORKING LOAD RATING OF 12 TONS. FITTINGS SHALL BE SIZED ACCORDINGLY.
PROOF TESTING
TESTING OF PILES SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER. EACH VERIFICATION TEST PILE SHALL BE TENSION LOAD TESTED TO 20,000 POUNDS, OR PULL OUT, WHICHEVER IS LESS.
LOAD TEST REQUIREMENTS:

1. 5,000 LB LOAD, 1 MIN HOLD TIME, 6-INCH MAX DEFLECTION
2. 10,000 LB LOAD, 1 MIN HOLD TIME, 6-INCH MAX DEFLECTION
3. 15,000 LB LOAD, 1 MIN HOLD TIME, 6-INCH MAX DEFLECTION
4. 20,000 LB LOAD, 2 MIN HOLD TIME, 6-INCH MAX DEFLECTION

EXCAVATOR CONDUCTING PULL OUT LOADING SHALL BE POSITIONED NO CLOSER THAN EMBEDMENT DEPTH OF PILE, IF POSSIBLE. LIMIT COMPRESSIVE LOADING OF THE TRACKS ON THE GROUND BY DRIVING THE EXCAVATOR ONTO LOGS LAID ON THE GROUND TO DISTRIBUTE THE WEIGHT OVER A LARGER AREA. PULL OUT RESISTANCE READING SHALL BE COMPARED AGAINST EXCAVATOR MAX LIFT OFFSET TABLE.
UP TO 10% OF INSTALLED PILINGS SHALL BE PROOF TESTED.

LOG BUOYANCY FORCE (LBS)			
ASSUMES WOOD SPECIFIC GRAVITY = 0.43			
DBH X LOG LENGTH (FT)	F_{bl}	SAFETY FACTOR 1.25	SAFETY FACTOR 1.5
1.5 X 40	2,490	3,113	3,735
2 X 40	4,420	5,525	6,630
2.5 X 40	6,910	8,638	10,365
3 X 40	9,950	12,438	14,925
1.5 X 50	3,110	3,888	4,665
2 X 50	5,530	6,913	8,295
2.5 X 50	8,630	10,788	12,945
3 X 50	12,430	15,538	18,645
1.5 X 60	3,730	4,663	5,595
2 X 60	6,630	8,288	9,945
2.5 X 60	10,360	12,950	15,540
3 X 60	14,920	18,650	22,380
ADDITIONAL ROOT WAD BUOYANCY FORCE (LBS)			
ESTIMATED BASED ON 35% VOID SPACE			
DIAMETER ROOT WAD	F_{bl}	SAFETY FACTOR 1.25	SAFETY FACTOR 1.5
4	575	719	863
6	1,300	1,625	1,950
8	2,300	2,875	3,450
10	5,400	6,750	8,100
12	7,800	9,750	11,700

WOOD PHYSICAL PROPERTIES REFERENCE TABLE		
SPECIES	DENSITY (LB/FT3)	SPECIFIC GRAVITY
REDWOOD	27.2	0.43
DOUGLAS FIR	32.0	0.50
SITKA SPRUCE	26.8	0.42

NOTE

ANCHORING METHODS AND OR ALTERNATIVE OPTIONS TO BE REVIEWED AND APPROVED BY ENGINEER

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION: ANCHORING DETAILS

PROJECT LOCATION: SHEEPHOUSE CREEK SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-12

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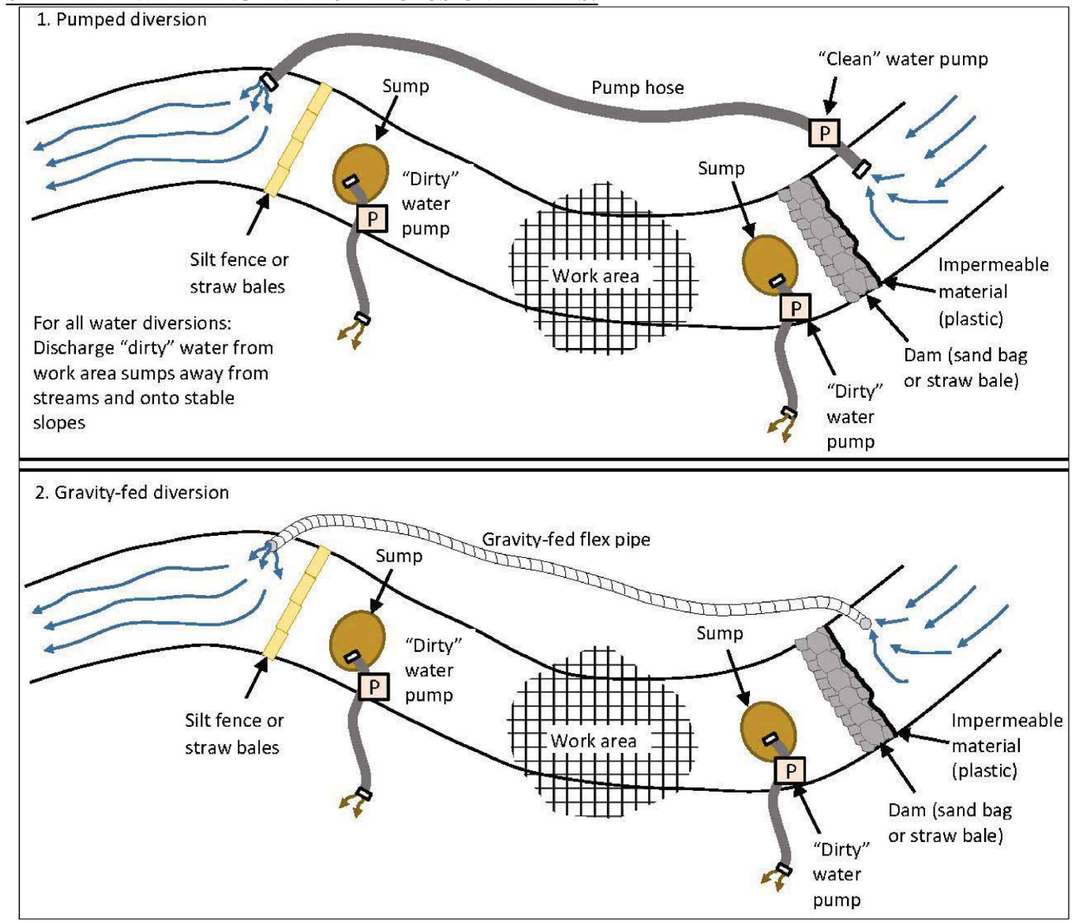
STREAM DEWATERING AND FISH EXCLUSION DETAILS:



GENERAL WATER POLLUTION CONTROL, FISH EXCLUSION AND WATER MANAGEMENT NOTES:

1) THE CONTRACTOR IS RESPONSIBLE TO IMPLEMENT THE PROJECT IN A MANNER THAT ELIMINATES THE DISCHARGE OF POLLUTANTS TO WATERS OF THE STATE OR SENSITIVE BIOLOGICAL AREAS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CLEAN-UP ASSOCIATED WITH WATER POLLUTION VIOLATIONS.

2) THE CONTRACTOR SHALL AT A MINIMUM IMPLEMENT THE PROJECT SPECIFIC WATER POLLUTION CONTROL BMPS DESCRIBED.

3) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT ADDITIONAL BMPS AS NECESSARY TO PREVENT THE DISCHARGE OF POLLUTANTS TO WATERS OF THE STATE OR SENSITIVE BIOLOGICAL AREAS.

4) DEPENDING ON BASE STREAM FLOW CONDITIONS WITHIN SHEEPHOUSE CREEK, THE PROJECT WILL LIKELY REQUIRE A CLEAR WATER DIVERSION AND FISH EXCLUSION FROM THE WORK SITE. THE CONTRACTOR WILL PROVIDE A QUALIFIED BIOLOGIST TO SET UP THE EXCLUSIONARY FENCING AND CONDUCT THE FISH EXCLUSION. HOWEVER, 2 WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR SHALL SUBMIT NOTICE OF INTENT TO BEGIN CONSTRUCTION TO ENGINEER AND THE LANDOWNER, AND SHALL NOT BEGIN ANY EARTHWORK UNTIL FISH EXCLUSION ACTIVITIES HAVE BEEN COMPLETED.

5) THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING ALL SUPPLIES AND MECHANICAL DEVICES (PUMPS, ETC.) NECESSARY TO EFFECTIVELY DEWATER THE WORK SITE DURING CONSTRUCTION ACTIVITIES.

6) BMPS SHALL BE APPLIED WHERE SHOWN ON THE MAP AND AT OTHER APPLICABLE LOCATIONS AS NECESSARY AT THE DISCRETION OF THE CONSTRUCTION MANAGER OR PROJECT ENGINEER/GEOLOGIST.

7) ALL SPOILS GENERATED BY THE PROJECT WILL EITHER BE HAULED OFF-SITE AND DISPOSED OF AT A LEGAL LOCATION OR WILL BE PLACED IN LIFTS ALONG FLOODPLAIN TERRACE SURFACES (<5% GRADE) WITH NO CHANCE FOR SEDIMENT DELIVERY AND WILL BE CONTOURED IN A MANNER TO DISPERSE RUNOFF. ALL SPOILS PLACED ON-SITE WILL BE MULCHED ACCORDING TO PROJECT SPECIFIC BMP REQUIREMENTS.

STREAM DEWATERING NOTES:

PRIOR TO WORKING IN AND AROUND THE ACTIVE STREAM CHANNEL, PROPER STREAM DEWATERING AND AVOIDANCE OF INCREASING DOWNSTREAM TURBIDITY SHOULD BE EMPLOYED. STREAM FLOWS WILL BE ISOLATED UPSTREAM OF THE WORK AREA USING COFFERDAMS AND CONVEYED DOWNSTREAM AROUND THE WORK SITE THROUGH EITHER A PUMPED DIVERSION (TYPE 1) AND/OR BY GRAVITY DIVERSION (TYPE 2) TO KEEP THE STREAM "LIVE" (FLOWING) BELOW THE WORK AREA. AN ADDITIONAL DAM WILL BE INSTALLED DOWNSTREAM OF THE WORK AREAS TO CAPTURE ANY SUBSURFACE FLOW THAT MIGHT TRAVEL THROUGH THE CONSTRUCTION AREA. ANY "DIRTY" WATER WILL BE COLLECTED AT THIS LOCATION AND PUMPED AWAY FROM THE SITE WHERE IT CAN INFILTRATE INTO THE GROUND WITHOUT THE POTENTIAL FOR CONNECTIVITY AND DELIVERY TO THE STREAM SYSTEM.

PROJECT SPECIFIC WATER POLLUTION AND EROSION CONTROL BMPS:

PROJECT SPECIFIC WATER POLLUTION CONTROL BMPS ARE DESCRIBED IN THE CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) BMP HANDBOOK FACT SHEETS. CASQA BMPS CHOSEN FOR THIS PROJECT INCLUDE AT A MINIMUM THE FOLLOWING:

EC-1, SCHEDULING WILL BE UTILIZED THROUGHOUT PROJECT PHASES TO ENSURE MAJOR EARTH DISTURBING ACTIVITIES OCCUR ONLY DURING NON-RAINY WEATHER.

EC-2, PRESERVATION OF EXISTING VEGETATION WILL BE IMPLEMENTED BY CLEARLY DELINEATING THE PROJECT BOUNDARIES.

EC-6, STRAW MULCH MAY BE USED AS NECESSARY TO PROTECT BARE SOIL AREAS INCLUDING CUT/FILL AREAS, STOCKPILES AND DISTURBED GROUND AS A RESULT OF CONSTRUCTION. ALL DISTURBED SOIL AREAS WITH THE POTENTIAL TO DELIVER SEDIMENT TO A WATERCOURSE VIA SURFACE EROSION PROCESSES WILL BE TREATED BY THE APPLICATION OF NATIVE EROSION CONTROL SEED AT A RATE OF 35#/ACRE, STRAW MULCH AT A RATE OF 4,000#/ACRE, AND WITH THE REMAINING SLASH MATERIALS PRODUCED FROM THE CLEARING AND GRUBBING ACTIVITIES.

EC-9, EARTH DIKES AND COFFER DAMS WILL BE USED AS NECESSARY TO DIVERT ACTIVE STREAMFLOW AROUND THE CONSTRUCTION AREA AT SPECIFIED LOCATIONS OR AS DIRECTED BY THE PROJECT ENGINEER OR GEOLOGIST.

EC-10, VELOCITY DISSIPATION DEVICES MAY BE USED AS NECESSARY AT STREAM DISCHARGE BYPASS OUTFALLS.

EC-12, STREAMBANK STABILIZATION MEASURES MAY BE USED ALONG ALL STREAMBANK DISTURBANCE ZONES AT SPECIFIED LOCATIONS OR AS DIRECTED BY THE PROJECT ENGINEER OR GEOLOGIST. STREAMBANK STABILIZATION MAY INCLUDE MATS, RSP OR BIOTECHNICAL MEASURES AS NECESSARY TO PROTECT THE FRESHLY DISTURBED STREAMBANKS FROM EROSION.

NS-2, DEWATERING OPERATIONS AND **NS-5**, CLEAR WATER DIVERSIONS MAY BE IMPLEMENTED AT SPECIFIED LOCATIONS OR AS DIRECTED BY THE CONSTRUCTION MANAGER IN ORDER TO DEWATER THE CONSTRUCTION AREA WHILE EXCAVATION ACTIVITIES ARE TAKING PLACE.

NS-6, ILLICIT CONNECTION/ILLEGAL DISCHARGE DETECTION AND REPORTING WILL BE COMPLETED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT.

NS-9, VEHICLE AND EQUIPMENT FUELING WILL BE CONDUCTED AT LEAST 100 FT FROM ANY STREAM, AND NS-10, VEHICLE AND EQUIPMENT MAINTENANCE WILL BE IMPLEMENTED IN A MANNER TO AVOID ANY RELEASE OF POTENTIAL POLLUTANTS.

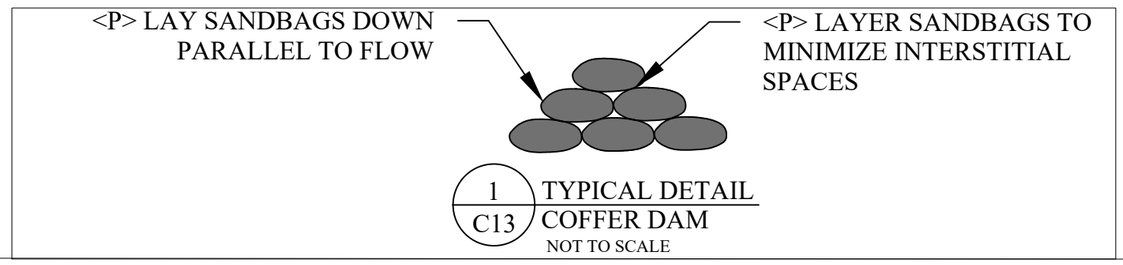
WM-1, MATERIAL DELIVERY AND STORAGE, **WM-2**, MATERIAL USE AND **WM-6**, HAZARDOUS WASTE MANAGEMENT WILL BE IMPLEMENTED TO PREVENT DISCHARGES OF CONSTRUCTION MATERIALS AND WASTES DURING DELIVERY, STORAGE AND USE.

WM-3, STOCKPILE MANAGEMENT BMPS WILL BE IMPLEMENTED TO REDUCE OR ELIMINATE STORMWATER POLLUTION RUNOFF FROM STOCKPILES OF SOIL, MULCH, AGGREGATES OR OTHER MATERIALS. **SE-1**, **SE-5** AND **SE-9** BMPS WILL BE APPLIED AS NECESSARY AT THE DISCRETION OF THE CONSTRUCTION MANAGER.

WM-4, SPILL PREVENTION AND CONTROL WILL BE IMPLEMENTED TO CONTAIN AND CLEAN UP SPILLS AND PREVENT MATERIAL DISCHARGES TO ANY STREAM OR WETLAND.

WM-5, SOLID WASTE MANAGEMENT BMPS REQUIRE THAT ANY SOLID WASTE BE CONTAINED IN A WATER TIGHT CONTAINER AND WILL BE LOADED DIRECTLY INTO TRUCKS FOR OFF-SITE DISPOSAL AT LEAST ON A WEEKLY BASIS.

WM-9, SANITARY/SEPTIC WASTE MANAGEMENT. IF SANITARY FACILITIES ARE NOT AVAILABLE ONSITE, PORTABLE TOILETS WILL BE BROUGHT IN AND WILL BE EMPTIED AT LEAST ON A WEEKLY BASIS.



1 / C13 TYPICAL DETAIL COFFER DAM
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION:
WATER POLLUTION & EROSION CONTROL BMPS

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-13

GRD-011 EROSION PREVENTION AND SEDIMENT CONTROL NOTES

THESE NOTES PROVIDE INFORMATION ON THE COUNTY'S REQUIREMENTS FOR EROSION PREVENTION AND SEDIMENT CONTROL DURING BUILDING AND CONSTRUCTION ACTIVITIES. VERSION: DECEMBER 16, 2020

A. PERFORM EROSION PREVENTION AND SEDIMENT CONTROL IN ACCORDANCE WITH CHAPTER 11 AND CHAPTER 11A OF THE SONOMA COUNTY CODE (SCC).

B. THE APPROVED PLANS SHALL CONFORM TO PERMIT SONOMA EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP's) GUIDE AS POSTED ON THE PERMIT SONOMA WEBSITE.

C. THE PROPERTY OWNER IS RESPONSIBLE FOR PREVENTING STORM WATER POLLUTION GENERATED FROM THE CONSTRUCTION SITE YEAR ROUND. WORK SITES WITH INADEQUATE EROSION PREVENTION AND/OR SEDIMENT CONTROL MAY BE SUBJECT TO A STOP WORK ORDER AND/OR ADDITIONAL INSPECTION FEES TO VERIFY COMPLIANCE WITH THE SCC.

D. IF DISCREPANCIES OCCUR BETWEEN THESE NOTES, MATERIAL REFERENCED ON THE APPROVED PLANS OR MANUFACTURER'S RECOMMENDATIONS, THEN THE MOST PROTECTIVE SHALL APPLY.

E. AT ALL TIMES THE PROPERTY OWNER IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH THE STATE OF CALIFORNIA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBING ACTIVITIES SUCH AS CLEARING, GRADING, EXCAVATION, STOCKPILING, AND RECONSTRUCTION OF EXISTING FACILITIES INVOLVING REMOVAL AND REPLACEMENT.

F. THE PROPERTY OWNER MUST IMPLEMENT AN EFFECTIVE COMBINATION OF EROSION PREVENTION AND SEDIMENT CONTROL ON ALL DISTURBED AREAS DURING THE RAINY SEASON (OCTOBER 1 - APRIL 30). GRADING AND DRAINAGE IMPROVEMENT SHALL BE PERMITTED DURING THE RAINY SEASON ONLY WHEN ON-SITE SOIL CONDITIONS PERMIT THE WORK TO BE PERFORMED IN COMPLIANCE WITH THE SCC.

G. DURING THE RAINY SEASON, STORM WATER BMPs REFERENCED OR DETAILED IN PERMIT SONOMA'S BMPs GUIDE SHALL BE IMPLEMENTED AND FUNCTIONAL ON THE SITE AT ALL TIMES AND THE AREA OF ERODIBLE LAND EXPOSED AT ANY ONE TIME DURING THE WORK SHALL NOT EXCEED ONE ACRE OR 20 PERCENT OF THE PERMITTED WORK AREA, WHICHEVER IS GREATER, AND THE TIME OF EXPOSURE SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE.

H. DURING THE NON-RAINY SEASON, ON ANY DAY WHEN THE NATIONAL WEATHER SERVICE FORECAST IS A CHANCE OF RAIN OF 30 PERCENT OR GREATER WITHIN THE NEXT 24 HOURS, STORM WATER BMPs REFERENCED OR DETAILED IN PERMIT SONOMA'S BMPs GUIDE SHALL BE IMPLEMENTED AND FUNCTIONAL ON THE SITE TO PREVENT SOIL AND OTHER POLLUTANT DISCHARGES. AT ALL OTHER TIMES, BMPS SHOULD BE STORED ON SITE IN PREPARATION FOR INSTALLATION PRIOR TO RAIN EVENTS.

I. EROSION PREVENTION AND SEDIMENT CONTROL BMPs SHALL BE INSPECTED BY THE PROPERTY OWNER BEFORE FORETASTED STORM EVENTS AND AFTER STORM EVENTS TO ENSURE BMPS ARE FUNCTIONING PROPERLY. EROSION PREVENTION AND SEDIMENT CONTROL BMPS THAT HAVE FAILED OR ARE NO LONGER EFFECTIVE SHALL BE PROMPTLY REPLACED. EROSION PREVENTION AND SEDIMENT CONTROL BMPs SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED.

J. THE LIMITS OF GRADING SHALL BE DEFINED AND MARKED ON SITE TO PREVENT DAMAGE TO SURROUNDING TREES AND OTHER VEGETATION. PRESERVATION OF EXISTING VEGETATION SHALL OCCUR TO THE MAXIMUM EXTENT PRACTICABLE. ANY EXISTING VEGETATION WITHIN THE LIMITS OF GRADING THAT IS TO REMAIN UNDISTURBED BY THE WORK SHALL BE IDENTIFIED AND PROTECTED FROM DAMAGE BY MARKING, FENCING, OR OTHER MEASURES.

K. CHANGES TO THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN MAY BE MADE TO RESPOND TO FIELD CONDITIONS IF THE ALTERNATIVE BMPs ARE EQUIVALENT OR MORE PROTECTIVE THAN THE BMPs SHOWN ON THE APPROVED PLANS. ALTERNATIVE BMPs ARE SUBJECT TO REVIEW AND APPROVAL BY PERMIT SONOMA STAFF.

L. DISCHARGES OF POTENTIAL POLLUTANTS FROM CONSTRUCTION SITES SHALL BE PREVENTED USING SOURCE CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SEDIMENT, TRASH, NUTRIENTS, PATHOGENS, PETROLEUM HYDROCARBONS, METALS, CONCRETE, CEMENT, ASPHALT, LIME, PAINT, STAINS, GLUES, WOOD PRODUCTS, PESTICIDES, HERBICIDES, CHEMICALS, HAZARDOUS WASTE, SANITARY WASTE, VEHICLE OR EQUIPMENT WASH WATER, AND CHLORINATED WATER.

M. ENTRANCE(S) TO THE CONSTRUCTION SITE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF POTENTIAL POLLUTANTS OFF SITE. POTENTIAL POLLUTANTS DEPOSITED ON PAVED AREAS WITHIN THE COUNTY RIGHT-OF- WAY, SUCH AS ROADWAYS AND SIDEWALKS, SHALL BE PROPERLY DISPOSED OF AT THE END OF EACH WORKING DAY OR MORE FREQUENTLY AS NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING CONSTRUCTION VEHICLES LEAVING THE SITE ON A DAILY BASIS TO PREVENT DUST, SILT, AND DIRT FROM BEING RELEASED OR TRACKED OFF SITE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AT THE END OF EACH WORKING DAY OR MORE OFTEN, AS NECESSARY.

N. ALL DISTURBED AREAS SHALL BE PROTECTED BY USING EROSION PREVENTION BMPS TO THE MAXIMUM EXTENT PRACTICABLE, SUCH AS ESTABLISHING VEGETATION COVERAGE, HYDROSEEDING, STRAW MULCH, GEOTEXTILES, PLASTIC COVERS, BLANKETS, OR MATS. TEMPORARY REVEGETATION SHALL BE INSTALLED AS SOON AS PRACTICAL AFTER VEGETATION REMOVAL, BUT IN ALL CASES PRIOR TO OCTOBER 1. PERMANENT REVEGETATION OR LANDSCAPING SHALL BE INSTALLED PRIOR TO FINAL INSPECTION.

O. WHENEVER IT IS NOT POSSIBLE TO USE EROSION PREVENTION BMPS ON EXPOSED SLOPES, SEDIMENT CONTROL BMPs SUCH AS FIBER ROLLS AND SILT FENCES SHALL BE INSTALLED TO PREVENT SEDIMENT MIGRATION. FIBER ROLLS AND SILT FENCES SHALL BE TRENCHED AND KEYED INTO THE SOIL AND INSTALLED ON CONTOUR. SILT FENCES SHALL BE INSTALLED APPROXIMATELY 2 TO 5 FEET FROM TOE OF SLOPE.

P. HYDROSEEDING SHALL BE CONDUCTED IN A THREE STEP PROCESS. FIRST, EVENLY APPLY SEED MIX AND FERTILIZER TO THE EXPOSED SLOPE. SECOND, EVENLY APPLY MULCH OVER THE SEED AND FERTILIZER. THIRD, STABILIZE THE MULCH IN PLACE. AN EQUIVALENT SINGLE STEP PROCESS, WITH SEED, FERTILIZER, WATER, AND BONDED FIBERS IS ACCEPTABLE.

APPLICATIONS SHALL BE BROADCASTED MECHANICALLY OR MANUALLY AT THE RATES SPECIFIED BELOW. SEED MIX AND FERTILIZER SHALL BE WORKED INTO THE SOIL BY ROLLING OR TAMPING. IF STRAW IS USED AS MULCH, STRAW SHALL BE DERIVED FROM WHEAT, RICE, OR BARLEY AND BE APPROXIMATELY SIX TO EIGHT INCHES IN LENGTH. STABILIZATION OF MULCH SHALL BE DONE HYDRAULICALLY BY APPLYING AN EMULSION OR MECHANICALLY BY CRIMPING OR PUNCHING THE MULCH INTO THE SOIL. EQUIVALENT METHODS AND MATERIALS MAY BE USED ONLY IF THEY ADEQUATELY PROMOTE VEGETATION GROWTH AND PROTECT EXPOSED SLOPES.

MATERIALS AND APPLICATION RATE (POUNDS PER ACRE)

SEED MIX
- BROMUS MOLLIS (BLANDO BROME) - 40 POUNDS
- TRIFOLIUM HIRTUM (HYKON ROSE CLOVER) - 20 POUNDS

FERTILIZER
- 16-20-0 & 15% SULPHUR - 500 POUNDS

MULCH
- STRAW - 4000 POUNDS

HYDRAULIC STABILIZING
NON-ASPHALTIC, DERIVED FROM PLANTS
- M-BINDER OR SENTINEL - 75-100 POUNDS

EQUIVALENT MATERIAL
- PER MANUFACTURER

Q. DUST CONTROL SHALL BE PROVIDED BY THE CONTRACTOR DURING ALL PHASES OF CONSTRUCTION.

R. STORM DRAIN INLETS SHALL BE PROTECTED FROM POTENTIAL POLLUTANTS UNTIL DRAINAGE CONVEYANCE SYSTEMS ARE FUNCTIONAL AND CONSTRUCTION IS COMPLETE.

S. ENERGY DISSIPATERS SHALL BE INSTALLED AT STORM DRAIN OUTLETS WHICH MAY CONVEY EROSIVE STORMWATER FLOW.

T. SOIL, MATERIAL STOCKPILES, AND FERTILIZING MATERIAL SHALL BE PROPERLY PROTECTED WITH PLASTIC COVERS OR EQUIVALENT BMP'S TO MINIMIZE SEDIMENT AND POLLUTANT TRANSPORT FROM THE CONSTRUCTION SITE.

U. SOLID WASTE, SUCH AS TRASH, DISCARDED BUILDING MATERIALS, AND DEBRIS, SHALL BE PLACED IN DESIGNATED COLLECTION AREAS OR CONTAINERS. THE CONSTRUCTION SITE SHALL BE CLEARED OF SOLID WASTE DAILY OR AS NECESSARY. REGULAR REMOVAL AND PROPER DISPOSAL SHALL BE COORDINATED BY THE CONTRACTOR.

V. A CONCRETE WASHOUT AREA SHALL BE DESIGNATED TO CLEAN CONCRETE TRUCKS AND TOOLS. AT NO TIME SHALL CONCRETE PRODUCTS AND WASTE BE ALLOWED TO ENTER COUNTY WATERWAYS SUCH AS CREEKS OR STORM DRAINS. NO WASHOUT OF CONCRETE, MORTAR MIXERS, OR TRUCKS SHALL BE ALLOWED ON THE SOIL. CONCRETE WASTE SHALL BE PROPERLY DISPOSED.

W. PROPER APPLICATION, CLEANING, AND STORAGE OF POTENTIALLY HAZARDOUS MATERIALS, SUCH AS PAINTS AND CHEMICALS, SHALL BE CONDUCTED TO PREVENT THE DISCHARGE OF POLLUTANTS.

X. TEMPORARY RESTROOMS AND SANITARY FACILITIES SHALL BE LOCATED AND MAINTAINED DURING CONSTRUCTION ACTIVITIES TO PREVENT THE DISCHARGE OF POLLUTANTS.

Y. APPROPRIATE VEHICLE STORAGE, FUELING, MAINTENANCE, AND CLEANING AREAS SHALL BE DESIGNATED AND MAINTAINED TO PREVENT THE DISCHARGE OF POLLUTANTS.

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

PACIFIC WATERSHED ASSOCIATES
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DRAWING DESCRIPTION:
COUNTY EROSION & SEDIMENT CONTROL

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-14

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GRD-010 GRADING & DRAINAGE NOTES

THESE NOTES PROVIDE INFORMATION ON THE COUNTY'S REQUIREMENTS FOR PERFORMANCE OF WORK RELATED TO GRADING AND DRAINAGE ACTIVITIES. VERSION: APRIL 18, 2025

A. PERFORM GRADING AND DRAINAGE IMPROVEMENTS IN ACCORDANCE WITH CHAPTER 11 AND 11A OF THE SONOMA COUNTY CODE (SCC), APPLICABLE SONOMA COUNTY REGULATIONS AND, IF APPLICABLE, TO THE RECOMMENDATIONS OF THE SOILS REPORT PREPARED BY _____ AND DATED //_____.

B. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. THE APPROVED PLANS AND SPECIFICATIONS SHALL NOT BE CHANGED WITHOUT THE WRITTEN APPROVAL OF PERMIT SONOMA. PROPOSED MODIFICATIONS TO THE APPROVED PLANS AND SPECIFICATIONS SHALL BE SUBMITTED TO PERMIT SONOMA IN WRITING, TOGETHER WITH ALL NECESSARY TECHNICAL INFORMATION AND DESIGN DETAILS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROPERTY OWNER AND ENGINEER OF RECORD, IF APPLICABLE, UPON DISCOVERING DISCREPANCIES, ERRORS, OR OMISSIONS IN THE APPROVED PLANS. PRIOR TO PROCEEDING, THE PROPERTY OWNER SHALL HAVE THE APPROVED PLANS REVISED TO CLARIFY IDENTIFIED DISCREPANCIES, ERRORS, OR OMISSIONS. PERMIT SONOMA MAY REQUIRE UNAUTHORIZED WORK TO BE REDONE OR REMOVED TO VERIFY COMPLIANCE WITH SCC. PERMIT SONOMA MAY INITIATE ENFORCEMENT ACTION AND SEEK THE IMPOSITION OF CIVIL PENALTIES FOR VIOLATIONS OF SCC.

C. THE GRADING OR DRAINAGE PERMIT AND A COPY OF THE APPROVED PLANS SHALL BE MAINTAINED ON THE PROJECT SITE THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.

D. PERMIT SONOMA MAY ORDER THAT ANY WORK STOP IMMEDIATELY IF IT IS PERFORMED CONTRARY TO CHAPTER 11 AND 11A OF THE SCC, THE APPROVED PLANS AND SPECIFICATIONS, PERMIT CONDITIONS, OR ANY WORK THAT HAS BECOME HAZARDOUS TO PROPERTY OR THE PUBLIC. A GRADING OR DRAINAGE PERMIT MAY BE SUSPENDED, REVOKED, OR MODIFIED BY PERMIT SONOMA IN ACCORDANCE WITH SCC CHAPTER 11.

E. ISSUANCE OF A GRADING OR DRAINAGE PERMIT BY PERMIT SONOMA DOES NOT ELIMINATE THE RESPONSIBILITY OF THE PROPERTY OWNER TO SECURE PERMITS FROM OTHER AGENCIES WITH REGULATORY RESPONSIBILITIES FOR THE USES AND CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE WORK SHOWN ON THE APPROVED PLANS. FAILURE TO OBTAIN ALL REQUIRED PERMITS MAY RESULT IN FINES FROM OTHER AGENCIES.

F. EXISTING DRAINAGE COURSES RECEIVING WATERS FROM THE PROJECT SITE AND LOCATED THROUGHOUT THE PROJECT SITE SHALL REMAIN OPEN AND CLEAR OF DEBRIS TO PROPERLY CONVEY STORM WATER. IF EXISTING DRAINAGE COURSES RECEIVING WATERS FROM THE PROJECT SITE ARE LOCATED IN THE COUNTY RIGHT-OF-WAY AND NEED MAINTENANCE, CONTACT SONOMA PUBLIC INFRASTRUCTURE (SPI) AT (707) 565-2231 FOR FURTHER ASSISTANCE. IN ANY EVENT, THE PROPERTY OWNER AND/OR CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.

G. THE CONTRACTOR SHALL CONTACT THE UNDERGROUND SERVICE ALERT (USA), AT 811, AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN 14 CALENDAR DAYS, PRIOR TO EXCAVATION. THE CONTRACTOR SHALL UNCOVER RELEVANT UTILITIES TO VERIFY THEIR LOCATION AND ELEVATION. IF UNEXPECTED OR CONFLICTING UTILITIES ARE ENCOUNTERED DURING EXCAVATION, IMMEDIATELY NOTIFY USA, THE UTILITY OWNER, AND/OR THE ENGINEER OF RECORD, IF APPLICABLE. UTILITIES INCLUDE BUT ARE NOT LIMITED TO WATER, SEWER, ELECTRICAL, GAS, TELEPHONE, AND CABLE/TV. THE EXCAVATOR SHALL DELINEATE WITH PAINT OR OTHER SUITABLE MARKINGS THE AREA TO BE EXCAVATED.

H. IN THE EVENT CULTURAL RESOURCES (SUCH AS HISTORICAL, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES, AND HUMAN REMAINS) ARE DISCOVERED DURING GRADING OR OTHER CONSTRUCTION ACTIVITIES, WORK SHALL IMMEDIATELY BE HALTED WITHIN THE VICINITY OF THE FIND. THE NORTHWEST INFORMATION CENTER SHALL BE NOTIFIED AT (707) 588-8455. A QUALIFIED ARCHEOLOGIST SHALL BE CONSULTED FOR AN ON-SITE EVALUATION. ADDITIONAL MITIGATION MAY BE REQUIRED BY THE COUNTY PER THE ARCHEOLOGIST'S RECOMMENDATIONS AND SCC 11.16.050. IF HUMAN BURIALS OR HUMAN REMAINS ARE ENCOUNTERED, THE CONTRACTOR SHALL ALSO NOTIFY THE COUNTY CORONER AT (707) 565-5070.

I. SHOULD GRADING OPERATIONS ENCOUNTER HAZARDOUS MATERIALS, OR WHAT APPEAR TO BE HAZARDOUS MATERIALS, STOP WORK IMMEDIATELY IN THE CONTAMINATED AREA AND CONTACT 911 OR THE APPROPRIATE AGENCY FOR FURTHER INSTRUCTION.

J. RETAINING WALLS, UNLESS EXEMPTED PER CHAPTER 7 OF THE SCC, ARE NOT APPROVED UNDER A GRADING PERMIT. A SEPARATE BUILDING PERMIT IS REQUIRED.

K. EQUIPMENT SHALL NOT CROSS OR DISTURB CHANNELS OF ACTIVELY FLOWING STREAMS WITHOUT A PERMIT SONOMA APPROVED ROILING PERMIT AND BEST MANAGEMENT PRACTICES (SCC CHAPTERS 11 AND 23).

L. GRADING AND DRAINAGE IMPROVEMENTS SHALL BE SET BACK FROM LAKES, PONDS, STREAMS, AND WETLANDS IN COMPLIANCE WITH CHAPTER 11 OF THE SCC. EXISTING VEGETATION SHALL BE RETAINED IN STREAM SETBACK AREAS TO FILTER SOIL AND OTHER POLLUTANTS CARRIED IN STORM WATER.

M. EXCESS SOIL SHALL BE REMOVED FROM THE PROJECT SITE UNLESS DEPICTED TO REMAIN ON SITE PER THE APPROVED PLAN. THE SITE RECEIVING SOIL MAY REQUIRE A GRADING PERMIT UNLESS EXEMPTED BY CHAPTER 11 OF THE SCC.

N. CONTOURS, ELEVATIONS, AND SHAPES OF FINISHED SURFACES SHALL BE BLENDED WITH ADJACENT NATURAL TERRAIN TO ACHIEVE A CONSISTENT GRADE AND NATURAL APPEARANCE. BORDERS OF CUT SLOPES AND FILLS SHALL BE ROUNDED OFF TO A MINIMUM RADIUS OF FIVE FEET TO BLEND WITH THE NATURAL TERRAIN.

O. FILL MATERIAL SHALL NOT INCLUDE ORGANIC, FROZEN, OR OTHER DELETERIOUS MATERIALS. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL GREATER THAN SIX INCHES IN ANY DIMENSION SHALL BE INCLUDED IN FILLS EXCEPT WHERE APPROVED BY THE SOILS ENGINEER. FILLS SHALL BE CONSTRUCTED IN LIFTS NOT EXCEEDING EIGHT INCHES IN DEPTH. COMPLETED FILLS SHALL BE STABLE, WELL-INTEGRATED, AND BONDED TO ADJACENT MATERIALS AND THE MATERIALS ON WHICH THEY REST. FILLS SHALL BE COMPETENT TO SUPPORT ANTICIPATED LOADS AND BE STABLE AT THE DESIGN SLOPES SHOWN ON THE APPROVED PLANS AND SPECIFICATIONS OR AS DIRECTED BY THE SOILS ENGINEER.

P. GROUND SURFACES SHALL BE PREPARED TO RECEIVE FILL BY REMOVING VEGETATION, TOPSOIL, AND OTHER UNSUITABLE MATERIALS, AND SCARIFYING THE GROUND TO PROVIDE A BOND WITH THE FILL MATERIAL.

Q. FILL SHALL NOT BE PLACED ON NATURAL SLOPES STEEPER THAN 2H:1V (50 PERCENT).

R. FILLS INTENDED TO SUPPORT STRUCTURES OR SURCHARGES SHALL BE COMPACTED TO A MINIMUM OF 90 PERCENT OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D 1557, MODIFIED PROCTOR. A HIGHER COMPACTION PERCENTAGE MAY BE REQUIRED BY THE SOILS ENGINEER.

S. FILLS NOT INTENDED TO SUPPORT STRUCTURES OR SURCHARGES SHALL BE COMPACTED AS FOLLOWS:

T. FILL GREATER THAN THREE FEET IN DEPTH SHALL BE COMPACTED TO THE DENSITY SPECIFIED BY THE SOILS ENGINEER.

U. FILLS NO GREATER THAN THREE FEET IN DEPTH SHALL BE COMPACTED TO THE DENSITY NECESSARY FOR THE INTENDED USE OR AS DIRECTED BY THE SOILS ENGINEER.

GRD-009 GRADING & DRAINAGE INSPECTION NOTES

THESE NOTES PROVIDE INFORMATION ON THE COUNTY'S REQUIREMENTS FOR INSPECTIONS RELATED TO GRADING AND DRAINAGE WORK. VERSION: APRIL 18, 2025

THE PERMITTEE AND THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE WORK TO BE PERFORMED IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, CHAPTER 11 AND CHAPTER 11A OF THE SONOMA COUNTY CODE (SCC), AND ANY PERMIT CONDITIONS. WORK SHALL BE SUBJECT TO INSPECTION AS REQUIRED BY PERMIT SONOMA TO VERIFY COMPLIANCE. THE CONTRACTOR SHALL CONSULT THE PERMIT SONOMA WEBSITE FOR COORDINATION OF INSPECTION REQUESTS.

PRIOR TO THE START OF ANY GRADING OR DRAINAGE WORK, THE PERMITTEE SHALL HAVE A PRE-CONSTRUCTION CONSULTATION WITH PERMIT SONOMA STAFF TO DISCUSS THE SCOPE OF THE PROJECT, PERMIT CONDITIONS, REQUIRED INSPECTIONS, APPROPRIATE APPLICATION OF BEST MANAGEMENT PRACTICES (BMPS) AND ANY OTHER CONSTRUCTION ISSUES.

INSPECTION REQUESTS SHALL BE MADE THROUGH THE SONOMA COUNTY AUTOMATED INSPECTION REQUEST SYSTEM.

PERMIT SONOMA MAY REQUIRE PROFESSIONAL INSPECTIONS AND CERTIFICATIONS TO VERIFY PROPER COMPLETION OF THE WORK. WHERE THE USE OF PROFESSIONAL PERSONNEL IS REQUIRED, THESE PERSONNEL SHALL IMMEDIATELY REPORT IN WRITING TO PERMIT SONOMA AND THE PERMITTEE ANY INSTANCE OF WORK NOT IN COMPLIANCE WITH THE APPROVED PLANS, SPECIFICATIONS, OR ANY PERMIT CONDITIONS. IF PROFESSIONAL PERSONNEL IS CHANGED DURING THE COURSE OF THE WORK, THE WORK SHALL BE STOPPED UNTIL THE REPLACEMENT INDIVIDUAL HAS NOTIFIED PERMIT SONOMA IN WRITING OF THEIR AGREEMENT TO ACCEPT RESPONSIBILITY FOR APPROVAL OF THE COMPLETED WORK WITHIN THE AREA OF THEIR TECHNICAL COMPETENCE.

PERMIT SONOMA SHALL FINAL A PERMIT WHEN ALL WORK, INCLUDING THE INSTALLATION OF ALL DRAINAGE IMPROVEMENTS AND THEIR PROTECTIVE DEVICES, AND ALL STORM WATER BMPS, HAVE BEEN COMPLETED IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND ALL FINAL REPORTS REQUIRED BY SCC 11.14.040.A HAVE BEEN SUBMITTED AND ACCEPTED. FINAL REPORTS MAY INCLUDE: AS-BUILT PLANS, TESTING RECORDS, PROFESSIONAL OPINIONS, AND DECLARATIONS ABOUT COMPLETED WORK FROM PROFESSIONAL PERSONNEL. SIMILAR REPORTS MAY BE REQUIRED AT OTHER STAGES OF THE WORK.

THE PERMITTEE SHALL PROVIDE ADEQUATE AND SAFE ACCESS TO THE PROJECT SITE FOR INSPECTION DURING THE PERFORMANCE OF ALL WORK.

DURING CONSTRUCTION ACTIVITIES, THE PROJECT SITE ADDRESS SHALL BE POSTED AS FOLLOWS:

THE STREET NUMBERS MUST BE AT LEAST FOUR INCHES TALL, WITH A REFLECTIVE SURFACE.

THE ADDRESS MUST BE VISIBLE FROM BOTH DIRECTIONS ALONG THE ROAD.

THE ADDRESS MUST BE POSTED AT ALL FORKS IN ANY ACCESS ROAD AND AT THE PROJECT SITE.

REGISTERED PROFESSIONAL ENGINEER
GREGORY S. ORUM
C 93662
EXP. 6/26
CIVIL
STATE OF CALIFORNIA

DATE 3/6/2026
NOTES PREPARED BY PWA
FIGURES CREATED BY PWA

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DRAWING DESCRIPTION:
GRADING, DRAINAGE, & INSPECTIONS NOTES

PROJECT LOCATION:
SHEEPHOUSE CREEK
SONOMA COUNTY, CA

PWA JOB NO.: 10456

C-15

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Biological Resources Assessment

Sheephouse Creek Bank Failure Project
28165 Highway 116, Jenner, CA 95450
February 2026

Prepared for:
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Petaluma, CA 94953

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Swift Biological Consulting LLC
Sebastopol, CA 95472

SWIFT BIOLOGICAL

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1 Introduction

Pacific Watershed Associates, Inc. (PWA) is assisting a private landowner with a bank restoration project on Sheephouse Creek, Jenner, Sonoma County. The purpose of the project is to restore three bank failure locations that threaten an adjacent access road. The bank failures have occurred on several outside meander bends along the mainstem. The vertical banks are subject to high velocities and are at risk of compromising the road and delivering a large amount of sediment to Sheephouse Creek. The plans call for stabilizing the bank and incorporating biotechnical features and large wood into the bank reconstruction to improve habitat conditions for salmonids in the lower sections of Sheephouse Creek (PWA 2025a and 2025b). The creek is a direct tributary to the Russian River and an important watershed for coho salmon and steelhead.

Swift Biological Consulting LLC (Swift Biological) was retained by PWA to complete a biological resources review of the proposed riparian restoration project. The purpose of this report is to document existing biological resource conditions, evaluate the project for the presence of special-status species and their habitats within the project site[1] and provide recommendations for protecting resources during project implementation. This report is based on information available at the time of the biological surveys, site conditions observed, currently available information, the report preparer's best professional judgment, and a review of the *Sheephouse Creek Bank Failure and Assessment Design Report* and project plans prepared by PWA (2025a and 2025b).

1.1 Project Setting

The project is located on mainstem Sheephouse Creek, approximately 1 mile east of Duncan Mills along Highway 116 in western Sonoma County. Work will occur along the lower extents of Sheephouse Creek within a quarter of a mile of the creek's confluence with the Russian River. Sheephouse Creek is a perennial stream originating in the hills to the northeast of Jenner. It flows westward and drains a 3.1-square-mile watershed. Elevations range from 1,572 feet at the ridge top to 38 feet near the confluence of the project (PWA 2025a). The upper watershed is steep and densely forested with coast redwood and Douglas fir. The lower watershed transitions to grassland. A well-developed riparian forest occurs along Sheephouse Creek. The project coordinates are 38.450862°N and -123.094170°W.

The project is accessible directly off Highway 116 and has a private residential driveway. There are three sites all along the eastern side and left bank of Sheephouse Creek. Site 1 is located furthest upstream, Site 2 is approximately 250 feet downstream of Site 1, and Site 3 lies another 600 feet downstream of Site 2 (PWA 2025a). The sites will be accessed directly from the road, directly to

[1] The term "project site" is used to define the project footprint (i.e., road and restoration sites, access routes, and a buffer around). The resources within the larger watershed are included for context and are important for understanding the biological resource conditions and impact determinations beyond the project footprint.

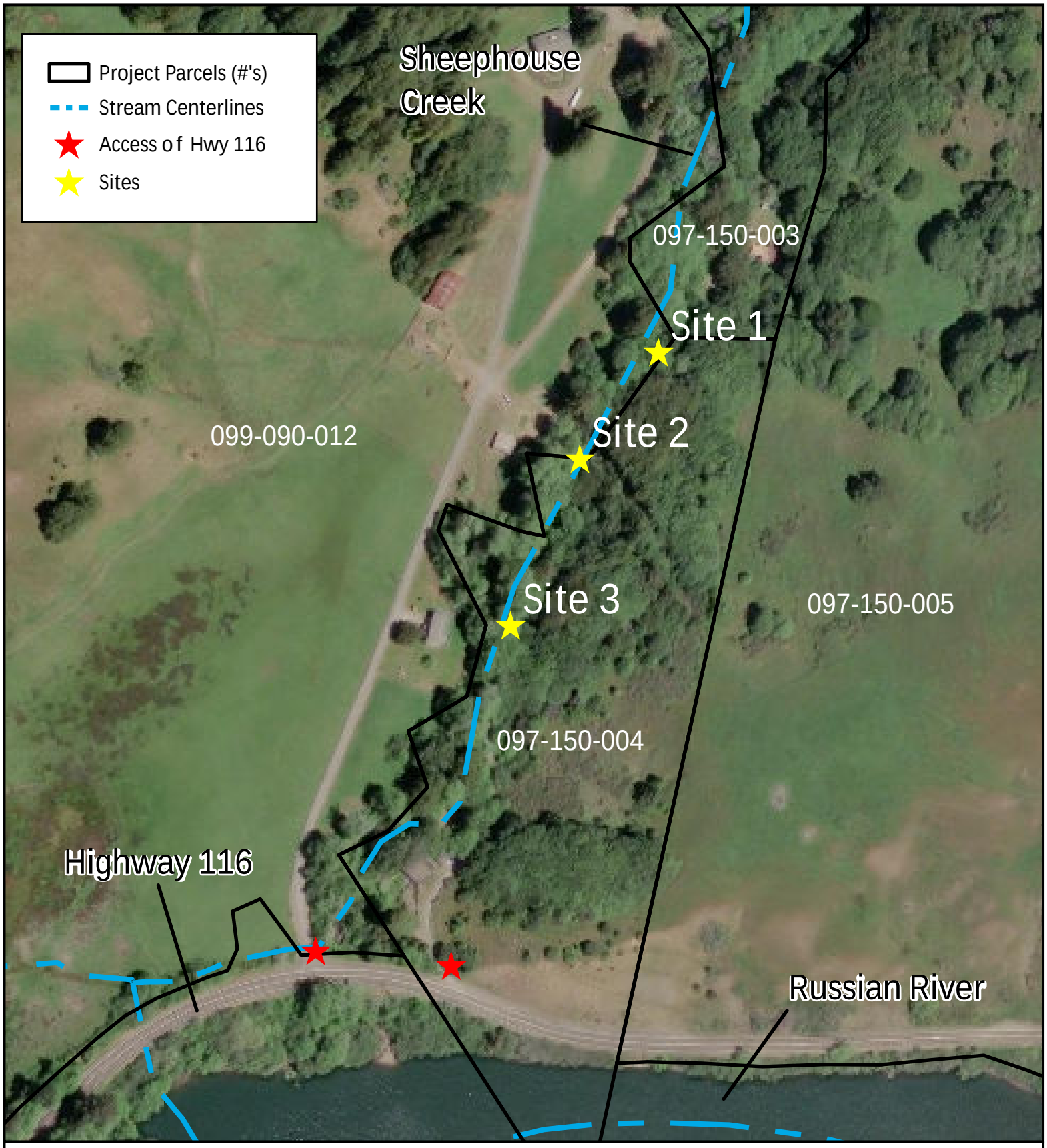
the east of the creek, at the top of the bank. Sites 1 and 2 may require additional access from an adjoining parcel along the right bank of the creek.

Figure 1. Project Location

Sheephouse Creek Bank Failure Project
28165 Highway 116, Jenner, Sonoma County
Biological Resources Assessment - February 2026

SWIFT BIOLOGICAL

Sources: Base Map - ESRI



0 90 180 360 540 Feet

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Figure 2. Site Map

Sheephouse Creek Bank Failure Project
28165 Highway 116, Jenner, Sonoma County
Biological Resources Assessment - February 2026

Sources: Aerial - ESRI, Streams and Parcels - Sonoma County

2 Methods

2.1 Background Review

Information on special-status species and habitats was compiled through a review of background literature and databases. The search focused on the known occurrences of special-status species on the Duncans Mills 7.5-minute USGS quadrangle, where the project is located, and the surrounding quadrangles. The following resources were consulted to determine species and habitats within the site:

- The California Natural Diversity Database[2] (CNDDB) maintained by the California Department of Fish and Wildlife (CDFW 2026a); RareFind Version 5.3.0, BIOS 6 Version 6.25.1105 (including unprocessed data from CNDDB Online Field Survey Forms), CNDDB GIS Data Version February, 2026; this included species reported within a 5-mile buffer around the project,
- CDFW's Special Animals List, October 2025 (CDFW 2025a),
- CDFW's Special Vascular Plants, Bryophytes, and Lichens List, October 2025 (CDFW 2025b),
- CDFW's California Natural Communities List, February 27, 2025 (CDFW 2025c),
- CDFW's California Sensitive Natural Communities List, February 27, 2025 (CDFW 2025d),
- U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) database (USFWS 2026a),
- California Native Plant Society's (CNPS) A Manual of California Vegetation Online (CNPS 2026a),
- California Native Plant Society's Rare Plant Inventory (CNPS 2026b),
- Calflora's Observation Search and Search for Plants databases (Calflora 2026),
- USDA Natural Resources Conservation Service Web Soil Survey (WSS; NRCS 2026),
- USDA Soil Survey for Sonoma County (USDA 1972),
- National Wetlands Inventory (NWI) (USFWS 2026b)
- Google Earth aerial images,
- USGS topographic maps,
- Historical and current accounts of biological resources in Sheephouse Creek, as well as species-specific information, are presented in other technical reports, publications, and field guides.

2.2 Biology Field Surveys

Swift Biological completed biological surveys of the project site on May 2, 2023, and February 2, 2025. The field surveys followed the methods described in CDFW's *Protocols for Surveying and*

[2] The California Natural Diversity Database is an inventory of the status and locations of rare plants and animals in California and is maintained by the California Department of Fish and Wildlife. It is part of an international network of natural heritage programs, managed by NatureServe. It is a positive detection database and only contains records where species have been detected; there are no organized inventory or survey efforts used to populate the database. Observations are submitted by local agencies, researchers, and consultants and reviewed by CDFW staff prior to entry into the database. The CNDDB is not a public dataset; the maps and information provided in this report are for internal review only and should not be used for any public reports or other documents.

Evaluating Impacts to Special-status Native Plant Populations and Natural Communities (CDFW 2009) and Sonoma County's *Guidelines for Preparing Biological Resource Studies or Assessments* (Agricultural Commissioner 2014). The surveys were completed to 1) document and map vegetation communities, 2) compile a list of plant and animal species present, 3) evaluate the project site for the presence of special-status species and their habitats, and 4) evaluate the project site for jurisdictional aquatic features. Areas adjacent to the project site were also observed for context and to assess potential impacts on off-site resources.

Before the surveys, a background review was completed to generate a list of potentially sensitive biological communities and special-status species that may occur within the project site; see *Background Review*. A base map of the project site was produced before the field surveys, with the project boundaries overlaid on an aerial photograph. The site boundaries and aerial data were also downloaded into the ESRI Field Maps application, and GPS field data on biological features were collected. During the surveys, the entire site and a buffer around it were systematically and thoroughly surveyed to inventory all biological resources present.

Plants. A botanical reconnaissance survey of the project site was completed to describe vegetation communities and evaluate the presence of special-status plants. Surveys were completed in May 2023 and February 2025. Plant communities were identified and described based on the Manual of California Vegetation (CNPS 2026a) definitions. Data downloaded from the Sonoma Vegetation Mapping and LIDAR Program was used to evaluate vegetation communities within the site (Sonoma Veg Map; Ag + Open Space and SCWA 2017). The botanical survey was floristic in nature, and every plant taxon that occurs on the site was identified to the taxonomic level necessary to determine rarity or listing status. All plants were identified using the *Jepson eFlora* (Jepson Flora Project 2026) and *Sonoma County Flora* (Best et al. 1996). Representative plant species observed are incorporated into the *Existing Plant Communities* text below.

Wildlife. Wildlife surveys of the project site were completed on May 2, 2023, and February 2, 2025, to describe the wildlife species and habitats present and evaluate for the presence of special-status species. Binoculars (far and close focus, Swarovski 10x42, Pentax 6.5x21) and a high-resolution camera (Canon PowerShot SX70) were used. All wildlife species were identified by sight or sound, and details of wildlife behavior and activity were recorded. The surveys were conducted under suitable weather conditions to maximize the potential for detecting wildlife species. The surveys included daytime inspections of all vegetation and aquatic habitats, as well as an evaluation of unique wildlife habitat features. Wildlife species observed are incorporated into the *Wildlife Habitats* section below.

Aquatic Resources. The project site was reviewed for the presence of wetlands, waters of the US and State, and riparian habitat[3]under the jurisdiction of the US Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), the California Department of Fish and Wildlife (CDFW), and the Local Coastal Plan (LCP; Sonoma County 2023). The presence of wetland boundaries was evaluated following the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (Corps 1987), Version 2.0 of the *Regional Supplement for the Western Mountains, Valleys, and Coast Region* (Corps 2010), and the *California Coastal Commission's Definition and Delineation of Wetlands in the Coastal Zone* (CCC 2011). Wetland jurisdiction is determined based on a preliminary assessment of three parameters: hydrophytic vegetation, hydric soils, and hydrology. Corps wetland jurisdiction is based on a three-parameter definition; a site must meet the criteria for hydrology, hydric soils, and hydrophytic vegetation to be considered a wetland[4] (Corps 1987, 2010). In contrast, only one of those same three parameters must be met for a location to be considered a wetland by the CCC (CCC 2011). An evaluation of the non-wetland waters followed the Corps' *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States: A Delineation Manual* (Corps 2008). Waters are identified based on wetland indicators and other physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris, to indicate the presence of an Ordinary High Water Mark. Riparian habitat is identified by the riparian vegetation that serves as the demarcation between riparian and upland habitat and/or the top of the stream bank based on topographical changes or other indicators.

Environmentally Sensitive Habitat Areas. A field assessment was conducted to identify and map Environmentally Sensitive Habitat Area (ESHAs) pursuant to the 2023 Sonoma County Local Coastal Plan (Sonoma County 2023) and Coastal Act Section 30107.5. An ESHA is defined by the

[3] Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources. They fall under the jurisdiction of several regulatory agencies. The US Army Corps of Engineers (Corps) exerts jurisdiction over "Waters of the US". They regulate the discharge of dredged or fill material into Waters of the US under Section 404 of the Clean Water Act and regulate structures or work in navigable Waters of the US under Section 10 of the Rivers and Harbors Appropriation Act of 1899. The Regional Water Quality Control Board (Regional Board) also regulates "Waters of the State" under the Porter-Cologne Water Quality Control Act and the federal Clean Water Act. CDFW regulates wetlands and riparian resources associated with rivers, streams, and lakes under the California Fish and Game Code. Streams and wetlands are also protected under Sonoma County's Local Coastal Program (LCP) and General Plan (Open Space & Resource Conservation Element), Chapter 26 of the Sonoma County Code. Streamside Conservation Areas (SCA), established under the Open Space and Resource Conservation Element of the General Plan and the Riparian Corridor (RC) Combining Zone, defines a protected buffer measured from the top of the higher bank (or the outer edge of the riparian canopy) where development is strictly limited to protect water quality and habitat functions. Coastal stream and wetlands are further protected under the California Coastal Act.

Waters of the US include "the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide, tributaries, lakes, and ponds, and impoundments of jurisdictional waters; and adjacent wetlands" (85 FR 22340). Waters of the State include "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050(e)). This is broadly construed to include all waters within the State's boundaries, whether private or public, including both natural and artificial channels. Wetlands include swamps, bogs, seasonal wetlands, seeps, marshes, and other aquatic habitats. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." They are typically delineated based on the presence of wetland plants, soils, and hydrology indicators.

[4] The State Water Resources Control Board adopted procedures to delineate wetlands. The State wetland definitions and delineation procedures are generally consistent with the three-parameter approach outlined by the Corps. However, there is one exception: an area can lack hydrophytic vegetation and still qualify as a wetland if hydric soils and wetland hydrology are present (SWRQB 2021).

Sonoma County Local Coastal Plan as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem, and which could be easily disturbed or degraded by human activities and developments. Vegetation communities, aquatic resources, and special-status plant and animal habitats within the project area were evaluated to determine ESHA status and LCP consistency; see *Local Coastal Plan and Environmentally Sensitive Habitat Areas* below.

2.3 Maps and Photographs

Maps for this report were generated using ESRI ArcGIS Pro software. Field data was collected using the ESRI Field Map application and downloaded in the office to support the mapping efforts. Aerial imagery and existing GIS layers available from ArcGIS Online on soil types, land cover/vegetation, and hydrology were used to create figures depicting site conditions. Data downloaded from the Sonoma Vegetation Mapping and LiDAR Program for Sonoma County was also used to characterize the site (Sonoma Veg Map; Ag + Open Space and SCWA 2017). Digital photographs were collected in the field to characterize on-site conditions and document biological resources.

3 Existing Conditions

3.1 Existing Plant Communities

Vegetation communities are assemblages of plant species that occur together in a given area and are defined by their species composition and relative abundance. The vegetation communities below are described according to the Sonoma Veg Map (District and SCWA 2017). The Sonoma Veg Map classifies vegetation alliances based on the U.S. National Vegetation Classification (USNVC) hierarchy, as published in the Manual of California Vegetation (Sawyer et al. 2009). This classification is defined by the dominant or diagnostic species found in the uppermost or dominant stratum. The project area is mapped as Vancouverian Riparian Deciduous Forest Group, *Umbellularia californica* Alliance, and Native and Non-native Perennial Coastal Grassland Mapping Unit. A brief description of the vegetation communities is provided below, based on botanical observations conducted by Swift Biological in May 2023 and February 2025. The site visits included cataloging representative plants.

The riparian corridor along Sheephouse Creek is mapped as Vancouverian Riparian Deciduous Forest Group, a community more accurately described as *Alnus rubra* (Red alder) Forest Alliance. Along the margins of the creek, the riparian canopy is dominated by red alder (*Alnus rubra*), with significant cover also provided by coast redwood (*Sequoia sempervirens*) and California bay (*Umbellularia californica*) situated along the upper edge of the creek bank. The dominant native understory is composed of a diverse herbaceous and shrub layer, including lady fern (*Athyrium filix-femina*), redwood sorrel (*Oxalis oregana*), western sword fern (*Polystichum munitum*), western coltsfoot (*Petasites frigidus*), thimbleberry (*Rubus parviflorus*), salmonberry (*Rubus spectabilis*), and red elderberry (*Sambucus racemosa*). Other native species documented within the corridor include sedge (*Carex* sp.), common horsetail (*Equisetum arvense*), currant (*Ribes* sp.), California blackberry (*Rubus ursinus*), hedge nettle (*Stachys* sp.), fringe cups (*Tellima grandiflora*), stinging nettle (*Urtica dioica*), and stream violet (*Viola glabella*). There are several non-native species present throughout the project including forget-me-not (*Myosotis latifolia*), English ivy (*Hedera helix*), purple dead nettle (*Lamium purpureum*), vinca (*Vinca major*), and calla lily (*Zantedeschia aethiopica*). Furthermore, non-native grasses, specifically ripgut brome (*Bromus diandrus*) and upright veldt grass (*Ehrharta erecta*), are established along the upper floodplain, particularly in the vicinity of Site 3.

The adjacent woodland, directly to the east of the project, is mapped as *Umbellularia californica* Alliance. This community occupies a moderately sloped hillside that provides critical shade for the adjacent creek. The dense forest canopy is dominated by California bay, with a significant co-dominant component of coast redwood in the overstory. The understory is lush and moisture-dependent, characterized by western sword fern (*Polystichum munitum*), lady fern (*Athyrium filix-femina*), and redwood sorrel (*Oxalis oregana*). No work or equipment staging is proposed within this woodland.

Access to Sites 2 and 3 and the areas to the west of Sheephouse Creek are mapped as Native and Non-native Perennial Coastal Grassland mapping unit. This area is primarily characterized by a suite of non-native annual forbs and grasses typical of disturbed areas. This herb stratum is dominated by species such as henbit (*Lamium amplexicaule*), hairy bittercress (*Cardamine hirsuta*), and cut-leaf geranium (*Geranium dissectum*), which often form a dense mat in early spring. These are accompanied by broadleaf forget-me-not (*Myosotis latifolia*) and larger, opportunistic forbs like milk thistle (*Silybum marianum*). Various annual grasses provide the structural matrix for this community.

3.2 Wildlife Observations

The project area is a vital resource for native fish and wildlife, serving as a key watershed within the Sonoma County landscape. Sheephouse Creek is well-known as a habitat for coho salmon (*Oncorhynchus kisutch*) and steelhead (*Oncorhynchus mykiss*), providing the cool water and gravel beds these species need to spawn and rear. The surrounding riparian and upland forests support a diversity of native birds, reptiles, amphibians, mammals, and invertebrates. The watershed is also documented as habitat for special-status species, including the California giant salamander (*Dicamptodon ensatus*), California red-legged frog (*Rana draytonii*), and foothill yellow-legged frog (*Rana boylii*) (CDFW 2026a). These amphibians rely on the creek for breeding and the shaded, moist forest floor for non-aquatic foraging, migration, and shelter habitat.

During the spring and winter surveys, a variety of wildlife were observed throughout the project and surrounding habitats. These included American robin (*Turdus migratorius*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), California quail (*Callipepla californica*), California towhee (*Melozone crissalis*), chestnut-backed chickadee (*Poecile rufescens*), common bushtit (*Psaltriparus minimus*), common raven (*Corvus corax*), hairy woodpecker (*Dryobates villosus*), Steller's jay (*Cyanocitta stelleri*), Pacific wren (*Troglodytes pacificus*), turkey vulture (*Cathartes aura*), violet-green swallow (*Tachycineta thalassina*), black-tailed deer (*Odocoileus hemionus columbianus*), and banana slug (*Ariolimax* spp.).

3.3 Aquatic Resources

Based on the desktop review and field investigation results, the project site supports one aquatic resource, Sheephouse Creek. A description is provided below. Figure 4 shows the location of the sample points and the jurisdictional feature. A summary of the aquatic resource and sample points are provided in Table 1 and Table 2, respectively. Representative photographs are included in Sections 9 and 10. OHWM and Wetland Determination Data Forms are included in Section 11.

Climate and Precipitation

The Sheephouse Creek watershed, situated near Duncans Mills in the Lower Russian River Valley, experiences a cool-summer Mediterranean climate, heavily influenced by its proximity to the Pacific Ocean. This area is characterized by frequent coastal fog and persistent marine layers that moderate temperatures year-round, creating the moist conditions. The rainy season typically spans from November through April, while the summer months are characterized by dry, humid, and overcast conditions. The warmest temperatures often occur in September and October, while the coolest temperatures occur in December and January. Based on data from 1971 to 2022 from the Fort Ross climate station, located approximately 4 miles from the project, the area experiences an average annual maximum temperature of 62.5°F, a minimum of 45.8°F, and a mean of 53.6°F. The annual average rainfall for this coastal region is 40.59 inches, with peak precipitation occurring between December and February. To evaluate current site conditions, precipitation data were obtained from the NOAA Regional Climatic Centers Applied Climate Information System (ACIS) for the three months preceding the February 2026 site visit (NOAA 2026). This region typically averages 18.57 inches of rain between November and January and received 20.34 inches during 2025-2026. The period leading up to the winter 2026 assessment was classified as normal.

Table 1. Precipitation Data for the Preceding Three Months

Prior Month	WETS Rainfall Data (inches)			Measured Rainfall (inches)	Condition: Dry, Wet, Normal	Condition Value: 1 = dry, 2 = normal, or 3 = wet	Month Weight	Multiply Previous Two Columns
	30th	Average	70th					
November 2025	2.62	5.45	6.66	5.72	Normal	2	3	6
December 2025	3.36	5.69	6.86	7.95	Wet	3	2	6
January 2026	3.86	7.43	9.08	6.67	Normal	2	1	2
							Sum	14
Rainfall of prior period was: drier than normal (sum is 6-9), normal (sum is 10-14), wetter than normal (sum is 15-18).								Normal

Hydrology

The project is located within the Willow Creek-Russian River hydrologic unit (Hydrologic Unit Code 12 180101100904; USGS 2026. Specifically, Sheephouse Creek is a direct tributary of the Lower Russian River, located approximately 2 miles west of Duncans Mills and just upstream of the Russian River Estuary. According to the USGS National Hydrography Dataset, Sheephouse Creek is mapped as a perennial blue-lined stream. Water flowing from the site is collected by Sheephouse Creek and its upper watershed tributaries, descending through the steep coastal canyons before discharging directly into the Russian River. From this confluence, the water travels approximately five miles downstream to reach the Pacific Ocean at Jenner.

Sheephouse Creek

Sheephouse Creek is the only aquatic resource within the project site. An aquatic resource assessment for Sheephouse Creek and the adjacent uplands included evaluating transects at each site (1-3) and three formal wetland determination sample points to characterize the jurisdictional limits of the perennial watercourse. Sheephouse Creek exhibits a well-defined bed and bank, with an Ordinary High Water Mark (OHWM) averaging 19 feet in width. The OHWM was defined by a clear natural impression on the bank, the presence of debris wracking and litter, and a distinct unvegetated character when compared to the surrounding uplands. Channel depths average 24 inches, with a maximum depth of 4.3 feet. The channel substrate is primarily composed of cobble and coarse sand. Vegetation within the active channel is sparse, with the bed being largely non-vegetated.

To determine the presence of adjacent floodplain wetlands, three sample points were established in the upland areas situated above the top of the bank. These points lacked hydric soil indicators, displaying a bright, high-chroma matrix (10YR 4/2) with no redox features, and showed no evidence of wetland hydrology, except for sediment deposits at one point within the upper floodplain at Site 1. The upland vegetative community is dominated by a canopy of California bay (*Umbellularia californica*, FAC) or coast redwood (*Sequoia sempervirens*, NL/UPL) along the outer edges of the riparian woodland. The understory composition varies by site, but dominant species include native western sword fern (*Polystichum munitum*, FACU), California blackberry (*Rubus ursinus*, FACU), and non-native cutleaf geranium (*Geranium dissectum*, UPL), forget-me-not (*Myosotis latifolia*, NL/UPL), bigleaf periwinkle (*Vinca major*, FACU), and common velvet grass (*Holcus lanatus*, FAC). Despite the presence of some facultative species, such as common velvet grass and California bay, in the understory and canopy, the Prevalence Indices (ranging from 3.47 to 4.95) and Dominance Test results (33% or lower) confirm that these areas do not meet the hydrophytic vegetation criteria to qualify as wetlands.

Table 2. Aquatic Resources within the Project Site

Aquatic Feature	Cowardin Type (USFWS 2026b)	Dominant Vegetation/Land Cover Type	OHWM (feet, average)
Waters (perennial stream)	R4SBC	Red alder forest	19 feet
Freshwater Forested/Shrub Wetland*	PSS1C	Red alder forest	N/A

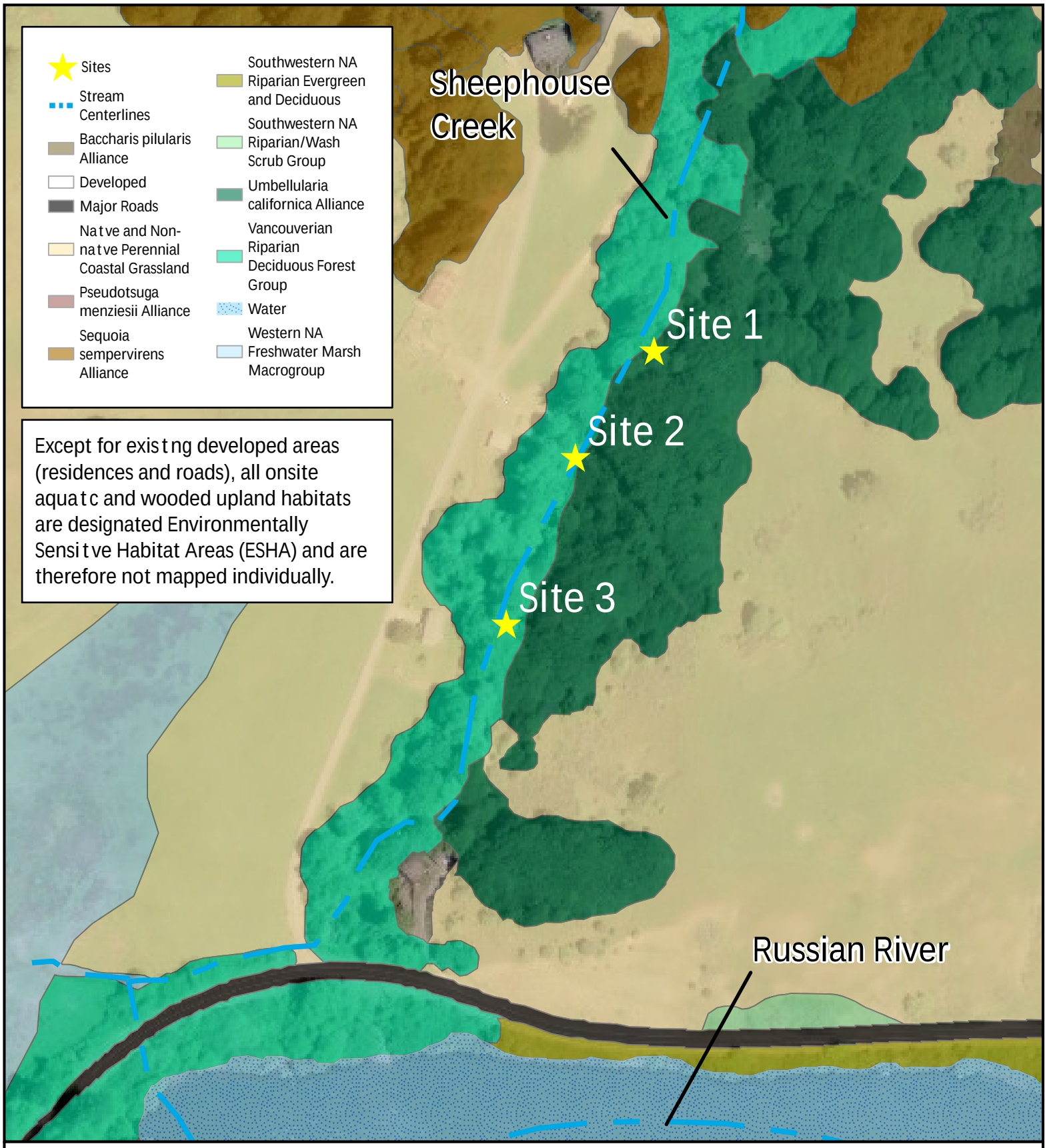
*USFWS (2026b) identifies forested scrub wetland within the lower reaches of Sheephouse Creek; however, this habitat is outside the project footprint.

Table 3. Summary of Wetland/Waters Determination Data Forms

Point Number	Location Description	Wetland Plants	Wetland Soils	Wetland Hydrology	Determination
1	Upper riparian terrace, Site 1, left bank	No	No	Yes	Upland
2	Sheephouse Creek, Site 1	N/A (stream channel)	N/A (stream channel)	N/A (stream channel)	Waters
3	Upper access terrace, Site 2, right bank	No	No	No	Upland
4	Sheephouse Creek, Site 2	N/A (stream channel)	N/A (stream channel)	N/A (stream channel)	Waters
5	Upper access terrace, Site 2, right bank	No	No	No	Upland
6	Sheephouse Creek, Site 3	N/A (stream channel)	N/A (stream channel)	N/A (stream channel)	Waters

Regulatory Considerations

Sheephouse Creek is a perennial waterway, classified as a "Waters of the US" under Section 404 of the Clean Water Act, and is subject to the jurisdiction of the US Army Corps of Engineers. As a "Waters of the State" under the Porter-Cologne Water Quality Control Act and the federal Clean Water Act, the creek is also regulated by the North Coast Regional Water Quality Control Board. Pursuant to Section 1600 of the California Fish and Game Code, the California Department of Fish and Wildlife asserts jurisdiction over the creek's bed, bank, and channel, which includes the associated riparian habitat. Because the project is located within the Coastal Zone, it will also need to comply with the California Coastal Act, particularly regarding the protection of Environmentally Sensitive Habitat Areas (ESHAs). The project must be implemented in a manner consistent with the Sonoma County Local Coastal Program, Streamside Conservation Area protections, and all other applicable Sonoma County codes and ordinances.



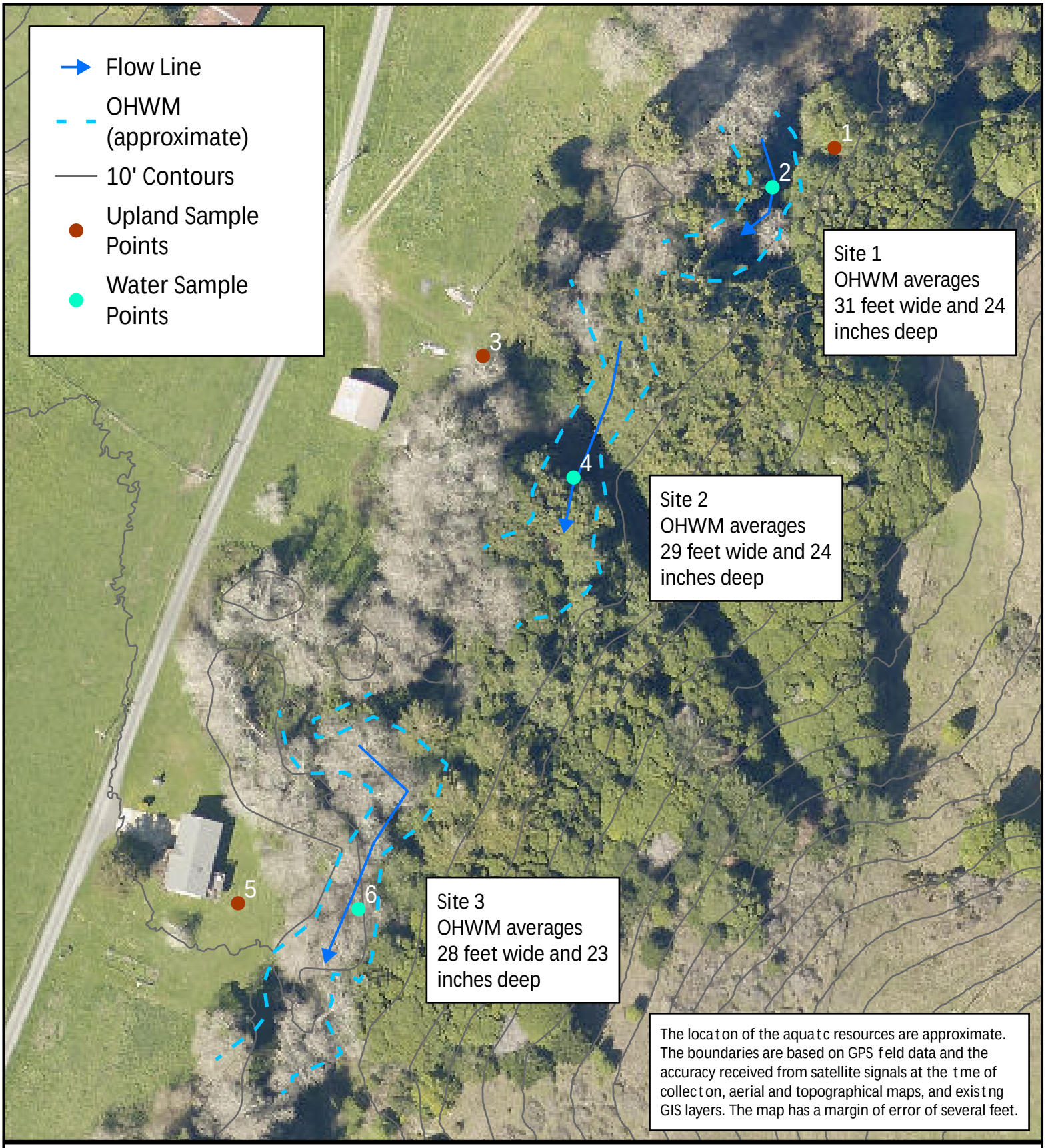
0 75 150 300 450 Feet

SWIFT BIOLOGICAL

Figure 3. Vegetation Types

Sheephouse Creek Bank Failure Project
28165 Highway 116, Jenner, Sonoma County
Biological Resources Assessment - February 2026

Sources: Aerial - ESRI, Streams and Vegetation - Sonoma County



0 30 60 120 180 Feet

SWIFT BIOLOGICAL

Figure 3. Aquatic Resources

Sheephouse Creek Bank Failure Project
28165 Highway 116, Jenner, Sonoma County
Biological Resources Assessment - February 2026

Sources: Aerial - ESRI, OHWM and Points - Swift Bio

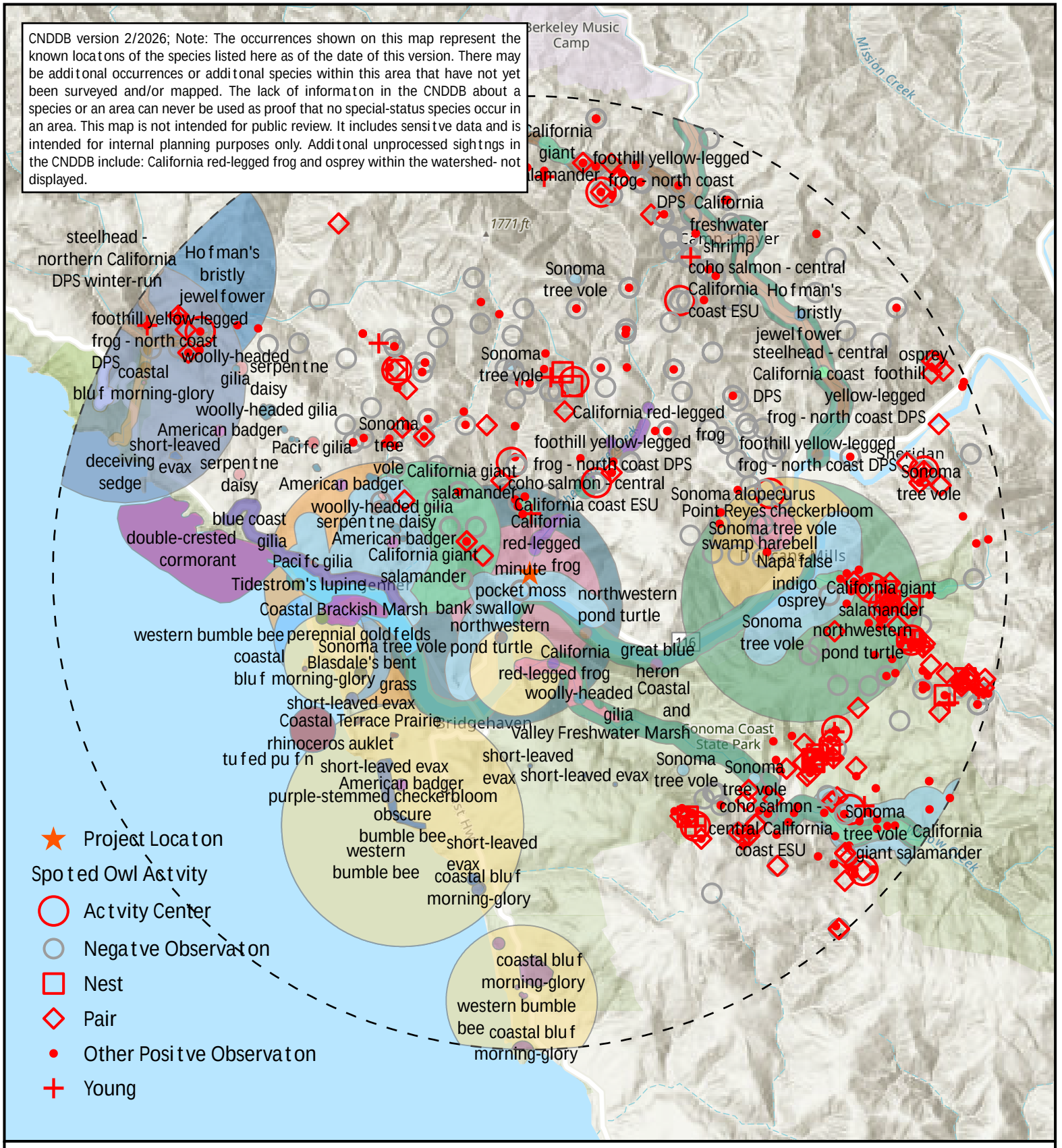


Figure 5. Reported Occurrences of Special-status Species

Sheephouse Creek Bank Failure Project
28165 Highway 116, Jenner, Sonoma County
Biological Resources Assessment - February 2026

Sources: Base Map - ESRI, Species - CDFW CNDDB

SWIFT BIOLOGICAL

4 Special-status Species and Habitats

4.1 Special-status Species Definition

Special-status Species is a term used primarily in the California regulatory community to refer to plant and animal species that are considered sufficiently rare and warrant special consideration and/or protection. These plant and animal species occur in small, isolated populations or fragmented habitats, exhibit marked population declines, depend on habitats that have historically and recently been reduced in size, quality, or integrity, are confined to limited areas, or historically occurred within California but have no recent records (CDFW 2026b). Special-status species include:

- Species listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (ESA) and California Endangered Species Act (CESA);
- Animals designated by CDFW as Species of Special Concern or Fully Protected;
- Plants considered by the California Native Plant Society to be rare, threatened, or endangered in California (List 1B, 2, 3, and 4; List 1B and 2 are almost always treated as "Rare" under CEQA. Lists 3 and 4 are often included in local plans like Sonoma County's);
- Plants listed under the California Native Plant Protection Act (California Fish and Game Code);
- Species considered sensitive by other federal agencies (i.e., US Fish and Wildlife Service, US Forest Service, Bureau of Land Management) or state and local agencies or jurisdictions; and
- Species that meet the definitions of rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines.

4.2 Special-status Species Evaluation Criteria

The potential for each special-status species identified during the background review was evaluated for potential occurrence within the project site. The potential for special-status species to occur on the site is based on the existing site conditions, known distribution and habitat requirements of the species, and the professional expertise of the biologist completing this assessment. The following criteria were used:

No Potential – Suitable habitat is not present, and/or the project site is outside the species' range.

Low Potential – Habitat is generally unsuitable or of very poor quality, key habitat elements are absent, and/or the project site is isolated from the nearest extant occurrences. The species is not expected to be found within the project site.

Moderate Potential – Marginally suitable habitat or some key habitat elements that could support this species are present within the project site or immediately adjacent to the site. Species has a moderate potential to occur within the project site.

High Potential – All of the habitat components required by this species are present, and/or the suitable habitat is adjacent to the project site. This species would be expected to be

found during focused field surveys. Species has a high potential to occur within the project site.

Present – Species was observed directly or indirectly during surveys and/or known from reported occurrences that are believed to be still extant.

4.3 Special-status Plants

Based on the background review, a list of special-status plants with the potential to occur within the project was generated. The background review identified a number of plant species with reported occurrences within the region (see Figure 5; CDFW 2026a, USFWS 2026a). The potential for each species to occur within the project site was evaluated based on existing site conditions and each species' habitat requirements. While the regional review identified several protected species, including the federally endangered Sonoma alopecurus (*Alopecurus aequalis var. sonomensis*), Baker's larkspur (*Delphinium bakeri*), and Tidestrom's lupine (*Lupinus tidestromii*), and showy Indian clover (*Trifolium amoenum*; USFWS 2026a), the project site lacks the specific micro-habitats and soil substrates (such as serpentine, volcanic, or coastal dune systems) required by these taxa.

Based on the background review and site-specific habitat surveys, there is low potential for special-status plants to occur within the Sheephouse Creek project area. Focused botanical surveys were completed in May 2023 and February 2026. No special-status plants were observed during these efforts. Although an additional site visit is scheduled for spring 2026, the current habitat composition and previous negative findings indicate that special-status species are not expected to be present. The project is not anticipated to impact any rare plant populations. A special-status plant occurrence table and a map are provided at the end of this report.

4.4 Special-status Animals

Based on the background review, a list of special-status animals with the potential to occur within the project area was generated. The background review identified a number of animal species with reported occurrences within the region (see Figure 5; CDFW 2026a, USFWS 2026a). The potential for each species to occur within the Sheephouse Creek project area was evaluated based on current site conditions and specific habitat requirements. A special-status animal occurrence location map and table are provided in this report. The following table further details the life history and site potential of species that warrant particular mention due to their proximity to the project, their high potential for occurrence, or the need for specific project-related conservation actions. In addition to the table below, the project supports habitat features, including native trees and understory vegetation that may support protected nesting birds, as well as roosting habitat for common and special-status bats. Protected nesting birds and bats are described in the sections below. Recommended protection measures are included in the conclusions section.

Table 4. Special-status Animal Species Evaluated for Potential to Occur within the Project

Scientific Name Common Name	Listing Status[5]	Habitat Requirements	Local Observations[6] and Potential for Occurrence within the Project
Actinemys marmorata Western Pond Turtle	FC, SSC	Only native turtle in Sonoma County. Found in ponds, lakes, rivers, streams, creeks, marshes, irrigation ditches, and upland areas. Nest dug in upland areas along stream or pond margins in sunny, grassy areas. Mating occurs in April to May (8-10 years old). 2-11 eggs laid. Hatchlings emerge in late summer-fall and sometimes overwinter. Active February-March. Diurnal and aquatic. Requires basking sites – logs, banks, etc. Eat plants, invertebrates, carrion, and occasionally frogs and fish.	Moderate potential. Pond turtles are known to occur on the mainstem Russian River, but have not been reported in Sheephouse Creek (CDFW 2026a). Turtles may move into the creek on occasion, but the canopy coverage and lack of basking sites and accessible upland breeding habitat may preclude this species from using the project area.
Arborimus pomo Sonoma Tree Vole	SSC	A small rodent that spends nearly its entire life in the canopy of mature forests. The range includes coniferous forests in humid areas of northwestern California. Eats exclusively conifer needles. Eats only a portion of the needle leaving the thin resin ducts. The ducts are discarded or used to line their nests. Nests are typically constructed from 6 to 150 feet above the ground, preferably in tall trees, and located on outer branches or on whorls of limbs against the trunk. Breeding occurs year-round, with peak activity from February to September. The primary predators of voles are spotted owls, saw-whet owls, and possibly raccoons.	Not expected. Suitable habitat for Sonoma tree voles is present in the surrounding forests. No large trees are proposed for removal. Based on this species' affinity to live in the canopy, it is not likely to occur within the project area.
Dicamptodon ensatus California Giant Salamander	SSC	One of the largest terrestrial salamanders in North America. Primarily nocturnal. Occurs in wet coastal forests near permanent and semi-permanent streams and seepages. Adults are generally found within 150' of aquatic habitat. Remain underground in retreats and more active during the rainy season. Breeding occurs in spring and sometimes fall. Reproduction is aquatic. Larvae are stream-dwelling and require 18-24 months to transform. Eat small vertebrates and invertebrates.	Present. California giant salamanders are reported in the Sheephouse Creek watershed. Salamanders were observed in the western tributary in 1996 (CDFW 2026a). Suitable aquatic and upland habitats are present within the project area.

[5] Animal Listing Status Codes
Federal: FE-federally listed as endangered, FT-federally listed as threatened, FC-federal candidate species, BCC-USFWS Bird of Conservation Concern. State: SE-state listed as endangered, ST-state listed as threatened, Candidate SE-state candidate to be listed as endangered under CESA, Candidate ST-state candidate to be listed as threatened under CESA, FP-CDFW fully protected, SSC-CDFW Species of Special Concern, and WL-CDFW Watch List.

[6] Occurrence information based on CDFW's California Natural Diversity Database (CDFW 2026a)

Scientific Name Common Name	Listing Status[5]	Habitat Requirements	Local Observations[6] and Potential for Occurrence within the Project
Oncorhynchus kisutch Central California Coast ESU Coho Salmon	FE, SE	Coho salmon transition from freshwater, tidal zones, to the ocean over their three-year life span. They spawn and rear in freshwater, move downstream into the ocean to mature and then return to their natal streams to spawn. Coho salmon are semelparous – they die shortly after spawning. Coho salmon develop three consecutive-year classes in each stream with strong demographic separation. Spawning occurs primarily from December through February. Juvenile fish remain in freshwater typically for one year. They may reside in estuarine habitats before moving into the ocean. After two years in the ocean, adult coho salmon return to their natal streams.	Present. Coho salmon are known to occur in Sheephouse Creek. Suitable habitat is present within the creek.
Oncorhynchus mykiss Central California Coast DPS Steelhead	FT	Steelhead transition from freshwater, tidal zones, to the ocean during different life stages. Steelhead immigrate during high flow events and sand bar breaches between December and April and spawn shortly after reaching their spawning grounds. Juvenile freshwater residence can range from one to three years depending on environmental conditions and growth rates. Adults typically spend one to two years in the ocean before returning to their natal streams to spawn. Steelhead may spawn more than one season before dying; however, the majority of adults only spawn one time.	Present. Steelhead are known to occur in Sheephouse Creek. Suitable habitat is present within the creek.
Rana boylii Foothill Yellow-legged Frog	SSC	Found in small tributary streams with perennial water. Breeding and rearing streams are generally sunlit with microhabitat features (e.g., boulders) and low flow velocities. Typically found within close proximity to the stream channel, small upland movements have been noted. Non-breeding habitat also includes adjacent terrestrial riparian habitat and nearby features that provide high-flow refuge. Breeding occurs in spring after winter runoff has subsided (typically May-June). Eggs attached to rock and vegetative substrates in shallow, slow-moving water. Mostly active during daylight. Adults consume a variety of aquatic invertebrates. Tadpoles graze algae and detritus.	High potential. Foothill yellow-legged frogs are reported in the Sheephouse Creek watershed. Frogs were observed 1.5 miles upstream of the project in 2017 in an alder, willow, and redwood forest along the creek (CDFW 2026a). Suitable habitat is present within the creek.
Rana draytonii California Red-legged Frog	FT, SSC	Largest native frog in the western U.S. Breed in a variety of aquatic habitats with still to slow-moving water and emergent vegetation, must hold water into late summer or early fall. Found in streams, ponds, marshes, sag ponds, dune ponds, and	High potential. California red-legged frogs have been reported in the Sheephouse Creek watershed (CDFW 2026a). They were observed

Scientific Name Common Name	Listing Status[5]	Habitat Requirements	Local Observations[6] and Potential for Occurrence within the Project
		lagoons including both natural and manmade features. Non-breeding habitat includes areas used for breeding and other non-breeding habitats such as springs, vegetated seeps, riparian habitat, and oftentimes other less conspicuous upland locations like burrows and leaf litter. Breeding occurs between November and April (egg-laying is generally January – February). Eggs are deposited in a large grapefruit size mass on emergent vegetation just below the water's surface. Variable diet.	in the approximate vicinity of the project in the 90s and early 2000s, but not recently. They have been seen upstream of the project more recently in 2017. Frogs may occur within the project area.
Strix occidentalis caurina Northern Spotted Owl	FT, ST	Occupies old-growth forests in the northern range and mixed old-growth and younger forest types in the southern range. Consumes primarily small mammals, other birds, and insects. Requires large territory size for nesting and foraging. Nests in cavities or platforms in large trees. Breeding season occurs from early March through September. Permanent year-round residents in Sonoma County in old-growth and mixed forest habitats Spotted owls have experienced a population decline due to the loss and degradation of existing mature and old-growth forests and, most recently, the establishment of barred owls in the west.	Moderate Potential. Spotted owl territories are reported throughout the lower Russian River. The nearest activity center is 1.5 miles north of the project in a densely wooded habitat. There are observations of owls within 0.6-0.75 miles of the project from the 1990s and early 2000s. Given the narrow band of forest along Sheephouse Creek and the adjacent road, there is only a low potential for NSO to nest within the project area. However, owls may forage and roost within the project area on occasion.
Syncaris pacifica California Freshwater Shrimp	FE, SE	Endemic to Marin, Sonoma, and Napa Counties. Occur in low elevation (less than 380 feet), low gradient streams (less than 1%) with perennial flow, or intermittent streams with perennial pools. Streams are generally structurally diverse with undercut banks, overhanging woody debris and vegetation, and exposed roots. Reproduction occurs once a year in the fall. Females retain eggs through the winter and remain attached to the abdominal swimming legs until May or early July. Forage on fine particulate organic matter, but have been observed feeding on dead fish as well.	Not expected. There are no reports of California freshwater shrimp in the Sheephouse Creek watershed. Based on previous studies in the watershed and the lack of confirmed sightings, shrimp are not expected within the project area. Note: CNDDB records (CDFW 2026a), USFWS 5-year status reports (USFWS 2008 and 2011), the

Scientific Name Common Name	Listing Status[5]	Habitat Requirements	Local Observations[6] and Potential for Occurrence within the Project
			Recovery Plan (USFWS 1998), and a CDFW stream inventory report (CDFW 2006) were reviewed to determine if California freshwater shrimp have been observed in Sheephouse Creek. No reports were found.

Protected Nesting Birds

There are over 400 bird species that have been documented in Sonoma County, including 186 that have possible to confirmed breeding status in Sonoma County (Madrone Audubon Society 2018). These include a wide range of species from habitat generalists to specialists, year-round residents, winter residents, summer residents, spring and fall migrants, and rare vagrants. Bird species of concern are reported in CDFW's CNDDB, USFWS (2026a), and other bird reporting databases (eBird, iNaturalist). USFWS also identifies migratory and non-migratory Birds of Conservation Concern (beyond those already designated as threatened or endangered) that represent species of high conservation priority that deserve proactive attention (USFWS 2021).

Native birds are protected under several federal and state regulations, including the Migratory Bird Treaty Act of 1918 (MBTA; 50 CFR 10.13), Bald and Golden Eagle Protection Act of 1940 (16 USC 668-668c), Endangered Species Acts, California Fish and Wildlife Code (§3503, 3503.5, and §3513), and California Endangered Species Act. All native nesting birds, with a few exceptions, are protected under these laws. Non-nesting protections extend to golden and bald eagles, CDFW fully protected species, and listed species and their habitats listed under the ESA and CESA.

Under the federal MBTA, "it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird unless authorized under a permit issued by the Secretary of the Interior. Take is defined as: 'pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect". The Migratory Bird Treaty Reform Act (MBTRA) of 2004 updated the criteria for species to be protected under the MBTA to include "all species native to the U.S. or its territories, which are those that occur as a result of natural biological or ecological processes." The MBTA does not protect "non-native species whose occur in the US are solely the result of intentional or unintentional human-assisted introduction." Within California, these exceptions include the non-native European starling, house sparrow, and rock pigeon, as well as non-migratory game birds such as California quail, pheasant, and grouse, and wild turkey, all belonging to the families Odontophoridae and Phasianidae. However, non-migratory game birds

are protected under the California Fish and Game Code. Under §3503 of the California Fish and Game Code, "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Under §3513 of the California Fish and Game Code, "it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA."

Construction activities in areas with nesting birds can result in the alteration of the nesting habitat and disruption of nesting activities. Construction activities (including grading, vegetation removal, and worker presence) can result in the destruction of eggs or occupied nests, mortality of young, and the abandonment of nests with eggs or young birds before fledging. If construction-related activities are scheduled during the nesting season, preconstruction nesting bird surveys are required to be completed by a qualified biologist. If nesting birds are found, protection buffers are required, and ongoing monitoring may be necessary. If work is delayed, additional surveys may also be required. Implementation of standard construction Best Management Practices that limit construction activities, including vegetation removal, to the non-nesting season (typically September 1 – January 31) can avoid impacts on native nesting birds. Native birds typical of riparian and California bay and redwood forests may occur seasonally or year-round within the project site and the surrounding area, including osprey, a Watch List species reported by CDFW in the watershed. Nesting birds should be protected in accordance with the recommendations below.

Common and Special-status Bats

In California, there are reported occurrences of 25 species of bats, with approximately 15 species reported in the North Bay area (CDFW 2016, Zeiner et al 1990). Some species of bats in this region are year-round residents, while others are seasonal. Ten of California's bat species are listed as Species of Special Concern by CDFW. There are no federally or state-listed bat species occurring within California; therefore, ESA and CESA protections for bats do not apply. There are no laws in California protecting bats as a specific wildlife taxonomic group; however, CEQA requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of a proposed project and adopt measures to mitigate those impacts. CEQA is the single most important law protecting bats, including SSCs and large roosting colonies, within California. The National Forest Service and Bureau of Land Management have also identified sensitive bat species and ranked them accordingly.

Bats forage over a range of habitats and use a variety of features for roosting, including caves, mines, trees, bridges, and buildings. Bat roosts provide security and protection where bats can rest, sleep, hibernate, mate, socialize, and feed. Bats will move between different roost sites throughout the year to support their life cycle requirements. Roosting behavior is species-dependent. Bats will roost in colonies or as solitary individuals. Bats will also use a range of different features within a roost. Some bats prefer cavities, such as open surfaces, some like

crevices, and some use both at different times. A few species will also roost in foliage. Bat roosts are generally defined as the following: 1) hibernation/winter – roosts that are used for extended periods of torpor or hibernation during low temperatures and when food supplies are limited (late fall to early spring), 2) transient - sites used by bats when moving between hibernacula and maternity roosts, often where breeding occurs (spring and fall), 3) day – used by individual bats or small groups of males and non-breeding females to rest or shelter during the day in the breeding season (sunrise to sunset), 4) night– used by individuals or groups of bats to rest and digest food between foraging bouts (sunset to sunrise), and 5) maternity (nursery) – used by females for raising young; these roosts are generally thermally stable, with a low risk of falling and predation of pups (April – August). Bats are particularly vulnerable to disturbance during the maternity season and during winter hibernation. During the maternity season (typically April 15 – September 1), bats are especially vulnerable as females are nursing pups and the pups are non-volant (not capable of true flight). In the fall, when nighttime temperatures drop below 45°F and the onset of rainfall greater than ½" in 24 hours, bats enter sustained torpor for winter hibernation or maintain a low level of activity; they become more active around March 1 when nighttime temperatures are above 45°F and rainfall is less than ½" in 24 hours.

Construction activities have the potential to negatively impact bats through direct disturbance to roosting individuals, mortality, and temporary or permanent loss of roosting habitat. The presence of construction equipment and personnel can disturb bats through noise and vibrations. Modifications to roosting habitat can impact a bat's ability to use a roost through changes to entrances, airflow, temperature, and humidity. Modification or removal of suitable roost trees or structures can displace bats. Disruption of bat roosts during the maternity and overwintering periods can impact breeding success, bat fitness, and survivability. Most construction projects are not likely to disrupt the foraging behavior of bats, as bats are mostly nocturnal, and work is generally restricted to daylight hours.

One bat species, the hoary bat(Lasiurus cinereus), is reported within the project area (CDFW 2026a; see RareFind Report). Suitable bat roosting and foraging habitat is present within the project area. Bats could roost in mature trees, especially those with hollows and crevices. The trees were inspected for the presence of bats. This included observing evidence of live or dead bat specimens, bat fecal pellets, urine splashes, and squeaking noises. No evidence of bats was observed. Bats may roost in the mature trees and forage over the site. Construction will occur only during daylight hours and will not interfere with the foraging ability of bats. No roost trees are proposed for removal. If any roosting trees are removed, roosting bats will be protected in accordance with the recommendations below.

5 Sensitive Natural Communities

Sensitive natural communities are vegetation communities that are considered sensitive by the California Department of Fish and Wildlife based on the range and distribution of a given type of vegetation, the proportion of occurrences that are of good ecological integrity, and threats and trends. Communities are evaluated at both a global (full range within and outside of California) and state (within California) using NatureServe's Heritage Program methodology. Rankings include a single G (global) and S (state) rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure), with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. CDFW maintains the California Sensitive Natural Communities list of current vegetation alliances, associations, special stands, and their global and state rarity ranks (CDFW 2025d), as well as the Manual of California Vegetation (Sawyer et al. 2009). It should be noted that some alliances that are not considered sensitive may contain associations that are listed as sensitive by CDFW. Sensitive natural communities may also be identified in local or regional plans, policies, or regulations. Impacts on sensitive natural communities must be considered and evaluated under the CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G).

As described under Existing Plant Communities, the project area is mapped as Vancouverian Riparian Deciduous Forest Group, *Umbellularia californica* (California bay forest) Alliance, and Native and Non-native Perennial Coastal Grassland Mapping Unit. Within the project area, the riparian corridor along Sheephouse Creek is more accurately described as *Alnus rubra* (red alder) Forest Alliance. While pure stands of red alder are generally ranked G5 S4, certain associations within this alliance are ranked S3. Although the specific communities within the project footprint did not meet the criteria for sensitive associations, the red alder forest is being treated as sensitive for the purposes of this report based on a conservative evaluation of the collected plant data, since the entire mapped unit was not surveyed. The adjacent woodland, directly to the east of the project, is mapped as *Umbellularia californica* Alliance, which is ranked G4 S3. No work or equipment staging is proposed within this sensitive woodland type. The western edge of the riparian corridor is mapped as Native and Non-native Perennial Coastal Grassland Mapping Unit. These areas primarily support non-native annual grasses and herbaceous species and are not considered sensitive natural communities in this context. While the project occurs within or adjacent to a sensitive plant community, it will not result in substantial impacts. The work is limited to bank stabilization and restoration efforts within a confined footprint, involves minimal vegetation removal, and includes post-construction restoration with site-appropriate native species to ensure long-term community health.

6 Local Coastal Plan and Environmentally Sensitive Habitat Areas

The Sonoma County Local Coastal Program (LCP) is a comprehensive planning and regulatory framework that manages and protects the county's 55-mile coastline, mandated by the California Coastal Act of 1976. It establishes a robust framework for protecting biological resources, primarily through the Open Space and Resource Conservation (OSRC) Element. This element is designed to maintain, enhance, and restore the biological productivity and quality of coastal waters, streams, wetlands, and marine habitats. This element also identifies designated Environmentally Sensitive Habitat Areas (ESHAs) to protect and preserve natural resources. The OSRC policies also address the protection and preservation of soils, timber, mineral and energy resources, and air quality, as well as the protection and improvement of facilities and natural resources associated with the commercial fishing industry.

6.1 Environmentally Sensitive Habitat Areas

Central to the LCP is the protection of Environmentally Sensitive Habitat Areas (ESHAs). As mandated in the California Coastal Act[7], the LCP identifies ESHAs as areas containing plant or animal life, or their habitats, that are rare or especially valuable and easily disturbed by human activity. The LCP provides further clarification that the following areas should be considered ESHAs: “Any habitat area that is rare or especially valuable from a local, regional, or statewide perspective. Areas that contribute to the viability of plant or animal species designated as rare, threatened, or endangered under State or Federal law. Areas that contribute to the viability of species designated as Fully Protected or Species of Special Concern under State law or regulations. Areas that contribute to the viability of plant and animal life for which there is compelling evidence of rarity, or a species or habitat that is considered to have a special nature or role in the ecosystem. Old growth Redwood and Douglas fir trees and associated forest habitat. Because of their rarity and biological importance, isolated old-growth Redwood and Douglas fir trees shall be protected, as well as intact old-growth forest habitat.”

The LCP utilizes a specific set of biological and ecological criteria to designate an area as an ESHA. Under the current framework, this designation applies to potential ESHAs mapped in the 2023 County figures, as well as any habitats supporting species that are federally or state-listed as rare, threatened, or endangered, including proposed or candidate species. The criteria also encompass California Native Plant Society "1B" and "2" listed species, California Department of Fish and Wildlife vegetation communities or species ranked Global or State 1 through 3, and any designated California Species of Special Concern or Fully Protected Species. Furthermore, protected areas include habitats supporting these listed species, tree stands vital for raptor nesting, monarch

[7] The California Coastal Act (Public Resources Code Section 30107.5) provides special protections for areas designated as Environmentally Sensitive Habitat Areas (ESHAs), defined as follows: “Environmentally sensitive area’ means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.” The California Coastal Commission notes that identification of ESHAs may be based on the presence of sensitive species and habitats, including: the list of rare, threatened, or endangered species prepared under the California or Federal Endangered Species Act, the list of “fully protected species” or “species of special concern” by the California Department of Fish and Wildlife (CDFW), the list of “1B and 2” species prepared by the California Native Plant Society (CNPS), and the CDFW List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database, and habitats that support listed species.

populations, or rookeries, and genetically significant populations at species' range edges. Finally, the LCP protects broader ecological functions such as habitat corridors, ecological linkages, and areas that provide or support critical ecosystem services.

The LCP protects ESHAs (Policies C-OSRC-8d through 8l) by limiting development to resource-dependent uses and requiring robust buffers. While low-impact public access is permitted and buffers may be reduced based on site-specific biological evidence, any encroachment requires the "least impactful" design and high-ratio mitigation. Furthermore, the LCP prohibits invasive landscaping, restricts land divisions that would be impactful on ESHAs, and protects old-growth forests.

6.2 Streams and Riparian Corridors

The LCP provides protections within any streamside conservation area and riparian corridors (Policies C-OSRC-4c through 4i). A primary objective is to maintain the functions and values of these habitats by limiting allowable uses and requiring that any necessary stream alterations minimize impacts to sensitive resources. For bank stabilization and flood control, the LCP explicitly encourages biotechnical solutions over traditional "hard" armoring, such as riprap or concrete. Special emphasis is placed on anadromous fish streams (specifically Chinook and coho salmon habitat), where dredging and structures that impede migration are prohibited, and minimum instream flows must be maintained to support all life-cycle phases.

6.3 Wetlands and Marine Habitats

For wetland and marine resources (Policies C-OSRC-5 and 6), the LCP mandates a "no net loss" policy regarding acreage, functions, and values of wetland. This standard accounts for both direct development impacts and indirect effects such as water quality degradation. When impacts are unavoidable and permitted under the Coastal Act, the LCP requires compensatory mitigation. This mitigation prioritizes on-site and off-site restoration over the purchase of credits, ensuring that the biological integrity of the Sonoma Coast is preserved against the cumulative impacts of development and climate change. The LCP mandates the maintenance and restoration of marine biological productivity by prohibiting structural alterations to shorelines, restricting access to sensitive haul-out and nesting areas, and requiring mitigation for unavoidable impacts to coastal waters and habitats.

6.4 LCP Policy Consistency Analysis

The project addresses three bank failure sites along Sheephouse Creek to prevent road collapse and sediment delivery into a salmonid-bearing stream. The design utilizes a "no net fill" approach, incorporating biotechnical features (large wood, rootwads, and native revegetation) to enhance aquatic habitat while stabilizing the access road. The Sheephouse Creek project is located within designated ESHAs. At the request of Permit Sonoma, this project has been evaluated for consistency with the Sonoma County Local Coastal Plan. The following analysis demonstrates how the proposed project aligns with the Open Space & Resource Conservation goals of the LCP.

Table 5. ESHA Policy Impacts and Findings

ESHA Type	Location and Impacts	Findings
Stream & Aquatic Habitat	Sheephouse Creek: Anadromous stream for salmonids and other aquatic species. Minor in-channel work and temporary dewatering.	Consistent. Uses seasonal work windows and species relocation. Restoration creates a higher quality habitat than existing conditions.
Protected Plant Communities	Riparian habitat: Sensitive vegetation alliances. Minor vegetation disturbance.	Consistent. Impacts are confined to a minimal footprint. Revegetated with site-specific native plants to maintain the riparian community integrity.
Special Wildlife Habitat	Multi-species Habitat: Coho salmon, steelhead, California giant salamander, California red-legged frog, foothill yellow-legged frog, nesting bird, and roosting bat habitat. Aquatic and terrestrial species protection measures will be in place during construction.	Consistent. Mitigated via preconstruction surveys and biological monitoring to ensure protection of special-status animal species.

Table 6. Stream, Riparian, and Wetland Policy Impacts and Findings

Policy	Summary	Impact Determination & Findings
C-OSRC-4c	Development in Riparian Corridors must not result in significant adverse impacts on habitat functions.	Consistent. While temporary impacts occur during dewatering, the long-term result is a restoration of riparian function and protection of the creek from sediment delivery.
C-OSRC-4d	Prohibits fencing/walls in riparian areas	Consistent. No prohibited fencing or walls are proposed.
C-OSRC-4e	Prohibits stream alterations except for water supply, flood control, habitat improvement, or protecting existing structures where no other method is feasible.	Consistent. The project meets two exceptions: (1) protecting the primary residential access road and (2) habitat improvement. It prioritizes biotechnical solutions over hard solutions.
C-OSRC-4f	Projects must comply with State Water Board instream flow policies.	Consistent. The project is a bank stabilization and habitat restoration effort. It does not involve new water diversions or permanent flow limitations.
C-OSRC-4g	Prohibits dredging, dams, or structures that prevent fish migration in anadromous fish streams.	Consistent. The design creates "scour pools" and "velocity refugia" using wood, specifically intended to assist rather than hinder salmonid life cycles. No dams are proposed.
C-OSRC-4h	Maintain flow levels for spawning and encourage summer base flows in anadromous fish streams.	Consistent. The project does not divert water. Stabilizing the banks helps maintain the natural channel morphology necessary for sustaining base flows.
C-OSRC-4i	Maintain and restore the biological productivity and habitat quality of coastal resources.	Consistent. By preventing 50 CY of sediment from entering the creek and removing legacy concrete waste, the project directly improves water quality and biological resources.
C-OSRC-4j	Mitigate riparian vegetation impacts at a 3:1 ratio.	Consistent. The project includes a revegetation plan using native plants.

Policy	Summary	Impact Determination & Findings
C-OSRC-4k	Refer applications to CDFW and other resource agencies.	Consistent. The applicant has already conducted on-site consultations with CDFW and NCRWQCB (July 2022) to ensure design compliance and secure permit authorizations.
C-OSRC-5h/i	No net loss of wetlands; mitigation for impacts at a 4:1 ratio.	Consistent. The project adheres to a "no net fill" design. Any disturbance to jurisdictional areas during bank reconstruction will be offset by the restoration of the creek bank and native revegetation.
C-OSRC-6a	Maintain and enhance marine/coastal biological productivity.	Consistent. Sheephouse Creek is a tributary of the Russian River. By enhancing salmonid habitat (anadromous species), the project supports the long-term health of coastal marine resources.

7 Conclusions

Pacific Watershed Associates, Inc. (PWA) is assisting a private landowner with a bank restoration project on Sheephouse Creek, Jenner, Sonoma County. The purpose of the project is to restore three bank failure locations that threaten an adjacent access road. The bank failures have occurred on several outside meander bends along the mainstem. The vertical banks are subject to high velocities and are at risk of compromising the road and delivering a large amount of sediment to Sheephouse Creek. The plans call for stabilizing the bank and incorporating biotechnical features and large wood into the bank reconstruction to improve habitat conditions for salmonids in the lower sections of Sheephouse Creek. Work will occur at three sites along the eastern side and left bank of Sheephouse Creek. The project supports a well-developed riparian forest along the creek. The creek is a direct tributary of the Russian River and an important watershed for coho salmon, steelhead, and other special status species. This section summarizes the biological resources in the project area, based on a field survey and background research.

- The project is located on mainstem Sheephouse Creek, a perennial stream and tributary to the lower Russian River. It is classified as Waters of the US and Waters of the State.
- Native riparian habitat occurs along the stream corridor and is dominated by native trees, understory shrubs, and forbs. The riparian corridor along Sheephouse Creek is mapped as Vancouverian Riparian Deciduous Forest Group, a community more accurately described as *Alnus rubra* (Red alder) Forest Alliance.
- There is low potential for special-status plants within the project area, as no protected species were observed during the May 2023 and February 2026 surveys, and the site lacks the necessary micro-habitats for these taxa. A follow-up survey is proposed for spring 2026 to confirm that no rare plant populations will be impacted.
- Sheephouse Creek and the adjacent uplands provide habitat for special-status species, including steelhead, coho salmon, California red-legged frog, foothill yellow-legged frog, California giant salamander, and other native fish and aquatic species, and a variety of native terrestrial wildlife (e.g., birds, reptiles, amphibians, mammals, and invertebrates).
- Native birds typical of riparian habitats may occur seasonally or year-round within the project area. All native nesting birds, with a few exceptions, are protected under federal and state laws.
- The project area supports potential roosting and foraging habitat for special-status and common bat species. However, no large roost trees are proposed for removal.
- The project is located within the Coastal Zone and subject to the Sonoma County Local Coastal Plan. The project supports Environmentally Sensitive Habitat Areas; see the *Local Coastal Plan and the Environmentally Sensitive Habitat Areas* section for additional details and findings.

The following measures are recommended to protect biological resources during construction within Sheephouse Creek and its associated riparian habitat. General construction Best Management Practices (BMPs) are not included below. Project-specific water pollution and

erosion control BMPs are outlined in the project plans; see PWA 2025a and 2025b for additional measures.

7.1 Native Vegetation

The project has been designed to minimize disturbance to native riparian vegetation and trees. However, the construction of the project could require the limited removal or trimming of native trees and the removal of native understory vegetation. The project will ensure the protection of native vegetation during project construction, and the following measures will be implemented:

- Construction of the project will be designed to minimize disturbance to native riparian vegetation, including naturally occurring riparian trees.
- For all native trees within the work area, a tree protection zone will be identified for each tree to be protected. The tree protection zone will extend from the trunk to the drip line (i.e., the outer edge of the tree canopy). All tree protection zones will be clearly marked with fencing (e.g., Environmentally Sensitive Area (ESA) fencing) or flagging before ground-disturbing activities.
- No construction materials, equipment storage, or parking areas will be located within the tree protection zone. Construction equipment will not cause root compaction within the tree protection zone.

7.2 Education Training

Before any construction activities begin, a qualified biologist[8] will conduct an educational training for all field personnel completing on-site construction activities. The training will include a discussion of the biology and general behavior of any sensitive plant or animal species with the potential to occur within the area, procedures to follow if they are encountered, listing status including legal protection, penalties for violations, and project-specific protective measures. The presence of sensitive plant communities and aquatic resources will also be discussed along with project-specific protective measures. The biologist will prepare and distribute a factsheet handout containing an overview of all of the information discussed during the training for workers to retain on-site. Upon completion of the training, all attendees will sign an affidavit stating that they attended the program and understand all protection measures.

7.3 Preconstruction Survey

The project area supports habitat for a variety of common native wildlife species (e.g., reptiles, amphibians, mammals, and invertebrates) as well as special-status frogs, turtles, salamanders, and other wildlife. Project activities may temporarily affect existing habitats, potentially resulting in

[8] Per CDFW, a qualified biologist is an individual who holds a bachelor's degree from an accredited university and 1) is knowledgeable in relevant species' life histories and ecology, 2) can correctly identify relevant species, 3) has conducted field surveys for relevant species, and 4) is familiar with relevant survey protocols, and 5) is knowledgeable of state and federal laws regarding the protection of sensitive species.

disturbance, displacement, or mortality of wildlife species. To avoid impacts on wildlife species during construction, the following protection measures will be implemented:

Within 48 hours before the start of project activities, a preconstruction wildlife survey will be completed by a qualified biologist. The survey will be completed within and adjacent to any work areas and will include searching all suitable habitats including, but not limited to, vegetation, cavities, undercut banks, leaf litter, instream, and other suitable habitats within 50 feet of any work area. Species observed within the project sites during the survey will be relocated out of harm's way to the nearest suitable habitat immediately upstream or downstream unless the animal is capable of leaving of its own volition and will not be harmed by construction activities. Relocation sites will be far enough away from the site to preclude wildlife from immediately returning to the work area.

7.4 Construction Monitoring

A qualified biologist will be on site to monitor compliance and ensure the protection of sensitive habitats and special-status species. The biologist will be on-site during the initial habitat disturbance, including clearing and grubbing, vegetation removal, and topsoil removal. During these visits, the biologist will conduct daily preconstruction sweeps of the active work area and a 100-foot buffer zone immediately prior to the start of construction activities. The sweeps will focus on identifying and documenting any special-status species or active nests/burrows. The biologist will oversee the establishment and maintenance of disturbance and protection areas, ensuring that all construction personnel are aware of these boundaries and that protective fencing (e.g., ESA fencing) is properly installed and maintained. Following the initial habitat disturbance, the biologist will conduct routine inspections at a frequency determined by the project schedule and resources present at the time of construction. The biologist will monitor wildlife presence and interactions, work-area compliance, spill prevention and response, proper staging/storage of materials outside sensitive areas, and the function and maintenance of erosion and sediment control Best Management Practices (BMPs). The biologist will have the authority to immediately stop work in the event of a violation of environmental protection measures, an unauthorized impact on sensitive resources, or the discovery of special-status species. Daily and routine monitoring reports will be compiled.

7.5 Aquatic Species Relocations

See also Coho Salmon and Steelhead Protection Measures below.

All in-channel work will be completed during the low-flow season to reduce the extent of stream channel requiring dewatering and reduce the potential for encountering special-status aquatic species. It is reasonably likely that Sheephouse Creek will have isolated pools or minimal stream flow. If pools or streamflow are present at the time of construction, the sites will be dewatered and aquatic species relocated. Before the construction of the water diversion structures, a

qualified biologist will conduct an initial site survey. Once the site has been adequately surveyed and aquatic species have been relocated, installation of the diversion structures will commence; see *Creek Dewatering and Diversion* below. After the cofferdams are installed and during dewatering, the dewatering area will continue to be surveyed for aquatic species until no animals are detected and the entire area has been dewatered.

Aquatic species will be captured with the use of submerged dip-nets, seines, and/or electrofishing. All suitable habitats will be sampled by surveying roots and vegetation along the stream bank, the water column, and under large wood structures. Aquatic species will be kept in 5-gallon utility buckets, 7.3-quart or 5-gallon Cool Bubbles Insulated Bait Saver™ buckets, or plastic terrariums, as appropriate. All containers will be outfitted with lids to prevent animals from jumping out. All containers will be outfitted with aerators (e.g., Marin Metals Product™ Bubbles air pump) and kept in the shade with cool, fresh water until the animals can be processed. Water temperatures in the containers will be kept cool and shaded. Any potential predators captured will be placed in separate containers to avoid predation of native species. Before relocating aquatic species, the most appropriate release sites will be identified. Animals will be moved directly to the nearest suitable habitat upstream or downstream of the dewatering reach. Release sites will have water temperatures similar to those at the capture site, ample habitat for the captured species, and a low likelihood of animals reentering the work area. A complete record of the number of species relocated and a description of the relocation sites will be kept. The biologist will limit the duration of handling and captivity of the listed species to the minimum time necessary to complete the task.

7.6 Creek Dewatering and Diversion

See also Coho Salmon and Steelhead Protection Measures below.

Fish and other aquatic species will be excluded from the work area by blocking the stream channel above and below the work area with fine-meshed nets or screens. The mesh will be no greater than 1/8-inch diameter. The bottom of a seine/net will be completely secured to the channel bed. Block nets will be placed and maintained throughout the dewatering period at the upper and lower extent of the areas where animals will be removed. Before dewatering, the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates will be determined. Water will be diverted around the site through either a pumped diversion or gravity-fed to allow water to flow downstream of the work area. Temporary coffer dams will be constructed across the channel to isolate the work area. The dam will be constructed of sandbags or clean gravel to minimize siltation. Visqueen, firmly anchored to the streambed, will be placed over the cofferdam to minimize water seepage into the work area. Diversion pipes will be screened and monitored for debris accumulation. A debris rack may be needed depending on the stream conditions. Sump pumps within the dewatering area may be needed to capture dirty water. Water will be pumped out of the work area to a location where it can infiltrate back into the creek without being delivered directly into the creek. Any

pump used during the dewatering will be refueled away from the stream channel, and fuel-absorbent mats will be placed under pumps while refueling. All pump intakes will be completely screened with 1/8-inch wire mesh to prevent the potential entrainment of fish or amphibians that were not removed during the initial relocation efforts. The pump intakes will be periodically checked for impingement of fish or other aquatic species. The dewatering will comply with the *National Marin Fisheries Service Fish Screening Criteria for Anadromous Salmonids* (NOAA Fisheries, 1997). The coffer dams and stream diversion systems will remain in place and fully functional throughout the construction period. Upon completion of work, streamflow will be gradually released from the upstream cofferdam to re-wet the dewatered stream channel. All cofferdam materials will be removed after construction, and the stream bed will be returned to its preconstruction condition.

7.7 Nesting Birds

The project area supports breeding habitat for native bird species. Breeding birds are protected under the Migratory Bird Treaty Act, California Fish and Game Code, and federal and state ESAs. Project activities (including vegetation removal, grading, or other ground-disturbing activities) could result in the alteration of the nesting habitat and disruption of nesting activities. Construction activities can result in the destruction of eggs or occupied nests, the mortality of young, and the abandonment of nests with eggs or young birds before fledging. To avoid potential impacts on native nesting birds, the following protection measures will be implemented:

- Preconstruction nesting bird surveys will be completed from February 1- August 31. A survey will be completed within 7 days before the beginning of project-related activities. The survey area will include the project site and an appropriate buffer around it to identify any nesting that could be directly or indirectly impacted by the project-related activities. The survey will follow established nesting search protocols described in Martin and Guepel (1993) and CDFW and USFWS protocols, where appropriate. If the qualified biologist finds no active nests or breeding activity, indicating nests are present, then work can proceed without restrictions. If there is a lapse of 7 days or more in project-related activities, a follow-up survey may be required per the recommendations of the qualified biologist.
- If active nests are identified during the survey and the nests are within the project site or the buffer area, and nesting would be adversely affected, a "No Work Zone" buffer area will be demarcated around each nest site by the qualified biologist. Buffer distances for each bird nest will be site-specific and established to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance will vary by species, nest location, existing visual and topographical buffers, and intensity and extent of the construction-related disturbance. The buffer area may be as small as 25-50 feet for common, disturbance-adapted species, or much larger (e.g., 100-250 feet) for sensitive species such as raptors and owls. The "No Work Zone" will be established in the field with flagging, fencing, or other appropriate material and remain in place until all young in the nest have fledged or the nest otherwise becomes inactive due to predation or other natural causes as determined by the qualified biologist. The qualified

biologist will continue to monitor the birds' behavior at the nest site during construction activities to ensure they are not disturbed by the project work. Nest monitoring will continue until the nesting attempt is complete. If State and/or federally-listed birds are found breeding within the area, consultation with the CDFW and USFWS may be required.

- If initial ground-disturbing activities occur outside of the nesting season (September 1 through January 31), then a preconstruction survey would not be required, and construction could begin unimpeded.

7.8 Special-status Bats

The project area supports potential roosting (tree) and foraging habitat for special-status and common bat species. Bats may be present within the project sites (trees) during construction and forage over the sites. Work will be restricted to daylight hours; therefore, no impacts on foraging bats are anticipated. Project construction activities could directly affect roosting bats if suitable roost trees are removed or significantly trimmed. Indirect impacts can result from increased human presence and construction noise. To avoid potential impacts on roosting bats, the following precautionary measures will be implemented:

- Before tree removal/trimming (branches over 12" DBH), a qualified biologist will survey for potential bat roosts and occupied habitats. If active bat roosts are identified within the trees to be removed, the disturbance will not be allowed until the roost is abandoned or unoccupied.
- If tree trimming/removal is postponed or interrupted for more than two weeks from the date of the initial bat survey, the biologist will repeat the pre-construction survey.
- Tree removal or trimming is recommended from September 1 to October 15 or March 1 to April 15 to avoid the bat maternity roost and winter hibernation season.
- To the extent feasible, tree work should be avoided between April 15 and September 1 during the maternity roost season [bats are especially vulnerable during this period when females are nursing pups and the pups are non-volant (not capable of true flight)].

7.9 Coho Salmon and Steelhead Protection Measures (per NOAA Fisheries 2016)

In addition to the aquatic species relocation and creek dewatering and diversion measures listed above, the following protection measures will be implemented to protect coho salmon and steelhead within Sheephouse Creek in accordance with NOAA Fisheries' Biological Opinion (2016). The U.S. Army Corps of Engineers has specifically requested that this section be included and cross-referenced for formal consultation with NOAA Fisheries. Please see the *Biological Opinion* for the full text.

General Protection Measures

The following general protection measures will be implemented:

- 1.3.7 a 1: restrict work to June 15 to October 15
- 1.3.7 a 3: landowner/contractor notification of protective measures

- 1.3.7 a 6: reestablishment of the thalweg after construction

Requirements for Fish Relocation and Dewatering Activities

All measures outlined under Section 1.3.7.1a will be implemented, including 1 through 13. These measures are consistent with the creek dewatering and diversion measures listed above. These include isolating the work area, excluding fish with appropriately sized screens or nets, coordination with a qualified biologist, relocation of fish and amphibians before construction, bypassing stream flows, minimizing the length of stream dewatered, use of clean dam/diversion materials, installation of a debris rack, appropriately sized bypass pipes, pumping seepage, use of siltation basins and appropriate discharge of sediment-laden water, and removal of diversion and restoration of stream flows.

General Conditions for all Fish Capture and Relocation Activities

All measures outlined under Section 1.3.7.1b will be implemented, including 1 and 2. These measures are consistent with the relocation measures for aquatic species listed above. These include seasonal limitations on relocation and preconstruction relocations, determining the most efficient means for capture, advance notification of the work, initiation of relocation efforts in advance of construction, completing activities under appropriate temperatures, selection of suitable release sites, and monitoring of air and water temperatures.

Guidelines for Relocation of Salmonids

All measures outlined under Section 1.3.7.1e will be implemented, including items 1-5 and 6-13. These measures are consistent with the relocation measures for aquatic species listed above. These include minimizing overcrowding and segregation of fish, relocating them upstream to suitable habitats, processing before subsequent seine passes, minimizing handling, holding fish under appropriate conditions, monitoring temperature, estimating age classes, and notifying authorities of mortalities and specimen collections.

Additional Measures

In addition to the species protection measures listed above, the measures to minimize disturbance from instream construction (1.3.7.2a through j), measures to minimize degradation of water quality (1.3.7.3a, b, c, and d), and measures to minimize loss or disturbance of riparian vegetation (1.3.7.4a and b) will be implemented.

7.10 Additional Protection Measures (per USFWS 2025)

In addition to the measures listed above, the following protection measures will be implemented to protect water quality, habitat, and wildlife species in accordance with the USFWS Biological Opinion (2025). The U.S. Army Corps of Engineers has specifically requested that this section be included and cross-referenced for formal consultation with USFWS. Please see the USFWS *Biological Opinion* for full text.

General Protection Measures

GPM-1, Receipt and Copies of All Permits and Authorizations
GPM-2, Construction Work Windows
GPM-3, Construction Hours
GPM-4, Environmental Awareness Training
GPM-5, Environmental Monitoring
GPM-6, Work Area and Speed Limits
GPM-7, Environmentally Sensitive Areas and/or Wildlife Exclusion
GPM-8, Prevent Spread of Invasive Species
GPM-9, Practices to Prevent Pathogen Contamination
GPM-10, Equipment Maintenance and Materials Storage
GPM-11, Material Disposal
GPM-12, Fugitive Dust Reduction
GPM-13, Trash Removed Daily
GPM-14, Project Cleanup after Completion
GPM-15, Revegetate Disturbed Areas
GPM-16, Wildfire Prevention

Water Quality and Hazardous Material Measures

WQHM-1, Staging Areas and Stockpiling of Materials and Equipment
WQHM-3, Erosion Control Plans

In-Water Measures

IWW-1, Appropriate In-Water Materials
IWW-2, In-Water Vehicle Selection and Work Access
IWW-3, In-Water Placement of Materials, Structures, and Operation of Equipment
IWW-5, Cofferdam Construction
IWW-6, Dewatering/Diversion
IWW-7, Fish and Aquatic Species Exclusion While Installing Diversion Structures
IWW-8, Removal of Diversion and Barriers to Flow

Vegetation/Habitat Disturbance and Revegetation Measures

VHDR-1, Avoidance of Vegetation Disturbance
VHDR-2, Native and Invasive Vegetation Removal Materials and Methods
VHDR-3, Revegetation Materials and Methods
VHDR-4, Revegetation Erosion Control Materials and Methods
VHDR-5, Revegetation Monitoring and Reporting

All-Species Protection Measures

ASP-1, Qualifications of the Qualified Biologist and USFWS-Approved Biologist.
ASP-2, Preconstruction Surveys
ASP-3, Species Capture, Handling, and Translocation

ASP-4, Covered Species Entrapment Prevention
ASP-5, Airborne Noise Reduction

General Amphibian Protection Measures

AMP-2, Rain Event Limitations
AMP-3, Preconstruction Survey
AMP-4, Disease Prevention and Decontamination
AMP-5, Lighting
AMP-6, Clearing and Grubbing Vegetation
AMP-7, Pump Screens
AMP-8, Removal of Nonnative Invasive Species
AMP-9, Placement of Suitable Erosion Control Material
AMP-10, Encounters with Species
AMP-11, Species Observations and Handling Protocol

California Red-legged Frog Protection Measures

CRLF-CTS-1, Work Windows
CRLF-CTS-2, Nonnative Animal Removals

General Reptile Protection Measures

REP-1, Preconstruction Survey
REP-2, Environmentally Sensitive Areas and Wildlife Exclusion
REP-3, Clearing and Grubbing Vegetation
REP-5, Species Observations and Encounters
REP-6, Species Handling and Relocation

Western Pond Turtle Protection Measures

WPT-1, Habitat Avoidance
WPT-2, Visual Encounter Survey
WPT-3, Work Windows
WPT-4, Environmentally Sensitive Areas and Wildlife Exclusion
WPT-5, Capture and Relocation
WPT-6, No Net Loss of Nesting Habitat

Northern Spotted Owl Protection Measures

NSO-1, Inquire with USFWS on Northern Spotted Owl Data Records
NSO-3, Habitat Avoidance
NSO-4, Avoid Reducing Habitat Quality
NSO-5, Avoid Foraging Habitat
NSO-7, Work Restrictions in Unsurveyed Landscape

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9 Photographs – May 2023 Conditions

Site 1

The road adjacent to Site 1

Site 2 and the adjacent road

Site 2

The potential access route to Site 2 from the right bank (above) and Site 3 (below)

Site 3 (above) and the potential access route to Site 3 from the right bank (below)

10 Photographs – February 2025 Conditions

Site 1

Site 2

Site 3

The potential access route to Site 2 Access area to Site 2 (above) and Site 3 (below)

Access driveway from Highway 116 (above) and adjacent forest (below)

11 Datasheets

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

Project/Site: Private | City/County: Duncans Mills | Sampling Date: 2/2/2026

Applicant/Owner: Sheephouse Creek Bank Failure Project | State: CA | Sampling Point: 1

Investigator(s): Jennifer Michaud | Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 5%

Subregion (LRR): LRR A | Lat: 38.450862°N | Long: -123.094170°W | Datum: WGS84

Soil Map Unit Name: LgG, KmF, YoB - not classified as hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Site 1, upper riparian terrace along the left bank; along the margins of Sheephouse Creek, part of riparian corridor but no developed wetlands

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Umbellularia californica	60	Y	FAC
2.			
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Ribes sp.	5	N	-
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Hedera helix	5	N	FACU
2. Whipplea modesta	10	N	NL
3. Polystichum munitum	20	Y	FACU
4. Rubus ursinus	20	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	45	x 4 =	180
UPL species	15	x 5 =	75
Column Totals:	120 (A)		435 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/2	90					sandy clay loam	some rock fragments

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Along the margins of Sheephouse Creek, upper floodplain area, part of riparian corridor but no developed wetlands

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

Project/Site: Private | City/County: Duncans Mills | Sampling Date: 2/2/2026

Applicant/Owner: Sheephouse Creek Bank Failure Project | State: CA | Sampling Point: 3

Investigator(s): Jennifer Michaud | Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 5%

Subregion (LRR): LRR A | Lat: 38.450862°N | Long: -123.094170°W | Datum: WGS84

Soil Map Unit Name: LgG, KmF, YoB - not classified as hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Site 2, upper terrace above creek, at access point

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Sequoia sempervirens	30	Y	NL
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lamium amplexicaule	10	N	UPL
2. Cardamine hirsuta	5	N	FACU
3. Geranium dissectum	20	Y	UPL
4. Myosotis latifolia	25	Y	NL
5. Annual grasses	10	N	-
6. Silybum marianum	10	N	NL
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	105	x 5 =	525
Column Totals:	110 (A)		545 (B)

Prevalence Index = B/A = 4.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Flat area outside of riparian corridor

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12"	10YR 4/2	70					sandy clay loam	lots rock fragments

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: Private | City/County: Duncans Mills | Sampling Date: 2/2/2026

Applicant/Owner: Sheephouse Creek Bank Failure Project | State: CA | Sampling Point: 5

Investigator(s): Jennifer Michaud | Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 5%

Subregion (LRR): LRR A | Lat: 38.450862°N | Long: -123.094170°W | Datum: WGS84

Soil Map Unit Name: LgG, KmF, YoB - not classified as hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Site 3, upper terrace above creek, at access point

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Umbellularia californica	10	N	FAC
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Vinca major	25	Y	FACU
2. Holcus lanatus	35	Y	FAC
3. Rubus ursinus	20	Y	FACU
4. Urtica doica	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	95 (A)		330 (B)

Prevalence Index = B/A = 3.47

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Flat area outside of riparian corridor

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/2	70					sandy clay loam	lots of rock fragments

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

OHWM Delineation Datasheet

Project: Sheephouse Creek Bank Failure Project
Project Number:
Stream: Sheephouse Creek
Investigator(s): Jennifer Michaud

Date: 02/04/2026
Town: Duncans Mills
Photo begin file#:

Time: 10:00 am
State: California
Photo end file#:

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [X] / N [ ] Is the site significantly disturbed?

Location Details:

Projection: **Datum:** WGS84
Coordinates: 38.450862°N and -123.094170°W

Potential anthropogenic influences on the channel system:

Adjacent access road

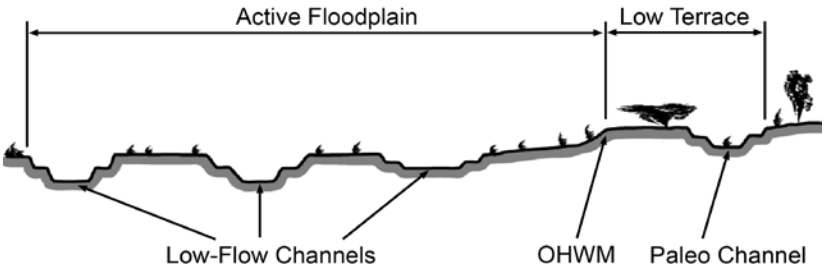
Brief site description:

Private property, access road on left bank, residential properties upstream and downstream of the sites

Checklist of resources (if available):

- [X] Aerial photography
  Dates:
- [X] Topographic maps
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [ ] GPS
   - [ ] Other:

Project ID: **Cross section ID:** 1 **Date:** 02/04/2025 **Time:** 10:00

Cross section drawing: Site 1, three cross sections, 35' with depth of 24", 28' with depth of 22", 30' with depth of 28". Average channel width 31' and average depth 24". One pool in reach 4.3'

Sample Point 2

OHWM

GPS point: 1 upstream end

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM indicated by a clear natural impression on the bank, presence of litter and wracking, and unvegetated characteristics

Floodplain unit:

- [ ] Low-Flow Channel
- [X] Active Floodplain
- [ ] Low Terrace

GPS point: 1

Characteristics of the floodplain unit:

Average sediment texture: Cobbles and Coarse Sand

Total veg cover: 80 % Tree: _____% Shrub: _____% Herb: 10 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM indicated by a clear natural impression on the bank, presence of litter and wracking, and unvegetated characteristics

Project ID: **Cross section ID:** 2 **Date:** 02/04/2025 **Time:** 10:00

Cross section drawing: Site 2, three cross sections, 30' with depth of 23", 32 with depth of 24", 27' with depth of 24". Average channel width 29' and average depth 24"

Sample Point 4

OHWM

GPS point: 1 upstream end

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM indicated by a clear natural impression on the bank, presence of litter and wracking, and unvegetated characteristics

Floodplain unit:

☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Cobbles and Coarse Sand

Total veg cover: 80 % Tree: _____% Shrub: _____% Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM indicated by a clear natural impression on the bank, presence of litter and wracking, and unvegetated characteristics

Project ID: **Cross section ID:** 3 **Date:** 02/04/2025 **Time:** 10:00

Cross section drawing: Site 3, three cross sections, 29' with depth of 16", 30 with depth of 18", 24' with depth of 36". Average channel width 28' and average depth 23".

Sample Point 6

OHWM

GPS point: 1 upstream end

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM indicated by a clear natural impression on the bank, presence of litter and wracking, and unvegetated characteristics

Floodplain unit:

- [ ] Low-Flow Channel
- [X] Active Floodplain
- [ ] Low Terrace

GPS point: 1

Characteristics of the floodplain unit:

Average sediment texture: Cobbles and Coarse Sand

Total veg cover: 80 % Tree: _____% Shrub: _____% Herb: 10 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [X] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM indicated by a clear natural impression on the bank, presence of litter and wracking, and unvegetated characteristics

- California Department of Fish and Wildlife - California Natural Diversity Database - RareFind Report (2/23/2026)

- USFWS IPaC List (2/2302026)

Scientific Name	Common Name	Federal Listing	State Listing	California Rare Plant Ranking	Other Status	General Habitat	Micro Habitat
Actinemys marmorata	northwestern pond turtle	Proposed Threatened	None		CDFW Species of Special Concern		
Agrostis blasdalei	Blasdale's bent grass	None	None	1B.2		Coastal dunes, coastal bluff scrub, coastal prairie.	Sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation. 5-365 m.
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Endangered	None	1B.1		Freshwater marshes and swamps, riparian scrub.	Wet areas, marshes, and riparian banks, with other wetland species. 3-360 m.
Amorpha californica var. napensis	Napa false indigo	None	None	1B.2		Broadleafed upland forest, chaparral, cismontane woodland.	Openings in forest or woodland or in chaparral. 30-735 m
Arborimus pomo	Sonoma tree vole	None	None		CDFW Species of Special Concern	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood and montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.
Arctostaphylos bakeri ssp. bakeri	Baker's manzanita	None	Rare	1B.1		Broadleafed upland forest, chaparral.	Often on serpentine. 75-245 m.
Ardea herodias	great blue heron	None	None			Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.

Bombus caliginosus	obscure bumble bee	None	None			Coastal areas from Santa Barbara County north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.
Bombus occidentalis	western bumble bee	None	Candidate Endangered			Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	
Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	None	None	1B.2		Coastal dunes, coastal scrub, coastal bluff scrub, north coast coniferous forest.	4-165m.
Carex comosa	bristly sedge	None	None	2B.1		Marshes and swamps, coastal prairie, valley and foothill grassland.	Lake margins, wet places; site below sea level is on a Delta island. -5-1010 m.
Ceanothus purpureus	holly-leaved ceanothus	None	None	1B.2		Chaparral, cismontane woodland.	Rocky, volcanic slopes. 140-720 m.
Cerorhinca monocerata	rhinoceros auklet	None	None		CDFW Watch List	Off-shore islands and rocks along the California coast.	Nests in a burrow on undisturbed, forested and unforested islands, and probably in cliff caves on the mainland.
Delphinium bakeri	Baker's larkspur	Endangered	Endangered	1B.1		Broadleafed upland forest, coastal scrub, valley and foothill grassland.	Only site occurs on NW-facing slope, on decomposed shale. Historically known from grassy areas along fencelines too. 105-205 m.

Dicamptodon ensatus	California giant salamander	None	None		CDFW Species of Special Concern	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County.	Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.
Eastwoodiella californica	swamp harebell	None	None	1B.2		Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marsh, north coast coniferous forest.	Bogs and marshes in a variety of habitats; uncommon where it occurs. 1-520 m.
Erigeron greenei	Greene's narrow-leaved daisy	None	None	1B.2		Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 90-835 m.
Erigeron serpentinus	serpentine daisy	None	None	1B.2		Chaparral.	Serpentine seeps. 120-400 m.
Erysimum concinnum	bluff wallflower	None	None	1B.2		Coastal dunes, coastal bluff scrub, coastal prairie.	More or less a coastal generalist within coastal habitat types. 3-60 m.
Fissidens pauperculus	minute pocket moss	None	None	1B.2		North coast coniferous forest.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30-1025 m.
Fratercula cirrhata	tufted puffin	None	None		CDFW Species of Special Concern	Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs.	Requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.
Gilia capitata ssp. chamissonis	blue coast gilia	None	None	1B.1		Coastal dunes, coastal scrub.	3-200 m.

Gilia capitata ssp. pacifica	Pacific gilia	None	None	1B.2		Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1345 m.
Gilia capitata ssp. tomentosa	woolly-headed gilia	None	None	1B.1		Coastal bluff scrub, valley and foothill grassland, riparian woodland.	Rocky outcrops, sometimes serpentine. 6-290 m.
Gonidea angulata	western ridged mussel	None	None			Primarily creeks and rivers and less often lakes. Originally in most of state, now extirpated from Central and Southern California.	
Hesperevax sparsiflora var. brevifolia	short-leaved evax	None	None	1B.2		Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-640 m.
Horkelia tenuiloba	thin-lobed horkelia	None	None	1B.2		Broadleafed upland forest, chaparral, valley and foothill grassland.	Sandy soils; mesic openings. 45-640 m.
Lasiurus cinereus	hoary bat	None	None			Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding.	Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.
Lasthenia californica ssp. macrantha	perennial goldfields	None	None	1B.2		Coastal bluff scrub, coastal dunes, coastal scrub.	5-185 m.
Lessingia arachnoidea	Crystal Springs lessingia	None	None	1B.2		Coastal sage scrub, valley and foothill grassland, cismontane woodland.	Grassy slopes on serpentine; sometimes on roadsides. 90-200 m.
Lupinus tidestromii	Tidestrom's lupine	Endangered	Endangered	1B.1		Coastal dunes.	Partially stabilized dunes, immediately near the ocean. 4-25 m.

Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Endangered	Endangered			Federal listing = pops between Punta Gorda and San Lorenzo River. State listing = pops south of Punta Gorda.	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen.
Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threatened	None		CDFW Species of Special Concern	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	
Pandion haliaetus	osprey	None	None		CDFW Watch List	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.
Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	None	None		CDFW Species of Special Concern	Northern Coast Ranges north of San Francisco Bay Estuary, Klamath Mountains, and Cascade Range including watershed subbasins (HU 8) Lower Pit, Battle Creek, Thomes Creek, and Big Chico Creek in Lassen, Shasta, Tehama, and Butte Counties.	Partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.
Rana draytonii	California red-legged frog	Threatened	None		CDFW Species of Special Concern	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.

Riparia riparia	bank swallow	None	Threatened			Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	None	None	1B.2		Marshes and swamps.	Freshwater marshes near the coast.5-95 m.
Sidalcea malviflora ssp. purpurea	purple-stemmed checkerbloom	None	None	1B.2		Broadleafed upland forest, coastal prairie.	15-85 m.
Speyeria zerene myrtleae	Myrtle's silverspot butterfly	Endangered	None			Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County.	Larval foodplant thought to be Viola adunca.
Spirinchus thaleichthys pop. 2	longfin smelt - San Francisco Bay-Delta DPS	Endangered	Threatened			Pelagic and anadromous within the Sacramento-San Joaquin River Delta, San Francisco Bay, and Gulf of the Farallones. Spawns in lower freshwater reaches of Sacramento and San Joaquin Rivers. First year in Suisun Bay; later SF Bay or Gulf of the Farallones.	Occurs in salinities ranging from pure freshwater to pure saltwater; typically salinities ranging from 14-28 parts per thousand (ppt). Generally occupies water temperatures from 61-68F, with spawning occurring in water temperatures from 41-58F.
Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower	None	None	1B.3		Chaparral, cismontane woodland, valley and foothill grassland.	Moist, steep rocky banks, in serpentine and non-serpentine soil. 60-765 m.

Syncaris pacifica	California freshwater shrimp	Endangered	Endangered			Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy.	Shallow pools away from main streamflow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.
Taxidea taxus	American badger	None	None		CDFW Species of Special Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.
Trifolium amoenum	two-fork clover	Endangered	None	1B.1		Valley and foothill grassland, coastal bluff scrub.	Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-310 m.
Usnea longissima	Methuselah's beard lichen	None	None	4.2		North coast coniferous forest, broadleafed upland forest.	Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sonoma County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened

Northwestern Pond Turtle Actinemys marmorata — Proposed Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1111

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii	Threatened

Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi	Endangered

Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/57

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus	Proposed Threatened

Wherever found
There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/9743

Myrtle's Silverspot Butterfly Speyeria zerene myrtleae	Endangered

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6929

Flowering Plants

NAME	STATUS
Baker's Larkspur Delphinium bakeri	Endangered

Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/5031

Clover Lupine Lupinus tidestromii	Endangered

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4459

Showy Indian Clover Trifolium amoenum	Endangered

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6459

Sonoma Alopecurus Alopecurus aequalis var. sonomensis	Endangered

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/557

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Bald and Golden Eagle information is not available at this time

Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (FWS).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Migratory bird information is not available at this time

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
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Survey Timeframe
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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Tyler Cole

From: Jacob Sedgley <Jacob.Sedgley@sonomacounty.gov>
Sent: Tuesday, December 16, 2025 11:09 AM
To: Shannon Weese
Cc: Tyler Cole
Subject: RE: Permit Sonoma Planning inquiry: Sheephouse LWD Bank Stabilization Project

Shannon,

Thanks for the meeting today. Please see below for links and notes:

- Application requirements. Please consider the following as a modified list for application requirements. Please submit this email with your application so that our intake teams knows we've spoken.
    - PJR-001.
    - PJR-011.
    - PJR-095. Leave the dollar amount blank, that will be determined by County staff later if an at-cost deposit is determined to be necessary.
    - PJR-035 (Please be sure to fill out and submit the supplement questionnaire on the last few pages.
    - Proposal Statement/Project Description. A separate one is preferred if you have it; otherwise, your bio work describes the project enough that I would be comfortable accepting this without a true proposal statement.
    - Site Plan and Preliminary Grading/Drainage Plans. You should already have these, send us whatever you submitted for the grading permit already.
    - Bio report(s). Send us everything you have done once modified to include evaluation of the LCP policies/appendices referenced below. Otherwise, looks great.
    - Archaeological Report. See policy below for scoping.
    - This email.

- Link to Certified Local Coastal Plan
- Please review Appendix E: Natural Resources, for Biological Resource Assessment requirements, and habitat protection guidelines. We'll review the bio work against the criteria in Appendix E.
- Please ensure biological work evaluates/incorporates policies of the Open Space and Resource Conservation Element, including Sections 4 (Streams and Riparian Corridors), 5 (Wetlands), and 6 (Marine Habitats). I've copied and pasted some of those that might be applicable below. I'd recommend reviewing the full chapter, but this should be a good start. Please note that all of these may not be applicable, so feel free to pick and choose if you don't feel that it's applicable here.
    - Policy C-OSRC-4c: Allowable uses and development within any streamside conservation area or Riparian Corridor shall be evaluated consistent with the Habitat Development Guidelines criteria. Construction, operation, and maintenance, or development shall not result in any significant adverse impacts on the functions and values of the riparian habitat.

- Policy C-OSRC-4e: Channelization, dams, or other substantial alterations of rivers and streams shall be prohibited except for: (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat. Any channelization or stream alteration permitted for one of these three purposes shall minimize impacts to coastal resources, including the depletion of groundwater, and shall include measures sufficient to appropriately mitigate unavoidable impacts. Alternatives that incorporate a biotechnical component to river or stream bank stabilization (e.g., pocket planting and joint planting, vegetated crib walls, vegetated slope gratings, etc.) shall be encouraged over alternatives that employ strictly hard solutions (e.g., concrete wall or riprap banks) so long as the alternatives are consistent with all other applicable provisions of this LCP, including the avoidance and minimization of adverse impacts to the maximum extent feasible. Where there is conflict the more specific permissible use provisions of this policy shall control over the more general use provisions for ESHA identified by policies found in Subsection 8. "Environmentally Sensitive Habitat Areas".
- Policy C-OSRC-4f: To protect fishery resources and minimize impacts on water supply, projects which would limit in-stream flows shall comply with State Water Resources Control Board's Policy for Maintaining Instream Flows in Northern California Coastal Streams, adopted under Resolution 2013-0035, effective February 4, 2014 (23 CCR Section 2921).
- Policy C-OSRC-4g: In Anadromous Fish Streams (Chinook and coho salmon habitat), the following uses and activities shall be prohibited:

  (1) Dredging.

  (2) Dams and other structures which would prevent upstream migration of anadromous fish unless other measures are used to allow fish to bypass these structures.
- Policy C-OSRC-4h: Carry out the following activities to preserve Chinook and coho salmon habitat (Anadromous Fish Streams):

  (1) In an Anadromous Fish Stream, maintain flow levels 1.5 times the minimum necessary for use of the stream as an anadromous fish spawning area.

  (2) All stream diversions shall be stopped when the stream flow in an Anadromous Fish Stream falls below the minimum flow standard and until the stream flow returns to levels above the minimum flow standard.

  (3) Allow and encourage maintenance of summer base flow in an Anadromous Fish Stream to ensure survival of fish in all life cycle phases
- Policy C-OSRC-4i: Maintain and restore the biological productivity and the quality of coastal waters, streams, wetlands, ponds, and estuaries in order to maintain optimum populations of marine organisms and to protect human health.
- Policy C-OSRC-5h: No net losses shall occur in wetland acreage, functions, or values. This includes both direct impacts on wetlands and their buffers, and consideration of potential indirect effects of development due to changes in available surface water and nonpoint source water quality degradation. Detailed review of the adequacy of a proposed mitigation plan shall be performed as part of any environmental and permit review of the proposed development project to allow for a thorough evaluation of the anticipated loss, as well as the replacement acreage, functions, and values.
- Policy C-OSRC-5i: Where wetlands fill or development impacts are permitted in conformity with the Coastal Act and any applicable Local Coastal Plan policies, require mitigation to

compensate for the temporal and functional loss of affected wetlands and associated habitat. Mitigation must meet the criteria in the Habitat Protection Guidelines, found in Appendix E-5. In order of preference, compensatory mitigation may include on-site restoration of degraded wetlands, off-site restoration of degraded wetlands, acquisition of offsite areas of equal or greater biological productivity, or creation of wetlands. Adverse impacts shall be mitigated at a ratio of at least 4:1 for all types of wetlands. If no appropriate restoration site is available, wetland mitigation credit may be proposed for purchase, prior to disturbing wetlands, at a resource agency-approved mitigation bank whose service area includes Sonoma County's coastal zone.

    - Policy C-OSRC-6a: Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms for long-term commercial, recreational, scientific, and educational purposes. Mitigation for impacts to marine habitats shall be provided at a minimum ratio of 4:1. The more specific mitigation requirements shall control over the more general mitigation requirements of this Local Coastal Plan and shall consider the cumulative impacts of sea level rise and climate change as well as immediate impacts of the proposed development.
- Cultural and Historic Resources Element:
    - Policy C-CH-1c: Development projects resulting in new ground disturbance, including but not limited to building, grading, or demolition projects shall provide a study prepared by a qualified professional evaluating historical, archaeological and paleontological resources, including Native American cultural and sacred sites, tribal cultural resources, artifacts, and remains. Studies will be referred to Tribes for early and frequent comment and confirmation of adequacy. If a site is likely to have archaeological, cultural or tribal resources, a field survey and an archaeological resources report that contains the results of the survey and includes appropriate mitigation measures shall be required. If the site is likely to have historic resources, a field survey and an historic resources report that contains an evaluation of whether the historic resources are significant under state and federal criteria shall be required.

Please don't hesitate to reach out if you or anyone else has questions. I'm most responsive via email, but if you call, leave a voicemail and I'll call you right back.

Best regards,

Jacob Sedgley
Planner III, Coastal Team Lead
www.PermitSonoma.org
County of Sonoma
2550 Ventura Avenue, Santa Rosa, CA 95403
Office: 707-565-1900 | Direct: 707-565-1931

From: Shannon Weese <shannonw@pacificwatershed.com>
Sent: Monday, December 15, 2025 8:43 AM
To: Jacob Sedgley <Jacob.Sedgley@sonomacounty.gov>; Tyler Cole <tylerc@pacificwatershed.com>
Cc: Robert Aguero <Robert.Aguero@sonomacounty.gov>
Subject: RE: Permit Sonoma Planning inquiry: Sheephouse LWD Bank Stabilization Project

EXTERNAL

Good Morning, Jacob,

Thank you so much for making time to meet with me. I have attached Our executed USACE and Water Board permits as well as a Biological Resource memo prepared by our biological consultant, Swift Biological. I am free to meet at the following times:

Monday (12/15) 10-5
Tuesday (12/16) 9-5

Select a time that is best for you during those hours. If none work, I can provide additional times later in the week.

Thank you so much,
Shannon

Shannon Weese
Project Geologist / North Bay Program Manager
Pacific Watershed Associates, Inc.
(707) 773-1385 x73 Phone / (707) 237-1387 Mobile
P.O. Box 2070, Petaluma, CA 94953
shannonw@pacificwatershed.com
www.pacificwatershed.com

From: Jacob Sedgley <Jacob.Sedgley@sonomacounty.gov>
Sent: Monday, December 15, 2025 7:09 AM
To: Tyler Cole <tylerc@pacificwatershed.com>; Shannon Weese <shannonw@pacificwatershed.com>
Cc: Robert Aguero <Robert.Aguero@sonomacounty.gov>
Subject: RE: Permit Sonoma Planning inquiry: Sheephouse LWD Bank Stabilization Project

Morning Shannon and Tyler,

I was forwarded this email chain Friday. My name is Jacob, I'm a Senior Planner here at Permit Sonoma and, in short, I process the lion's share of our coastal permits.

Please send a few times that you'd be available for a meeting this week. FYI that I'm out between December 20th and December 28th. If you can't make time this week, I can forward you to another planner who may have availability that week.

If you have any specific materials you'd like feedback on, other materials I should review prior to meeting, or specific questions you'd like answered, please send those my way at your earliest convenience. Otherwise, I'll take a look at the materials in the grading permit prior to.

Best,

Jacob Sedgley
Planner III, Coastal Team Lead
www.PermitSonoma.org
County of Sonoma
2550 Ventura Avenue, Santa Rosa, CA 95403
Office: 707-565-1900 | Direct: 707-565-1931

Have questions? See our FAQ or ask here.

From: Gary Helfrich <Gary.Helfrich@sonomacounty.gov> **On Behalf Of** Planner
Sent: Friday, December 12, 2025 2:53 PM
To: Jacob Sedgley <Jacob.Sedgley@sonomacounty.gov>
Subject: FW: Permit Sonoma Planning inquiry: Sheephouse LWD Bank Stabilization Project

Hi Jacob,

Do you want to meet with these guys or should I tell them to come into the office and talk to whoever is on cube?

Gary

From: Shannon Weese <shannonw@pacificwatershed.com>
Sent: Friday, December 12, 2025 1:41 PM
To: Robert Aguero <Robert.Aguero@sonomacounty.gov>
Cc: Tyler Cole <tylerc@pacificwatershed.com>; Planner <planner@sonomacounty.gov>
Subject: RE: Permit Sonoma Planning inquiry: Sheephouse LWD Bank Stabilization Project

EXTERNAL

Hi Robert,

Thanks for the quick response. This is not the project we emailed about a couple months ago, but I hope to provide plans for that next week!

Hi Planning! Before I proceed with the coastal permit I would like to meet with you. Please let me know if anyone has availability next week.

Thanks,
Shannon

Shannon Weese
Project Geologist / North Bay Program Manager
Pacific Watershed Associates, Inc.

(707) 773-1385 x73 Phone / (707) 237-1387 Mobile
P.O. Box 2070, Petaluma, CA 94953
shannonw@pacificwatershed.com
www.pacificwatershed.com

From: Robert Aguero <Robert.Aguero@sonomacounty.gov>
Sent: Friday, December 12, 2025 1:33 PM
To: Shannon Weese <shannonw@pacificwatershed.com>
Cc: Tyler Cole <tylerc@pacificwatershed.com>; Planner <planner@sonomacounty.gov>
Subject: RE: Permit Sonoma Planning inquiry: Sheephouse LWD Bank Stabilization Project

Hi Shannon,

Is this the project we were emailing about a couple of months ago? I do not see any zoning permit applications on record for this project. If you need a coastal permit, that typically serves as the planning permit requirement, and the zoning permit may not be needed.

I would reach out to Planning (cc'ed) for advice on the coastal permit.

Robert Aguero

From: Shannon Weese <shannonw@pacificwatershed.com>
Sent: Friday, December 12, 2025 11:33 AM
To: Robert Aguero <Robert.Aguero@sonomacounty.gov>
Cc: Tyler Cole <tylerc@pacificwatershed.com>
Subject: Permit Sonoma Planning inquiry: Sheephouse LWD Bank Stabilization Project

EXTERNAL

Hi Robert,

We are planning to construct our project next summer/fall on a private property in the lower Russian River, adjacent to Sheephouse Creek. The attached grading plans are under review for the pending grading permit (GRD23-0132) with Permit Sonoma. I understand we need a coastal permit. Are you the best person to help us get started on that? We spent the last year trying to get an exemption via NOAA or others but it looks like we need to proceed with a Coastal Permit through the County.

Also, I want to check in on our riparian corridor permit or zoning permit for our project. In our project folder we have a zoning permit application signed by our client and landowner but it isn't clear to me if that was ever submitted or we stand with this permit.

We have secured our Water Board and USACE permit and out CDFW permit is underway. Our Water Board permit expires next year so we need to implement our project next summer/fall so I want to make sure we are secured with Permit Sonoma ASAP.

We have had staff come and go managing this project and I need to get clear on our path forward to execute this project. Any guidance or direction would be helpful.

Thanks,
Shannon

Shannon Weese
Project Geologist / North Bay Program Manager
Pacific Watershed Associates, Inc.

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