ATTACHMENT 4

Applicant's Evidence in Support of the Required Findings

Attachment 4 includes a listing of all written evidence which has been submitted by the applicant in support of making the required findings. The following materials are on file with the Planning Division:

1. The name, contact address, and phone number(s) of the applicant. (Application form on file)

2. If the applicant is not the record title owner of parcel, written consent of the owner for the application with original signature and notary acknowledgement. (On file)

3. Site plan showing the entire parcel, including easements, streams, springs, ponds and other surface water features, and the location and area for cultivation on the parcel with dimensions of the area for cultivation and setbacks from property lines. The site plan shall also include all areas of ground disturbance or surface water disturbance associated with cultivation activities, including access roads, water diversions, culverts, ponds, dams, graded flats, and other related features. If the area for cultivation is within one-quarter mile (1,320 feet) of a school, school bus stop, church or other place of religious worship, public park, or tribal cultural resource, the site plan shall include dimensions showing that the distance from the location of such features to the nearest point of the cultivation area is at least 600 feet. (Attached)

4. A cultivation and operations plan that meets or exceeds minimum legal standards for water storage, conservation and use; drainage, runoff and erosion control; watershed and habitat protection; proper storage of fertilizers, pesticides, and other regulated products to be used on the parcel; and a description of cultivation activities (outdoor, indoor, mixed light), the approximate date(s) cannabis cultivation activities have been conducted on the parcel prior to the effective date of this ordinance, if applicable, and schedule of activities during each month of the growing and harvesting season. (Attached)

5. Description of water source, storage, irrigation plan, and projected water usage. (Included in Cultivation Operations Plan (item 4. above) and Water Resources Protection Plan prepared for State Water Board Cannabis General Order. (Attached)

6. Copy of Notice of Intent and Monitoring Self-Certification and other documents filed with the North Coast Regional Water Quality Control Board demonstrating enrollment in Tier 1, 2 or 3, North Coast Regional Water Quality Control Board Order No. 2015-0023, or any substantially equivalent rule that may be subsequently adopted by the County of Humboldt or other responsible agency. (Attached)

7. If any on-site or off-site component of the cultivation facility, including access roads, water supply, grading or terracing, impacts the bed or bank of any stream or other watercourse, a copy of the Lake and Streambed Alteration Agreement (LSAA) obtained

from the California Department of Fish and Wildlife. Additional documentation - Notice of Violation (NOV) from CDFW, Work Plan from Mother Earth Engineering in response to CDFW NOV, Revised Work Plan from Mother Earth Engineering. (Attached)

8. Onsite Relocation Plan from Mother Earth Engineering outlining consolidation of guerilla grows and relocation to environmentally superior and centralized location. (Attached)

9. If the source of water is a well, a copy of the County well permit, if available. (Attached)

10. Consent for on-site inspection of the parcel by County officials at prearranged date and time in consultation with the applicant prior to issuance of any clearance or permit, and once annually thereafter. (On file)

11. Acknowledge that the County reserves the right to reduce the size of the area allowed for cultivation under any clearance or permit issued in accordance with this Section in the event that environmental conditions, such as a sustained drought or low flows in the watershed, will not support diversions for irrigation. (On file)

12. Acknowledge that the County reserves the right to engage with local tribes before consenting to the issuance of any clearance or permit, if cultivation operations occur within an Area of Traditional Tribal Cultural Affiliation, as defined herein. This process will follow current departmental referral protocol, including engagement with the tribe(s) through coordination with their Tribal Historic Preservation Officer (THPO) or other tribal representatives. This procedure shall be conducted similar to the protocols outlined under SB 18 (Burton) and AB 52 (Gatto), which describe "government to government" consultation, through tribal and local government officials and their designees. During this process, the tribe may request that operations associated with the clearance or permit be designed to avoid, minimize, or mitigate impacts to tribal cultural resources, as defined herein. Examples include, but are not limited to, conducting a site visit with the THPO or their designee to the existing or proposed cultivation site, requiring that a professional cultural resources survey be performed, or requiring that a tribal cultural monitor be retained during project-related ground disturbance within areas of sensitivity or concern. The County shall request that a records search be performed through the California Historical Resources Information System (CHRIS). (On file)

13. Road Evaluation Report for private access driveway prepared by David Nicoletti Engineering dated 1/3/2020 (Attached)

14. Division of Environmental Health Attachment for Commercial Medical Marijuana (CMM) Clearances/ Permits (DEH Form). (On-file)

ENROLLMENT NOTICE OF INTENT FORM
FOR
WAIVER OF WASTE DISCHARGE REQUIREMENTS
ORDER NUMBER R1-2015-0023

Submission of this Notice of Intent (NOI) to the North Coast Regional Water Quality Control Board (Regional Water Board) or an approved third party constitutes notice that a discharger, identified in Section I of this form, requests and receives authorization to discharge pursuant to the Waiver of Waste Discharge Requirements Order number R1-2015-0023. Upon submittal of the NOI, waste discharges are authorized pursuant to the conditions of the Order. Order coverage is required for existing Tier 1, 2, and 3 cultivation sites by February 15, 2016. Dischargers who begin operations after the effective date of this Order must file an NOI prior to commencement of cultivation operations.

To obtain authorization, dischargers must submit a complete and accurate NOI form, encompassing sections I and II, as well as complete the MRP in Appendix C of the Order. Any additional documentation required by the Order, such as a water resource protection plan, must be completed and secured on-site, to be made available upon inspection by the Regional Water Board. This NOI form must be submitted upon enrollment and the discharger shall amend and resubmit the NOI within 30 days if there is a change in Tier status based upon changed site conditions.

Completed forms shall be signed and submitted to the Regional Water Board or an approved third party.

Forms submitted to the Regional Water Board shall be submitted electronically to northcoast@waterboards.ca.gov. If electronic submission is infeasible, hard copies can be submitted to: North Coast Regional Water Quality Control Board 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403.

I. Discharger Information

First Name, Middle Initial
Garrett

Last Name
Gradin

Mailing Address:
Street
17100 Laraabee Valley Road

City
Bridgeville

State
CA

ZIP
95526

Phone Number:
707-223-9595

Email:
garrettgradin@yahoo.com

Order No. R1-2015-0023
REPORTING FORM

Larabee

A. **Site WDID:** 1B16495 CHUM

B. **Subwatershed (HUC-12)[2]:** 180101050901-5106

C. **Enrollment date:** 02/12/16

D. **Reporting date:** 3/31/2017

E. **Please check the box corresponding to the enrolled site's current tier (Tier 3 sites with cultivation must also check Tier 2).**

☐ Tier 1 ☒ Tier 2 ☐ Tier 3

Has the site's tier status changed since the last reporting period? Y☐/N■
If YES, briefly explain:_____

F. **Check all fields that apply to the enrolled site:**

i. **Tier 1 sites:**
(see Order at page 6 for details on Tier 1 characteristics)
- ☐ Average slope of each individual cultivation area is no more than 35% slope.
- ☐ Total cultivation area is no more than 5,000 square feet.
- ☐ No cultivation areas or associated facilities are located within 200 feet of a surface water. (Surface waters include wetlands and Class I, II, and III watercourses.)
- ☐ No surface water diversion from May 15 through October 31.
- ☐ The site is in compliance with all Standard Conditions under Order R1-2015-0023, section I.A.

ii. **Tier 2 sites:**

a. A Water Resource Protection Plan has been developed and is being implemented?
Y☐/N☒

If NO, expected date when plan will be ready and implementation will begin:
_____

If YES, have there been changes to the implementation schedule since the prior year of reporting? Y☐/N☐

[2] 12-digit HUC-12 subwatershed codes are available online at http://iaspub.epa.gov/apex/grts/f?p=110:95:::NO::APP_SHOW_HIDE:

REPORTING FORM
Page 3/5

d. Will work to bring site into compliance with Standard Conditions require disturbance to a stream or wetland over the coming year? Y☐/N☒ 2019

If YES, indicate status of work authorization by Regional Water Board. Specifically, check one or more of the following and provide the date if/as applicable.

☐ I plan to submit my project plans to the Regional Water Board by the following date:_____

☐ I submitted my project plans to the Regional Water Board on the following date:_____

☐ The Regional Water Board Executive Officer authorized my project plans on the following date:_____

☐ I have elected to receive authorization for instream work under a different Regional Water Board permitting mechanism as follows:

_____

☒ Instream work anticipated to occur between the following dates: June 1 - Oct 31 2019

iii. Tier 2* sites:

Total cultivation area is less than 10,000 square feet? Y☐/N☐

Water resource protection plan developed and fully implemented? Y☐/N☐

All Standard Conditions met? Y☐/N☐

Site was inspected and verified as Tier 2* by Regional Water Board staff (NAME)_____ or approved third party program (NAME): _____ on (DATE) _____.

iv. Tier 3 Sites:

☐ A Cleanup and Restoration Plan has been submitted to the Regional Water Board for approval.

☐ The Cleanup and Restoration Plan has been approved by the Regional Water Board.

☐ The timeline for the approved Cleanup and Restoration plan is being followed.

Will restoration work require disturbance to a stream or wetland in the coming year? Y☐/N☐

Instream work anticipated to occur between the following dates:_____

☐ Cannabis cultivation is occurring or will occur on the site over the coming year. (If this box is checked, ensure that Tier 2 portions of the reporting form are completed as well).

REPORTING FORM
Page 5/5

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. The information contained in this document and all attachments is, to the best of my knowledge and belief, true, accurate, and complete.

Print name: Garrett Gradin

Signature: Garrett Gradin **Date:** 4/21/17

Preparer: Complete if MRP was prepared by someone other than the discharger, including an approved third-party

Organization Name (if applicable):

Prepared by:
First Name, Middle Initial

Last Name

Preparer Address:
Street

City

State ZIP

Phone Number:

Email:

Remediation Plan Report

1700 Larabee Road, Bridgeville, CA 96626

APN: 210-051-064 &

APN: 210-051-081

Prepared For:

Happy Valley Farms LLC.

January 15, 2019

Prepared By:

MOTHER EARTH
ENGINEERING
920 Samoa Boulevard, Suite 210
Arcata, CA 95521
707.633.8321
wwww.motherearthengineering.com

1. Project Location

This project is located at 1700 Larabee Road, Bridgeville, CA 96626.

Humboldt County APN: 210-051-064 & 210-051-081

Cannabis Apps#: 12170 & 12166

2. Project Description

This project is to remediate previously cultivated areas pursuant to special permit for 16,900 square feet of existing cannabis cultivation.

3. Methods

Field visits were conducted by Mother Earth Engineering staff from August to September of 2018 to inspect the remediated areas, relocation sites, and assess the parcel for overall compliance with Water Board, County and California Department of Fish and Wildlife (CDFW) regulations.

4. Environmental Superiority of Relocation Sites

Based on the site investigation, the relocation sites 2, 5, & 6 were found to be environmentally superior to the former guerilla grow sites (Attachment A). This is primarily due to reduced slopes, a consolidation of grow sites, and additional distance to riparian areas which reduce overall impacts to water quality. The sections below summarize the key areas of environmental superiority with respect to the relocation sites.

4.1 Superior Slopes

Former grow sites A, B, & D were located on graded flats on the northern border of the parcel with slopes larger than 15% at 3,000 feet in elevation (Attachments B & C). The three relocation sites located at Cultivation Areas 2, 5, and 6, reside in flat, open grasslands with slopes of less than 15%. The reduced slopes of the relocation sites allow for stormwater runoff to attenuate and dissapate much more quickly and completely than areas with steeper slopes.

4.2 Superior Vegetation Buffers

Former grow sites A, B & D were located in close proximity to oak woodland canopies, and were relocated to open grassland areas that are surrounded by natural, grassy vegetated buffers of approximately 200 feet or more in width in the downslope areas. In contrast, the former grow sites contain a mixture of grassy areas as well as partially oak woodland canopied areas. In the partially canopied areas, the ground cover is a combination of forest duff and woody debris with limited vegetative ground cover or shrubs. This type of ground cover is more erosive than fully grassed areas. Also, this type of ground cover in combination with steeper slopes increases the likelihood of erosion and sediment transport. Therefore the open grassland area of the relocation sites present a superior

configuration of naturally vegetated buffers to minimize erosion and attenuate runoff and sediment transport.

4.3 Superior Riparian Buffers

Former grow site C was located roughly within 50 feet of riparian habitat. The relocation sites provide enhanced riparian buffers over their former grow sites. These enhanced riparian buffers, while not required, are very beneficial for environmental protection when considering the specific site location. The relocation sites increase the distance to riparian zones by 300 feet or more. The increased distances of the relocation sites from the nearest watercourse, coupled with their more gently sloping characteristics provides superior conditions (greater ability to dissapate flow and attenuate sediment and consitutents) in order to enhance protection of riparian areas.

4.4 Improved Solar Access

The relocation sites are located in open grassland areas. The former grow sites are located in existing clearings that are generally surrounded by tree canopies along the perimeter due to the past guerilla grow methods. The perimeter canopy creates partial shading of the former grow sites during certain times of year, and thus sub-optimal growing conditions. The relocation sites do not have any shading issues. The improved solar aspect of the relocation sites will allow for more efficient cultivation thus reducing energy impacts. Without any increase to the amount of fertilizers/amendments, there will be an increased yield (pounds) of cannabis per square foot, simply due to the relocation site's increased access to solar radiation.

4.5 Reduced Impacts to Water Quality

The relocation sites provide reduced impacts to water quality over the former grow sites. Sediment deposition impairs waterways and increases water temperatures affecting the health of riparian species. The relocation sites and their surrounding buffers as well as the consolidation of the grow sites provide superior dissipation and attenuation of storm water and sediment flows. This significantly reduces the potential for sediment transport and delivery to nearby watercourses.

5. Remediation and Monitoring Protocol

5.1 Best Management Practices (BMPs)

Best Management Practices for operations, work, construction, erosion control and other elements will be followed at all times as stipulated by:

1. Regional Water Board – Order R1-2015-0023, Appendix B
2. California Department of Fish and Wildlife
3. State Water Board Cannabis General Order

5.2 Remediation of Former Grow Sites

During the site visit, the former grow sites A, B, & D were observed to have been decommissioned with all debris removed. Additionally, former grow site C had been fully remediated under CDFW BMPs and protocols. Ongoing remediation requires monitoring of erosion control and revegetation measures, with additional installation of erosion control and seeding/plantings on an as-needed basis per regular self-inspections. Applicant shall refer to their WRPP and 1) assure that the WRPP is fully implemented 2) follow BMP installation and monitoring protocols as prescribed in WRPP. Applicants shall remove any remaining debris from all areas and have a qualified professional verify completion of debris removal and submit evidence to the county.

5.3 Revegetation of Relocation Site

During the site visit, the relocation sites were observed to be naturally greater than 70% revegetated. The relocation sites were surrounded by grassland area buffers greater than 200ft in width. There was no evidence of sediment transport, and the cultivation areas appeared to be well attenuated by natural buffers. For the relocation sites, ongoing revegetation and erosion control protocols should be followed, and the area should be monitored per the protocol outlined in the section below.

5.4 Monitoring and Criteria for Success

Additional to routine monitoring required by the Water Board, the following ongoing monitoring protocol shall continue for a minimum of three years. Both the relocation sites and remediated former grow sites shall be monitored. The following monitoring and implementation schedule shall be followed annually:

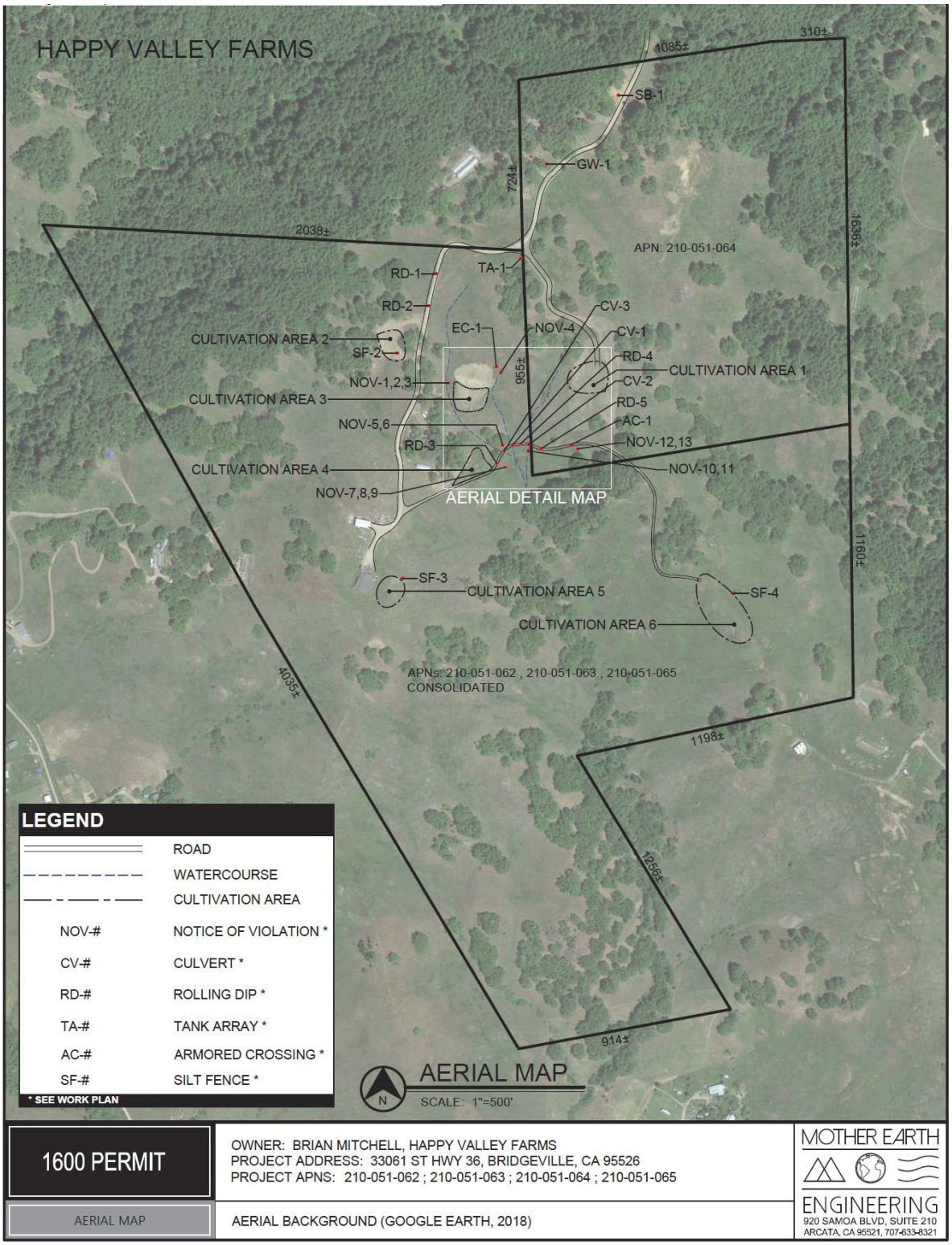
1. One month prior to commencing season's cultivation activities
    a. Self-Inspection with Documentation
2. After self-inspection and before commencing season's cultivation activities
    a. Implementation of additional corrective as needed per self-inspection
    b. Document all measures installed per item 2.a above.
3. Mid-season
    a. Self-Inspection with Documentation
4. October 1st
    a. Self-Inspection with Documentation
5. October 1st- 15th
    a. Implementation of additional corrective as needed per self-inspection.
    b. Document all measures installed per item 2.a above.
6. By December 15th
    a. Self-Inspection with Documentation
7. Winter wet weather monitoring
    a. Self-Inspection with Documentation following any rainfall event with an intensity of 3 inches of precipitation or greater in 24hours.

The following success criteria shall be utilized:

- Revegetation at 70% coverage or better.
- No evidence of significant sediment transport during post wet-weather event monitoring.

6. Attachments

A. Parcel Map

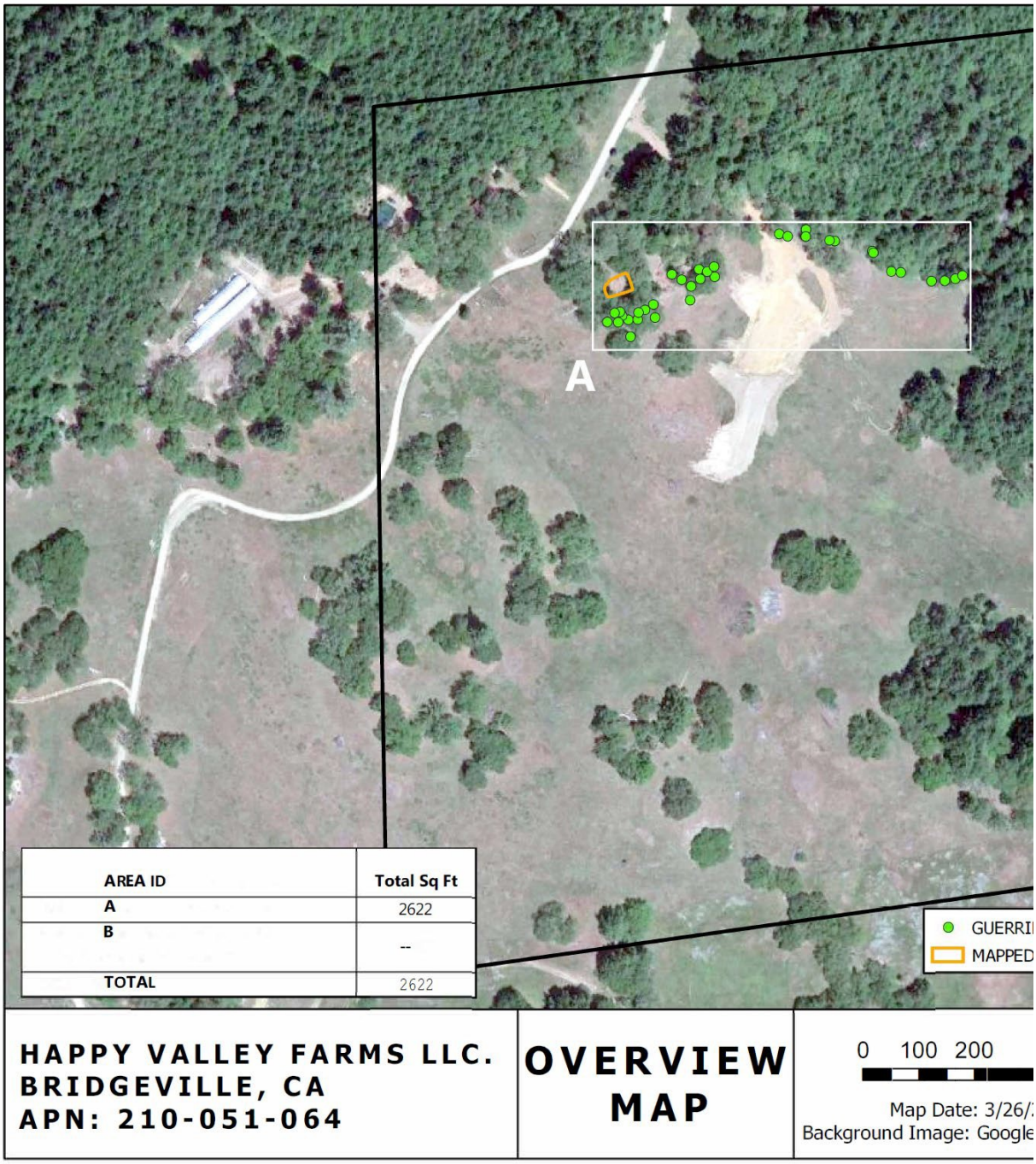


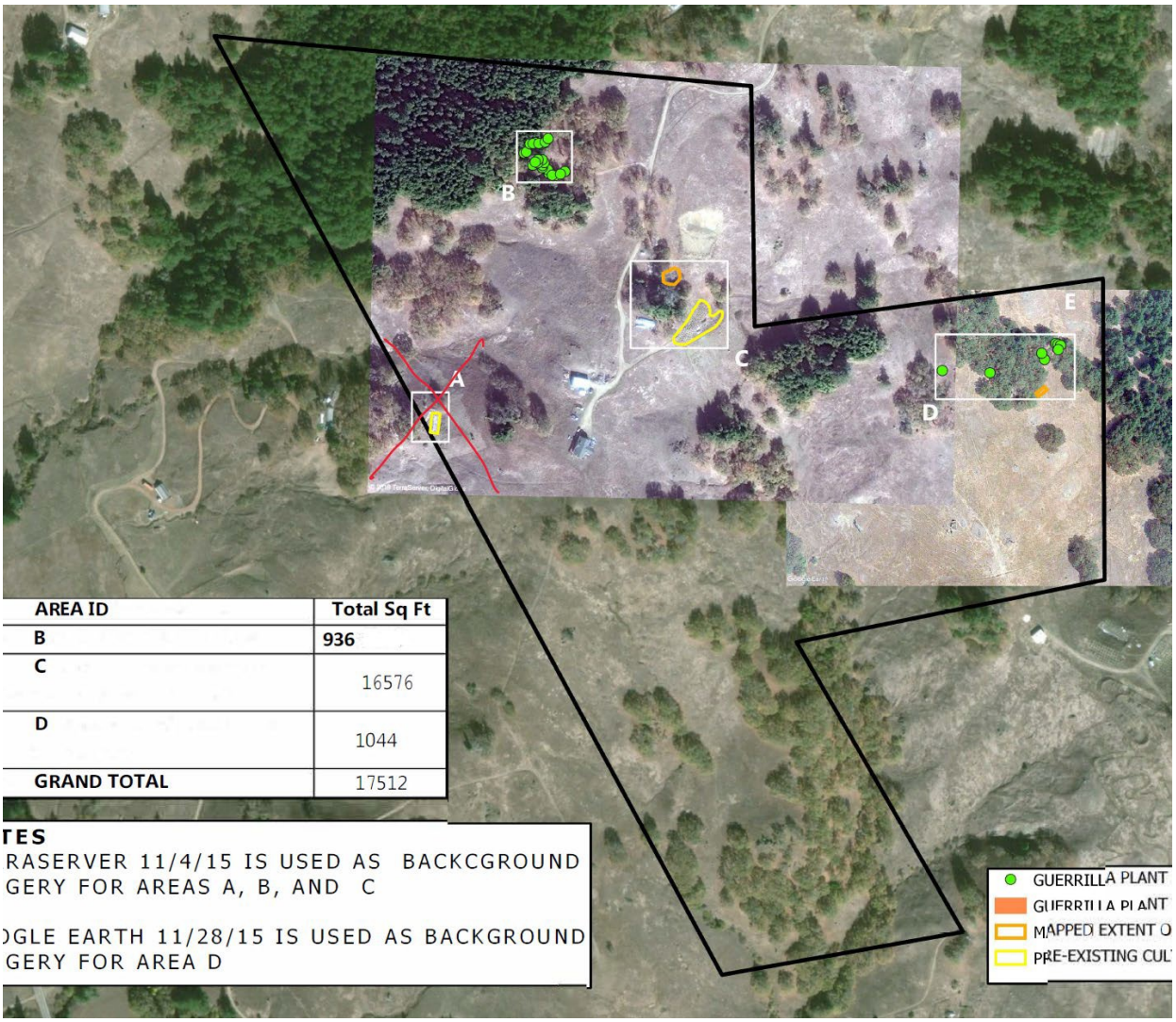
B. Cultivation Area Status

AREA NAME	APN	Current Status
Cultivation Area 1	210-051-064	excess greenhouses to be removed. 2600 sq ft of cultivation under interim
Cultivation Area 2	210-051-081	excess greenhouses to be removed. 4000 sq ft of cultivation under interim
Cultivation Area 3	210-051-081	remediated per CDFW , no growing
Cultivation Area 4	210-051-081	remediated per CDFW , no growing
Cultivation Area 5	210-051-081	cultivation greenhouses to be removed. Immature plant area 1800 sq ft under interim permit
Cultivation Area 6	210-051-081	excess greenhouses to be removed. 8500 sq ft of cultivation under interim

C. Pre-Existing Sites

APN	PREEXSTING AND GUERILLA AREA NAMES
210-051-064	A
210-051-081	B, C, D


A
AREA ID
Total Sq Ft
A
2622
B
--
TOTAL
2622
GUERRI
MAPPED
HAPPY VALLEY FARMS LLC.
BRIDGEVILLE, CA
APN: 210-051-064
OVERVIEW MAP
0 100 200
Map Date: 3/26/
Background Image: Google


B
A
C
D
E
AREA ID
Total Sq Ft
B
936
C
16576
D
1044
GRAND TOTAL
17512
TES
RASERVER 11/4/15 IS USED AS BACKCGROUND
GERY FOR AREAS A, B, AND C
)GLE EARTH 11/28/15 IS USED AS BACKGROUND
GERY FOR AREA D
GUERRILLA PLANT
GUERRILLA PLANT
MAPPED EXTENT O
PRE-EXISTING CUL

MOTHER EARTH ENGINEERING

920 Samoa Boulevard Suite 210, Arcata, CA 95521 | tel: 707.633.8321 | web: www.motherearthengineering.com

ORIGINAL SUBMISSION (ELECTRONIC) 12/11/18

REVISED 12/21/18

APN 210-051-064 APPLICATION 12170

APN 210-051-081 APPLICATION 12166, 12167, 12168 -> consolidated to APPS#12166

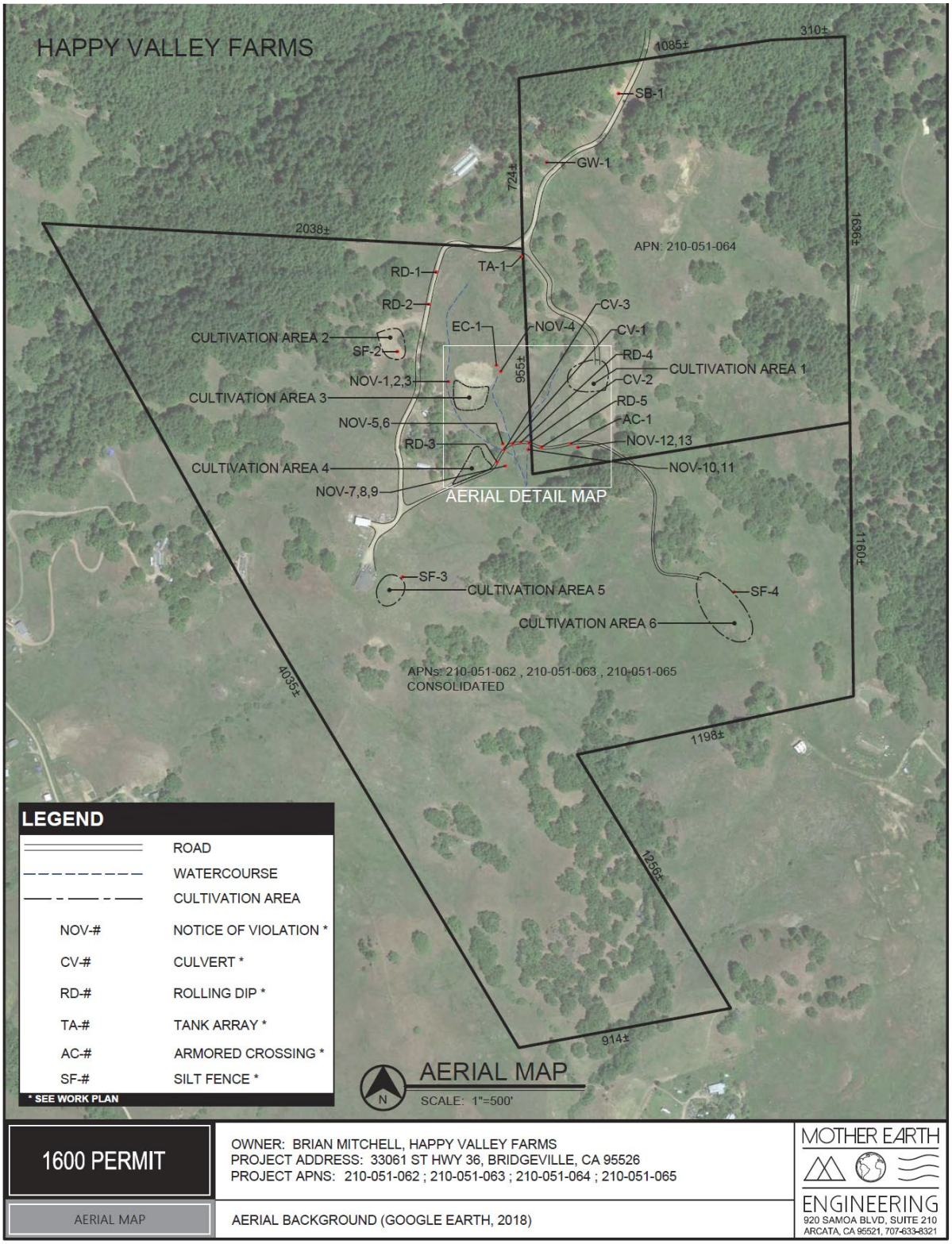
HAPPY VALLEY FARMS
BRIAN MITCHELL

RESTORATION PLAN UPDATE (per meeting outcomes 12/6/18)

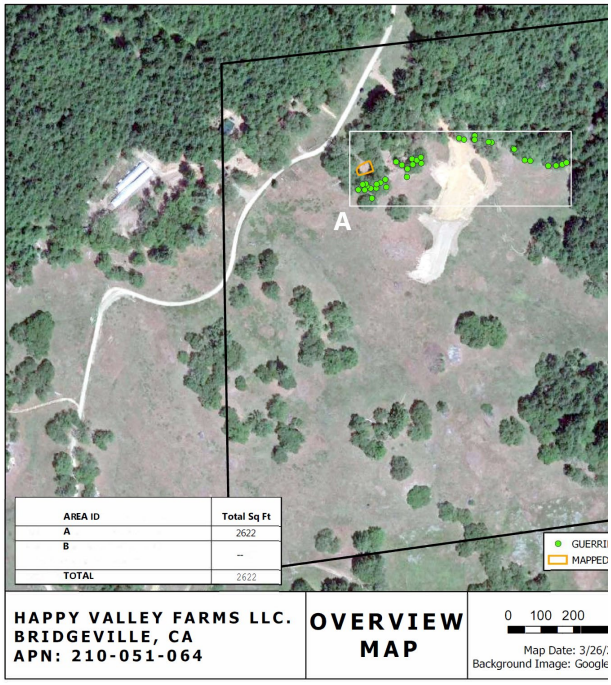
- Full greenhouse removal to be completed on or before February 15, 2019
- Environmental Superiority Analysis to be completed and submitted to county on or before January 15, 2019
- Complete and detailed Restoration Plan for all cultivation areas that have been relocated submitted to County on or before January 15, 2019.
- Premises diagrams submitted to Calcannabis attached. These are the locations proposed to be kept in operation per the interim permit square footage allowance.
- As three parcels have now been merged into a single parcel: APN 210-051-081, it is requested that the APPS #s 12166, 12167, 12168 be combined into a single application. -> moving forward it shall be referred to APPS#12166
- Moving forward the area names will be used following those used for the CDFW LSAA and associated work plans
- With respect to the square footage analysis, we will refer to those preexisting and guerilla areas as A, B, C, D. see images and table that follow.

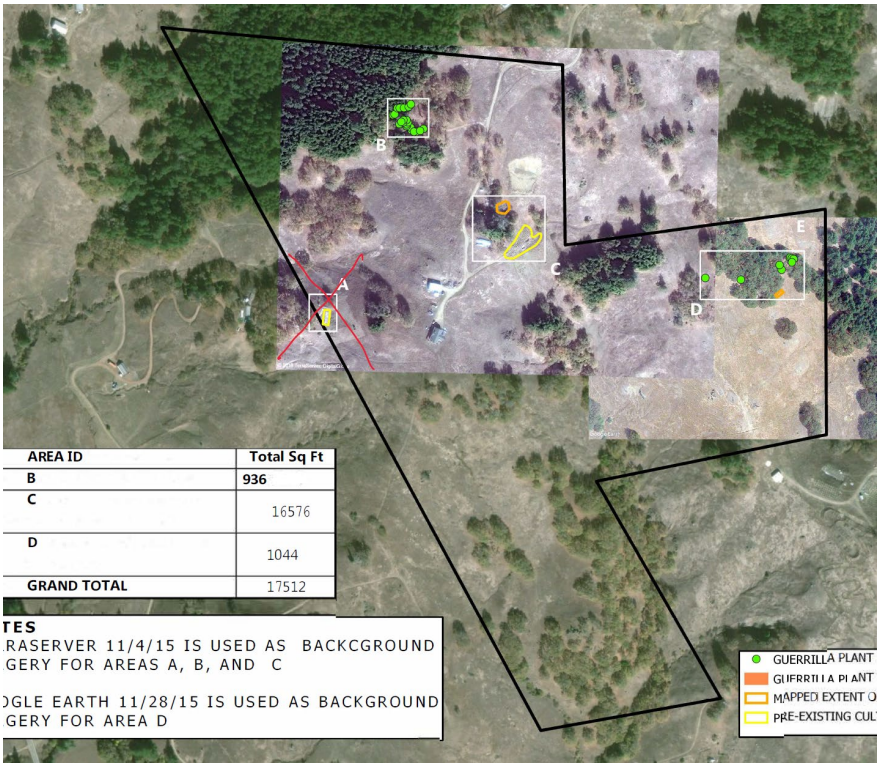
AREA NAME	APN	Current Status
Cultivation Area 1	210-051-064	excess greenhouses to be removed. 2600 sq ft of cultivation under interim
Cultivation Area 2	210-051-081	excess greenhouses to be removed. 4000 sq ft of cultivation under interim
Cultivation Area 3	210-051-081	remediated per CDFW , no growing
Cultivation Area 4	210-051-081	remediated per CDFW , no growing
Cultivation Area 5	210-051-081	cultivation greenhouses to be removed. Immature plant area 1800 sq ft under interim permit
Cultivation Area 6	210-051-081	excess greenhouses to be removed. 8500 sq ft of cultivation under interim

Overview of both parcels showing Areas 1-6 per LSAA

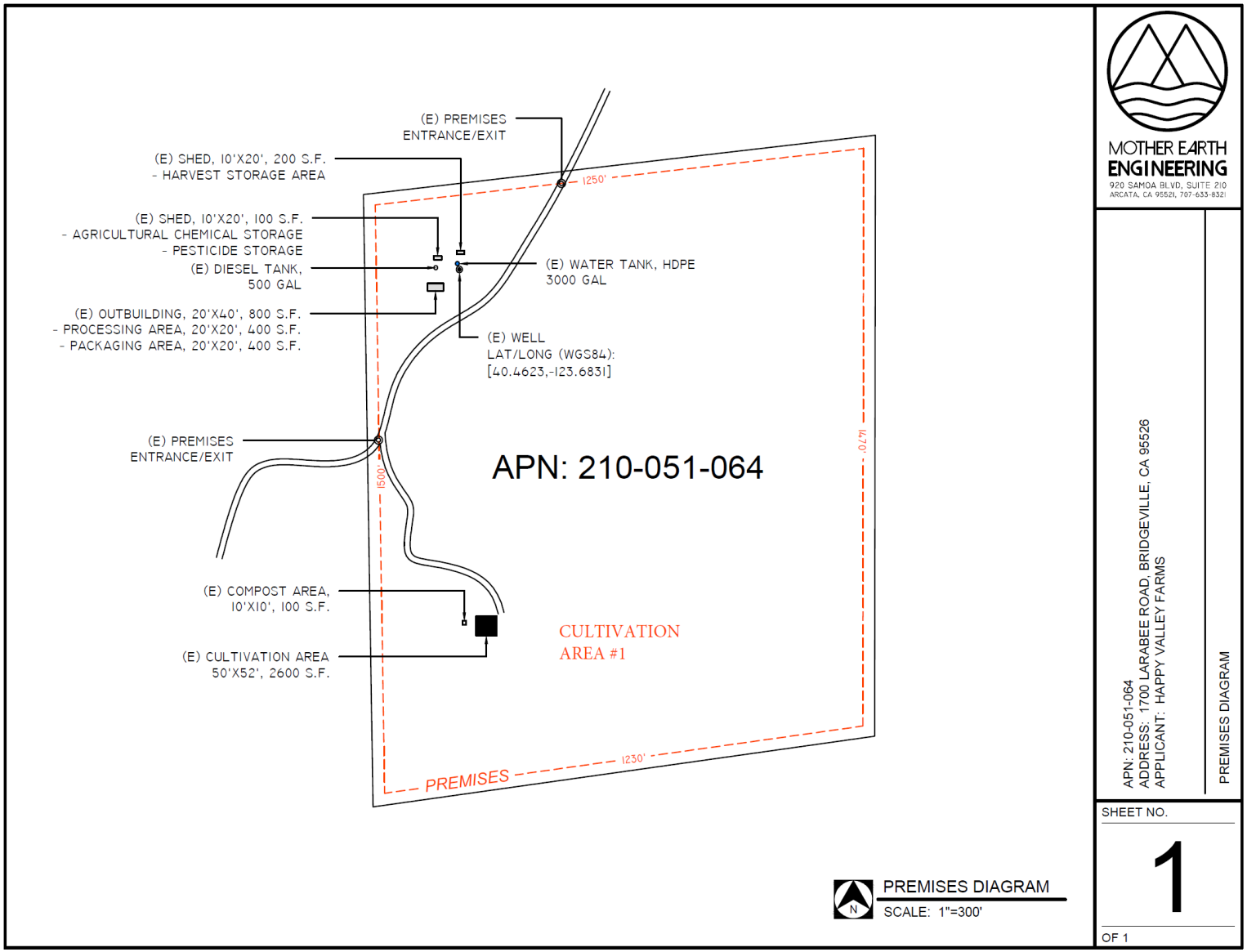


APN	PREEXSTING AND GUERILLA AREA NAMES
210-051-064	A
210-051-081	B, C, D

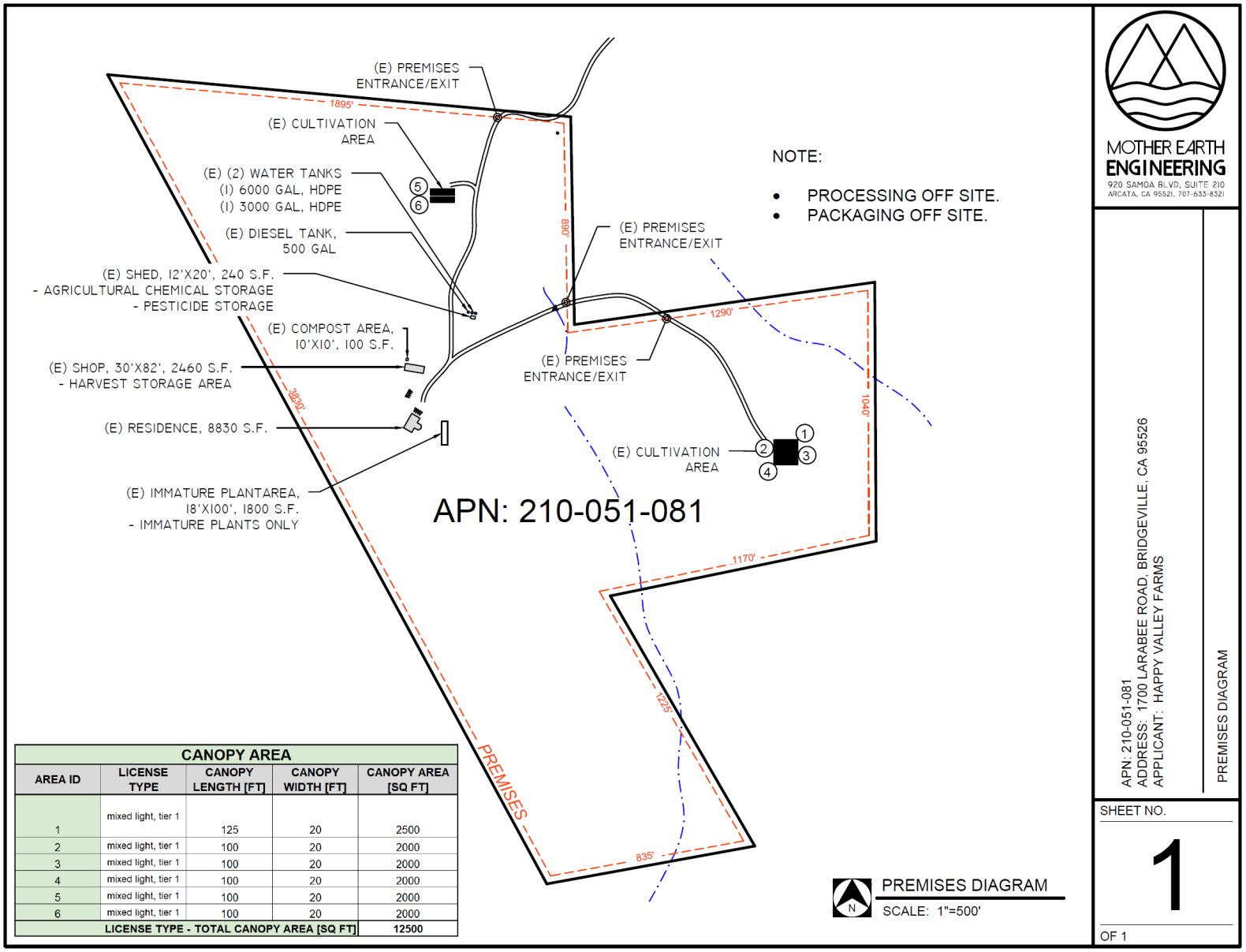




State Premises Diagram for -064



State Premises Diagram for -081



CANOPY AREA				
AREA ID	LICENSE TYPE	CANOPY LENGTH [FT]	CANOPY WIDTH [FT]	CANOPY AREA [SQ FT]
1	mixed light, tier 1	125	20	2500
2	mixed light, tier 1	100	20	2000
3	mixed light, tier 1	100	20	2000
4	mixed light, tier 1	100	20	2000
5	mixed light, tier 1	100	20	2000
6	mixed light, tier 1	100	20	2000
LICENSE TYPE - TOTAL CANOPY AREA [SQ FT]				12500

APN 210-051-064 APPLICATION 12170

APN 210-051-081 APPLICATION 12166, 12167, 12168

HAPPY VALLEY FARMS

BRIAN MITCHELL

12/04/2018

DETAILED SCHEDULE

- Current: Winterization measures already in place per Work Plan and CDFW guidance
- Environmentally Superior: Project design includes improved stream crossings and the decommissioning of +/- 800 ft of problematic road segment.
- Restoration Plan:
    - Winterization measures – already in place
    - Immediately - Remove ribs and skins of unused cultivation areas per the attached State Premises Diagram.
    - December 2018: Get application assistance meeting for ordinance 2.0
    - Winter 2018 – Spring 2019:
        - Complete traffic and biological surveys as required by ordinance 2.0. Submit on or before February 1st
        - Complete Soils report for Rainwater Catchment Pond Grading Plan submitted April 2016. Receive approved design
    - Work Season 2019
        - Fulfill LSAA
        - Install pond
    - Sometime 2019 : Receive approval for activities under ordinance 2.0
    - Fall 2019: Erosion control and preparation for activity.
    - Season 2020: Full Project operation

ATTACHMENTS

- Winter erosion control work completion report submitted to CDFW and Regional Water Board 10/18/18

- LSAA # 1600-2017-0395-R1

- Site Inspection Report August 2018

MOTHER EARTH ENGINEERING

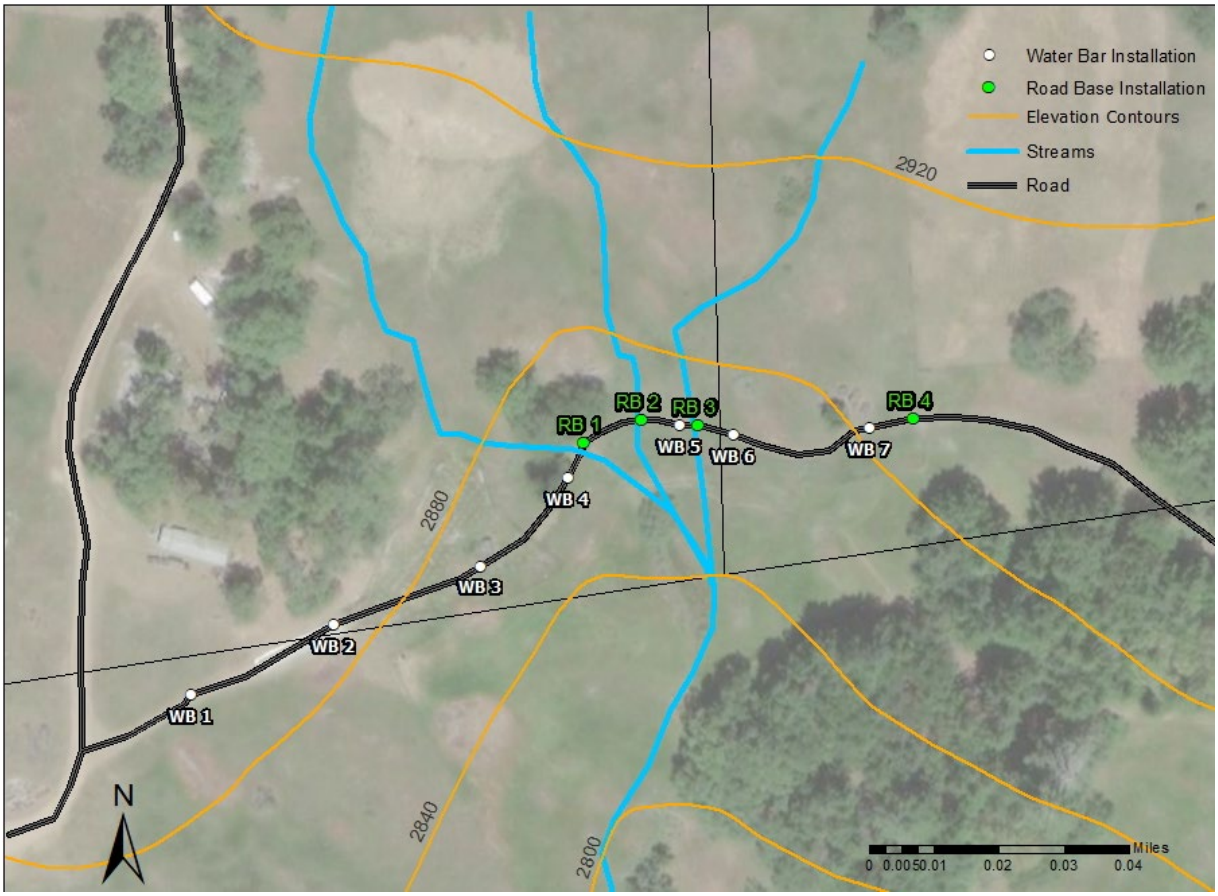
920 Samoa Boulevard, Suite 210
Arcata, CA 95521
707.633.8321
www.motherearthengineering.com

CDFW Region 1 Office

Re: Winter erosion control work completion

Brian Mitchell | APNs: 210-051-062 + -064 | WDID 1B161480CHUM

This document serves to provide an update on work completed according to the Erosion Control Plan that was prepared by Mother Earth Engineering on 09/27/2018 for Humboldt County APN: 210-051-062 and -064. The Erosion Control Plan was submitted to CDFW as a supplement to the LSA and associated Work Plan filed 07/09/2018. The Erosion Control Plan defined the work that the owner would complete on site by October 15th, 2018 to winterize the roads. The components of the Erosion Control Plan were the installation of water bars, the rocking of stream crossing sites, and instructions for winter monitoring. The following photos were taken 10/15/2018 to document of the completion of the Erosion Control Plan components.



Project Map. Onsite residence is to the west, not pictured.

Figure 1: Looking NE to WB-1, the first waterbar east of the residence.

Figure 2: Close up photo of the riprap armoring of WB-1 outlet.

Figure 3: WB-2

Figure 4: Close up of WB-2, the second waterbar east of the residence.

Figure 5: WB-3, the third waterbar east of the residence.

Figure 6: Riprap armored outlet of WB-3, the third waterbar east of the residence.

Figure 7: Installation of roadbase at the sites of stream crossings. RB-1 in foreground, RB-2 in background.

Figure 8: Facing west toward residence, roadbase RB-1 and waterbar WB-4 upslope.

Figure 9: Installation of WB-5 in the foreground and RB-2 in the midground looking west toward residence.

Figure 10: Installation of WB-7 in the foreground showing the waterbar and the riprap armoring at the outlet.

Figure 11: The foreground shows some of the roadbase installed at RB-4, WB-7 is visible in the midground.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
619 Second Street
Eureka, California 95501
(707) 445-6493
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

October 19, 2018

Mr. Brian Mitchell
1617 Amaral Court
Fairfield, CA 94534

Subject: Draft Lake or Streambed Alteration Agreement
Notification No. 1600-2017-0395-R1
Mitchell Stream Crossing and Remediation Project

Dear Mr. Mitchell:

The California Department of Fish and Wildlife (Department) has determined that your project requires a Lake or Streambed Alteration Agreement (Agreement) because it could substantially adversely affect an existing fish or wildlife resource. Enclosed is a draft Agreement that includes measures the Department has determined are necessary to protect existing fish and wildlife resources.

Within 30 days of receipt of this draft Agreement, you must notify the Department in writing whether the measures to protect fish and wildlife resources are acceptable (Fish and Game Code section 1603). If you agree with the measures set forth in the draft Agreement, you or your authorized representative **must return the draft Agreement with original signature to the above address.**

If you disagree with any measures in the draft Agreement, please contact the Department staff identified below. In the event that mutual agreement is not reached, you may follow the dispute resolution process described in Fish and Game Code section 1603(a), Part III of the "Notification Instructions and Process." If you fail to respond in writing within 90 days of receiving the draft Agreement, the Department may withdraw the draft Agreement.

Please be advised the Department may not execute the Agreement until it has complied with the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 *et seq.*) as the lead or a responsible agency. Please note that the draft Agreement may be subject to change upon receipt and review of the environmental document for the project.

After you receive a final Agreement executed by the Department, you may begin the project the Agreement authorizes provided you have obtained all other necessary local, state, and federal permits or other authorizations.

For more information on the process described above, please refer to Part IV in the "Notification Instructions and Process" included with your notification materials, which is also available at www.wildlife.ca.gov/habcon/1600/notificationpackage.pdf.

If you have any questions regarding this letter, please contact Senior Environmental Scientist Specialist David Manthorne at david.manthorne@wildlife.ca.gov or (707) 441-5900.

Sincerely,

Scott Bauer
Senior Environmental Scientist Supervisor

ec. Patricia Lai
Mother Earth Engineering
p@motherearthengineering.com

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
REGION 1 – NORTHERN REGION
619 Second Street
Eureka, CA 95501

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2017-0395-R1
Unnamed Tributaries to Butte Creek, Tributary to the Little Van Duzen River, Tributary to the Van Duzen River, Tributary to the Eel River and the Pacific Ocean

Brian Mitchell
Mitchell Stream Crossings and Remediation Project
5 Encroachments

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Brian Mitchell (Permittee).

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, the Permittee initially notified CDFW on June 27, 2017, with revisions received on July 9, 2018 and October 1, 2018, that the Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, the Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, the Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project to be completed is located within the Butte Creek and Van Duzen River watersheds, approximately 8 miles east southeast of the town of Bridgeville, County of Humboldt, State of California. The project is located in Section 13, T1N, R2E, Humboldt Base and Meridian; in the Larabee Valley U.S. Geological Survey 7.5-minute quadrangle; Assessor's Parcel Numbers 210-051-062, 210-051-063, 210-061-064, and 210-051-065; approximate latitude 40.4585 N and longitude 123.6829 W.

PROJECT DESCRIPTION

The project is limited to five encroachments (Table 1). The five proposed encroachments are to remediate road/stream crossings and graded areas adjacent to

streams. Work for these encroachments will include excavation, grading to restore or improve drainage, removal of a culvert and replacement of three culverts or road stream decommissioning at the three crossing locations, installation of a rocked ford, backfilling and compaction of fill, and rock armoring as necessary to minimize erosion.

Table 1. Project Encroachments with Description

ID	Latitude/Longitude	Description
Crossing-1 (SR-1)	40.4596, -123.6850	Remove 4" diameter culvert and associated fill from Class III stream, pull back graded fill within stream, wet area
Crossing-2 (CV-1)	40.4589, -123.6841	Replace undersized 12" diameter culvert with minimum 18" diameter culvert and rock armor as necessary to minimize erosion or decommission road/stream crossing
Crossing-3 (CV-2)	40.4589, -123.6839	Replace undersized 12" diameter culvert with minimum 18" diameter culvert and rock armor as necessary to minimize erosion or decommission road/stream crossing
Crossing-4 (CV-3)	40.4589, -123.6843	Install new 18" diameter culvert at dirt ford or decommission stream/road crossing
Crossing-5 (AC-1)	40.4589, -123.6833	Install rocked ford or decommission road/stream crossing

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include Chinook Salmon (*Oncorhynchus tshawytscha*), Coho Salmon (*O. kisutch*), Steelhead Trout (*O. mykiss*), Pacific Giant Salamander *(Dicamptodon tenebrosus)*, Foothill Yellow-legged Frog *(Rana boylii)*, amphibians, reptiles, aquatic invertebrates, mammals, birds, and other aquatic and riparian species.

The adverse effects the project could have on the fish or wildlife resources identified above include:

Impacts to water quality:
temporary increase in fine sediment transport;

Impacts to bed, channel, or bank and direct effects on fish, wildlife, and their habitat:
loss or decline of riparian habitat;
direct impacts on benthic organisms;

Impacts to natural flow and effects on habitat structure and process:
direct and/or incidental take;
indirect impacts;
impediment of up- or down-stream migration;
water quality degradation; and
damage to aquatic habitat and function.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

The Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. The Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. The Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of the Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Adherence to Existing Authorizations. All water diversion facilities that the Permittee owns, operates, or controls shall be operated and maintained in accordance with current law and applicable water rights.

1.4 Change of Conditions and Need to Cease Operations. If conditions arise, or change, in such a manner as to be considered deleterious by CDFW to the stream or wildlife, operations shall cease until corrective measures approved by CDFW are taken. This includes new information becoming available that indicates that the bypass flows and diversion rates provided in this agreement are not providing adequate protection to keep aquatic life downstream in good condition or to avoid "take" or "incidental take" of federal or State listed species.

1.5 Notification of Conflicting Provisions. The Permittee shall notify CDFW if the Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact the Permittee to resolve any conflict.

1.6 Project Site Entry. The Permittee agrees to allow CDFW employees access to any property it owns and/or manages for the purpose of inspecting and/or monitoring the activities covered by this Agreement, provided CDFW: a) provides 24 hours advance notice; and b) allows the Permittee or representatives to participate in the inspection and/or monitoring. This condition does not apply to CDFW enforcement personnel.

1.7 CDFW Notification of Work Initiation and Completion. The Permittee shall contact CDFW within the seven-day period preceding the beginning of work permitted by this Agreement. Information to be disclosed shall include Agreement number, and

the anticipated start date. Subsequently, the Permittee shall notify CDFW no later than seven (7) days after the project is fully completed.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, the Permittee shall implement each measure listed below.

2.1 Permitted Project Activities. Except where otherwise stipulated in this Agreement, all work shall be in accordance with the Permittee Notification received on June 27, 2017, with revisions received on July 9, 2018 and October 1, 2018, together with all maps, BMP's, photographs, drawings, and other supporting documents submitted with the Notification.

2.2 Incidental Take. This Agreement does not allow for the take, or incidental take of any state or federal listed threatened or endangered listed species.

Project Timing

2.3 Work Period. All work, not including diversion of water, shall be confined to the period **June 15 through October 15** of each year. Work within the active channel of a stream shall be restricted to periods of **dry weather**. Precipitation forecasts and potential increases in stream flow shall be considered when planning construction activities. Construction activities shall cease and all necessary erosion control measures shall be implemented prior to the onset of precipitation.

2.4 Work Completion. The proposed work shall be completed by no later than **October 1, 2019**. A notice of completed work, including photographs of each site, shall be submitted to CDFW within seven (7) days of project completion.

2.5 Extension of the Work Period. If weather conditions permit, and the Permittee wishes to extend the work period after October 15, a written request shall be made to CDFW at least 5-working days before the proposed work period variance. Written approval (letter or e-mail) for the proposed time extension must be received from CDFW prior to activities continuing past October 15.

Vegetation Management

2.6 Minimum Vegetation Removal. No native riparian vegetation shall be removed from the bank of the stream, except where authorized by CDFW. Permittee shall limit the disturbance or removal of native vegetation to the minimum necessary to achieve design guidelines and standards for the Authorized Activity. Permittee shall take precautions to avoid damage to vegetation outside the work area.

2.7 Vegetation Management. Permittee shall limit vegetation management (e.g., trimming, pruning, or limbing) and removal for the purpose of stream crossing or

diversion infrastructure placement/maintenance to the use of hand tools. Vegetation management shall not include treatment with herbicides.

Diversion to Storage

2.8 Water Storage. All water storage facilities (WSFs) (e.g., reservoirs, storage tanks, mix tanks, and bladders tanks) must be located outside the active 100-year floodplain and outside the top of bank of a stream. Covers/lids shall be securely affixed to water tanks at all times to prevent potential entry by wildlife. Permittee shall cease all water diversion at the point of diversion when WSFs are filled to capacity.

2.9 Water Storage Maintenance. WSFs shall have a float valve to shut off the diversion when tanks are full to prevent overflow. The Permittee shall install any other measures necessary to prevent exorbitant use or waste of water. Water shall not leak, overflow, or overtop WSFs at any time. Permittee shall regularly inspect all WSFs and infrastructure used to divert water to storage and use and repair any leaks.

2.10 Water Conservation. The Permittee shall make best efforts to minimize water use, and to follow best practices for water conservation and management.

Stream Crossings

2.11 Stream Protection. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other deleterious material from project activities shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into the stream. All project materials and debris shall be removed from the project site and properly disposed of off-site upon project completion.

2.12 Equipment Maintenance. Refueling of machinery or heavy equipment, or adding or draining oil, lubricants, coolants or hydraulic fluids shall not take place within stream bed, channel and bank. All such fluids and containers shall be disposed of properly off-site. Heavy equipment used or stored within stream bed, channel and bank shall use drip pans or other devices (e.g., absorbent blankets, sheet barriers or other materials) as needed to prevent soil and water contamination.

2.13 Hazardous Spills. Any material, which could be hazardous or toxic to aquatic life and enters a stream (i.e. a piece of equipment tipping-over in a stream and dumping oil, fuel or hydraulic fluid), the Permittee shall immediately notify the California Emergency Management Agency State Warning Center at 1-800-852-7550, and immediately initiate clean-up activities. CDFW shall be notified by the Permittee within 24 hours at 707-445-6493 and consulted regarding clean-up procedures.

2.14 Excavated Fill. Excavated fill material shall be placed in upland locations where it cannot deliver to a watercourse. To minimize the potential for material to enter the watercourse during the winter period, all excavated and relocated fill material shall be tractor contoured (to drain water) and tractor compacted to effectively incorporate and stabilize loose material into existing road and/or landing features.

2.15 Runoff from Steep Areas. The Permittee shall make preparations so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential or contained behind erosion control structures. Erosion control structures such as straw bales and/or siltation control fencing shall be placed and maintained until the threat of erosion ceases. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

2.16 Culvert Installation.

2.16.1 The project is located in a moderate to very high Fire Hazard Severity Zone as designated by CAL FIRE. Culvert materials should consist of corrugated metal pipe (CMP). Use of High Density Polyethylene (HDPE) pipe is not recommended.

2.16.2 Existing fill material in the crossing shall be excavated down vertically to the approximate original channel and outwards horizontally to the approximate crossing hinge points (transition between naturally occurring soil and remnant temporary crossing fill material) to remove any potential unstable debris and voids in the older fill prism.

2.16.3 Culvert shall be installed to grade (not perched or suspended), aligned with the natural stream channel, and extend lengthwise completely beyond the toe of fill. If culvert cannot be set to grade, it shall be oriented in the lower third of the fill face, and a downspout or energy dissipator (such as boulders, rip-rap, or rocks) shall be installed above or below the outfall as needed to effectively control stream bed, channel, or bank erosion (scouring, headcutting, or downcutting). The Permittee shall ensure basins are not constructed and channels are not be widened at culvert inlets.

2.16.4 Culvert bed shall be composed of either compacted rock-free soil or crushed gravel. Bedding beneath the culvert shall provide for even distribution of the load over the length of the pipe, and allow for natural settling and compaction to help the pipe settle into a straight profile. The crossing backfill materials shall be free of rocks, limbs, or other debris that could allow water to seep around the pipe, and shall be compacted.

2.16.5 Culvert inlet, outlet (including the outfall area), and fill faces shall be armored where stream flow, road runoff, or rainfall energy is likely to erode fill material and the outfall area.

2.16.6 Permanent culverts shall be sized to accommodate the estimated 100-year flood flow [i.e. ≥1.0 times the width of the bankfull channel width or the 100-year flood size, whichever is greater], including debris, culvert embedding, and sediment loads.

2.17 Fords, Armored Fill and Vented Crossings.

2.17.1 Fords, armored and vented crossings are considered permanent watercourse encroachments and shall accommodate the 100-year flood flow plus associated sediment and debris.

2.17.2 Hydrologically-connected road approaches to fords, armored and vented crossings shall be rocked and maintained to avoid delivery of fine sediment to the watercourse below.

2.17.3 Fords, armored and vented crossings shall be maintained as necessary to avoid delivery of fine sediment to the watercourse below.

2.17.4 Fords, armored and vented crossings shall be sufficiently outsloped to minimize aggradation of suspended sediments at the crossing.

2.17.5 The lowest point of fords, armored and vented crossings shall be constructed within or directly over the original stream channel, to the extent feasible, in order to contain high flows up to twice bank-full and to avoid diversion potential.

2.17.6 Armor material shall be comprised of durable angular screened quarry rock of sufficient size and placement to minimize mobilization during a 100-year storm event. Wood may be used for armoring if sound, tight-grained, redwood is applied and sufficiently keyed into the fillslope to resist movement during a 100-year storm event.

2.17.7 If maximum fill heights exceed 15 feet or fills exceed 500 cubic yards of fill, rock sizing, armoring thickness, chute width and chute depth shall be calculated and sized using the nomograph provided in Figure 23 of Cafferata et al (2017).

2.17.8 Stream crossing spillway fill slopes shall be armored from roadbed to the natural channel in a manner sufficient to prevent significant scour or removal of armor during high flows. Scour is expected through road surface rock cap.

2.18 Road Approaches. The Permittee shall treat road approaches to new or re-constructed permanent crossings *on Class I and II watercourses* to minimize erosion and sediment delivery to the watercourse. Permittee shall ensure road

approaches are hydrologically disconnected to the maximum extent feasible to prevent sediment from entering the crossing site, including when a Stream Crossing is being constructed or reconstructed. Road approaches shall be armored from the crossing for a minimum of *50* feet in both directions, or to the nearest effective water bar or point where road drainage does not drain to the crossing, with durable rock, compacted grindings, pavement, or chip-seal.

2.19 Project Inspection. The Project shall be inspected by Mother Earth Engineering or a licensed engineer to ensure that the stream crossings were installed as designed. A copy of the inspection report, including photographs of each site, shall be submitted to CDFW within 90 days of completion of this project.

Erosion Control and Pollution

2.20 Erosion Control. Permittee shall use erosion control measures throughout all work phases where sediment runoff threatens to enter a stream, lake, or other Waters of the State.

2.21 Erosion Control. Permittee shall use erosion control measures throughout all work phases where sediment runoff threatens to enter a stream, lake, or other Waters of the State.

2.22 Seed and Mulch. Upon completion of construction operations and/or the onset of wet weather, Permittee shall stabilize exposed soil areas within the work area by applying mulch and seed. Permittee shall restore all exposed or disturbed areas and access points within the stream and riparian zone by applying local native and weed free erosion control grass seeds. Locally native wildflower and/or shrub seeds may also be included in the seed mix. Permittee shall mulch restored areas using at least two to four inches of weed-free clean straw or similar biodegradable mulch over the seeded area. Alternately, Permittee may cover seeding with jute netting, coconut fiber blanket, or similar non-synthetic monofilament netting erosion control blanket.

2.23 Erosion and Sediment Barriers. Permittee shall monitor and maintain all erosion and sediment barriers in good operating condition throughout the work period and the following rainy season, defined herein to mean October 15 through June 15. Maintenance includes, but is not limited to, removal of accumulated sediment and/or replacement of damaged sediment fencing, coir logs, coir rolls, and/or straw bale dikes. If the sediment barrier fails to retain sediment, Permittee shall employ corrective measures, and notify the department immediately.

2.24 Prohibition on Use of Monofilament Netting. To minimize the risk of ensnaring and strangling wildlife, Permittee shall not use any erosion control materials that contain synthetic (e.g., plastic or nylon) monofilament netting, including photo- or biodegradable plastic netting. Geotextiles, fiber rolls, and other erosion control

measures shall be made of loose-weave mesh, such as jute, hemp, coconut (coir) fiber, or other products without welded weaves.

2.25 Site Maintenance. Permittee shall be responsible for site maintenance including, but not limited to, re-establishing erosion control to minimize surface erosion and ensuring drainage structures and altered streambeds and banks remain sufficiently armored and/or stable.

2.26 Cover Spoil Piles. Permittee shall have readily available erosion control materials such as wattles, natural fiber mats, or plastic sheeting, to cover and contain exposed spoil piles and exposed areas in order to prevent sediment from moving into a stream or lake. Permittee shall apply and secure these materials prior to rain events to prevent loose soils from entering a stream, lake, or other Waters of the State.

2.27 No Dumping. Permittee shall not deposit, permit to pass into, or place where it can pass into a stream, lake, or other Waters of the State any material deleterious to fish and wildlife, or abandon, dispose of, or throw away within 150 feet of a stream, lake, or other Waters of the State any cans, bottles, garbage, motor vehicle or parts thereof, rubbish, litter, refuse, waste, debris, or the viscera or carcass of any dead mammal, or the carcass of any dead bird.

3. Reporting Measures

3.1 Work Completion. The proposed work shall be completed by no later than **October 1, 2019**. A notice of completed work (condition 2.4), with supplemental photos, shall be submitted to CDFW **within seven (7) days** of project completion.

3.2 Project Inspection. The Permittee shall submit the **Project Inspection Report** (condition 2.19) to CDFW, LSA Program at 619 Second Street, Eureka, CA 95501.

CONTACT INFORMATION

Written communication that the Permittee or CDFW submits to the other shall be delivered to the address below unless the Permittee or CDFW specifies otherwise.

To Permittee:

Brian Mitchell
Happy Valley Farms
1617 Amaral Court
Fairfield, California 94534
415-336-0374
bmitchell007@gmail.com

To CDFW:

Department of Fish and Wildlife
Northern Region
619 Second Street
Eureka, California 95501
Attn: Lake and Streambed Alteration Program
Notification #1600-2017-0395-R1

LIABILITY

The Permittee shall be solely liable for any violation of the Agreement, whether committed by the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require the Permittee to proceed with the project. The decision to proceed with the project is the Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety this Agreement if it determines that the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide the Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide the Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to the Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against the Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq.* (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

The Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and the Permittee. To request an amendment, the Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by the Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, the Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), the Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, the Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If the Permittee fails to submit a request to extend the Agreement prior to its expiration, the Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (FGC section 1605(f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after the Permittee signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall **expire five years** from date of execution, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. The Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of the Permittee, the signatory hereby acknowledges that he or she is doing so on the Permittee's behalf and represents and warrants that he or she has the authority to legally bind the Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If the Permittee begins or completes a project different from the project the Agreement authorizes, the Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR Brian Mitchell

Brian Mitchell _____ Date _____

FOR DEPARTMENT OF FISH AND WILDLIFE

Scott Bauer _____ Date _____
Senior Environmental Scientist Supervisor

Prepared by: David Manthorne, Senior Environmental Scientist Specialist, October 19, 2018

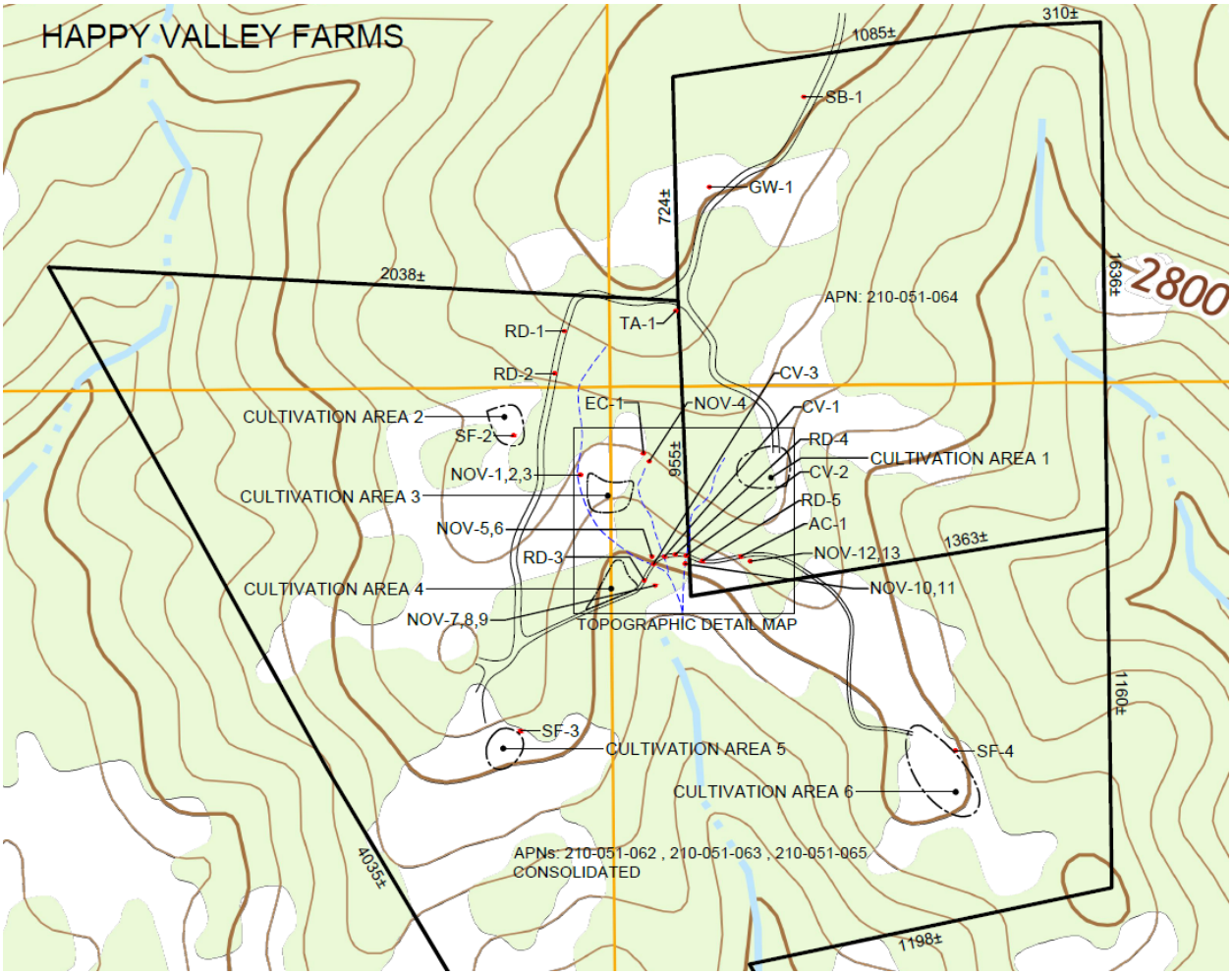
Brian Mitchell
Site Visit – P.Lai 8/29/2018

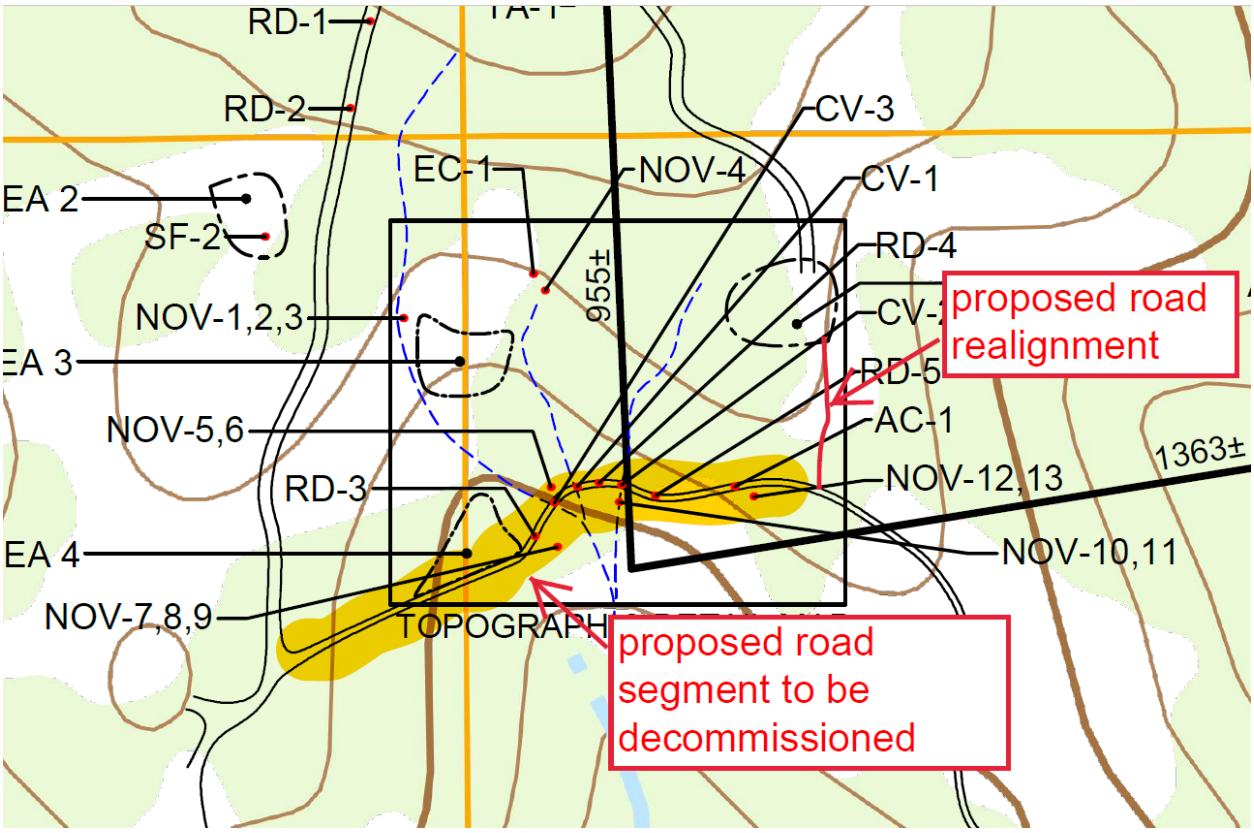
Site visit notes

- Soil piles from 8/14 tarped below and above and tarp secured with weights
- Misc worker trash and debris removed. Workers instructed proper waste disposal practices. Trash cans with lids at every cultivation area
- Cultivation Area 3 – debris and misc greenhouse materials removed. All non native soils removed from flat. Area seeded and strawed
- Alternate road alignment identified

Next steps

- Biologist site visit confirmed for 9/17
- 9/17 site will be flagged for winter erosion control measures
- Winter Erosion control plan to be submitted to Water Board/ CDFW with documentation demonstrating implementation prior to 10/01




RD-1
RD-2
CV-3
EC-1
NOV-4
CV-1
EA 2
SF-2
RD-4
955±
proposed road realignment
NOV-1,2,3
CV-2
EA 3
RD-5
AC-1
NOV-5,6
1363±
RD-3
NOV-12,13
EA 4
NOV-10,11
NOV-7,8,9
TOPOGRAPH
proposed road segment to be decommissioned

Standing approximately 30 ft upslope of existing road (to Cultivation area 6) looking north towards Cultivation Area 1 where the proposed road segment would tie in to the existing access road to CA-1

CA-5 Trash and debris had been picked up and trashcans with lids were available at each cultivation area

CA-1

CA-1

CA-1

CA-2

CA-2

CA-3 debris and soil removed. Strawed and seeded

CA-3

CA-3

CA-3

Soils removed from CA-3 at staging area to the east of the solar shed

CA-4 Decommissioned

CA-6

CA-6

CA-6

LINDBERG GEOLOGIC CONSULTING
David N. Lindberg, CEG
Post Office Box 306
Cutten California 95534
(707) 442-6000

November 28, 2022

Project No: 0489.00

Full Moon Farms
c/o Mr. Nikolai Erickson
1065 Riverside Drive
Rio Dell, California 95562

Subject: Hydrologic Isolation of Existing Well (WCR2016-003430) from Surface Waters, 33061 State Highway 36, Bridgeville, APN: 210-051-064 APPS 12170 & 12166 APN 210-051-061

To Whom It May Concern:

As requested, Lindberg Geologic Consulting has assessed an existing permitted well on the above-referenced parcel to estimate its potential for hydrologic connectivity with any adjacent wetlands and or surface waters, and if pumping this well could affect surface waters in nearby water courses. Tributaries in the vicinity of this well drain to Butte Creek (Figure 1).

A California-Certified Engineering Geologist visited this site on August 23, 2022, to observe the subject well and local site conditions. Based on our research, observations, and our professional experience, it is our opinion the subject well has a low likelihood of being hydrologically connected to nearby surface waters in any manner that could affect adjacent springs, wetlands and or surface waters in the vicinity. We define the "vicinity" as the area within a 1,000-foot radius of the subject well, an area of approximately 72 acres. We understand that the applicant hopes to use water from this well to irrigate cannabis. We are not aware of the proposed volume of water to be extracted or what the pumping schedule might be but expect that that information is provided elsewhere in the application.

Based on the Humboldt County WebGIS and the Assessor's Parcel Map (Figure 2), parcel 210-051-064 (Figure 2) encompasses approximately 40 acres. GPS located the subject well at latitude 40.46342° north, and longitude 123.68163° west (±9'). This well is in Section 13, T1N, R4E, HB&M, and is 200 feet deep. Wellhead elevation is approximately 3,060 feet (Figure 1 and 2).

The Humboldt County WebGIS shows two ephemeral tributaries of Butte Creek proximal to the subject well. The nearest ephemeral tributary is more than 920 feet southeast of the subject well. More than 1,900 feet west of the subject well is another ephemeral tributary of Butte Creek (Figure 1). As stated, based on interpolation from the USGS "Larabee Valley, Calif." (1977), topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, this well site elevation is 3,060 feet. The elevation of the closest ephemeral watercourse to the southeast is 2,820 feet and the elevation of the ephemeral watercourse to the west 3,035 feet. The elevation of the bottom of the subject well is approximately 2,860 feet, making the nearest watercourse to the southeast 40 feet lower than the total depth of the well; the watercourse to the west 175 feet higher than the bottom of the subject well.

Well location is shown approximately on the attached figures, and was drilled by Fisch Drilling, of Hydesville, California, in May 2016, under Humboldt County well permit #15/16-0544. Fisch is a licensed well-drilling contractor (C-57 #683865). They submitted their well completion report (DWR 188) on May 20, 2016 (attached). Based on a 4-hour air lift pump test in May 2016, the driller estimated a yield of 5 gpm. Reported total drawdown during the pump test was 180 feet.

As mentioned, total drilled depth of this well is 200 feet. The borehole diameter is 10-inches from grade to 200feet. From grade to 60feet a 5.563-inch diameter blank (unslotted) PVC casing was installed. From 60 to 200feet, 5.563-inch diameter, screened (slots 0.032-inch) PVC casing was installed. Per County requirements, a bentonite sanitary surface seal was installed from grade to 20 feet. Below 20 feet, to 200 feet, the driller filled the annulus with 3/8-inch pea gravel. The well is cased and sealed through any potential shallow subsurface aquifers. Depth to first water was reported at 45 feet below the surface. Static water level in the completed developed well was reported to be 20 feet bgs when the driller conducted the pump test on May 9, 2016.

The nearest mapped spring to well WCR2016-003430 is at Paribaldoe Lake, in Section 13 (Figure 1), more than 1,580 feet to the northeast, at elevation 2,910 feet, per the WebGIS. The next closest spring is more than 5,900 feet to the southwest at elevation 2,520 feet. Sweasey Lake is over 1,920 feet to the northeast at elevation 2,830 feet on parcel 210-052-001. There are no other mapped watercourses, springs or wetlands within 4,500 feet of the subject well.

This parcel is located within California's Coast Range Geomorphic Province, in the Central Belt of the Franciscan Complex (McLaughlin et at., 2000), a seismically active region in which large earthquakes are expected to occur during the economic life span (70 years) of any developments on the subject property. Geologic mapping by McLaughlin shows that the site is underlain by Mélange (cm1) of the Central Belt of the Franciscan Complex, as shown in Figure 4.

The near-surface organic soils are thin. Below zero to one inch of slightly decomposed plant material, to approximately 18 inches, soils are loam and gravelly loam. From 18-inches depth to approximately 6.5 feet, soils are paragravelly clay loam and very paragravelly clay loam. Soils, based on our explorations, are interpreted to be uniformly distributed across the portion of the subject parcel where the well was drilled.

Materials reported on the geologic log of the driller's report (attached) include 5 feet of "Top Soil" above 37 feet (5 feet to 42 feet) of "Silty Clay". Beneath the silty clay is 109 feet of "Soft Brown Sandstone" (42 to 151 feet), below which the driller logged 49 feet (151 to 200 feet) of "Shale".

We interpret the upper silty clay section of the profile in this well to be an aquitard, a material of low permeability and transmissivity. Sandstone below 42 feet is expected to be porous and permeable, and the sandstone appears to be the water-bearing aquifer material tapped by this well. In this well the elevation of the water-bearing aquifer unit is thus between approximately 3,018 feet and 2,909 feet, based on the reported lithologies, and the perforated zone, in the driller's report.

Earth materials encountered in the boring are Mélange of the Central Belt Franciscan Complex, as mapped by McLaughlin et al., (2000). Sheared, fractured, and folded metasedimentary rock materials can have variable hydraulic conductivity and can constitute significant aquifers. We interpret the sequence of clay, sandstone and shale as described by the driller below 5 feet, as lithologies within the central belt Mélange (cm1) of the Franciscan Complex. The soft brown sandstone section of the borehole, from 42 to 151 feet, apparently has sufficient hydraulic conductivity to make it, in our interpretation, the primary water bearing unit in this well.

A geologic cross section of the area after McLaughlin et al., (2000) shows the structural and stratigraphic relationships between the regional geologic units (Figure 5). The central belt mélange is shown dipping east and bounded by thrust fault plane contacts. On-site, no dip of the rock units could be observed because they are mantled with soil and colluvium and obscured by vegetation. We interpret the faults in the subsurface as hydrologic boundaries of reduced permeability (due to grinding and shearing along the fault planes), effectively separating units of the Franciscan Complex from each other hydrologically and limiting groundwater flow between the rock units.

Based on observations, review of pertinent and available information, and our experience, it is our professional opinion that this well has a low potential of having any direct or significant connection to proximal surface waters. First water was reportedly encountered at 45 feet and rose to a static level at 20 feet bgs, indicating the aquifer is under some pressure. This well is sealed through the upper 20 feet of any potential unconfined, near-surface aquifers with which it might communicate hydraulically through the borehole. The bentonite-sealed surface casing isolates the well bore from surface runoff and shallow subsurface water infiltration into the deeper water-bearing aquifers.

When considered with the stratigraphy and the underlying geologic structure, plus the distances (horizontal and vertically) from the nearest surface waters, and the depth of the producing zone of this well (~42 to 151 feet), as well as its position relative to the nearest adjacent ephemeral watercourses and surface waters in the vicinity, we conclude that the depth of the surface seal, combined with the 37 feet of silty clay, are sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than 920 feet in the eastern ephemeral tributary of Butte Creek. Thus, the water source from which this well draws appears to be a confined subsurface aquifer not demonstrably connected to any surface waters or unconfined, near-surface aquifer(s). This well appears, in our professional opinion, likely to be hydraulically isolated from nearby wells, surface waters, springs or wetlands.

The driller estimated the yield of this well at 5 gallons per minute (gpm) on May 9, 2016. Total drawdown was reported to be 180 feet after Fisch Drilling's four-hour air-lift pump test. At 5 gpm, this well would potentially produce 7,200 gallons per day. As noted in the well completion report, this capacity may not be representative of this well's long-term yield. Additional drawdown and recovery testing would be necessary to estimate a sustainable long-term yield of the site well.

This subject well does not appear to be hydrologically connected to, or capable of influencing surface water flows in the local ephemeral tributaries to Butte Creek, which only flow for a limited period during the winter and spring and then go dry. Nor does this well appear to be hydrologically connected to any local springs or ephemeral wetlands. Given the horizontal distances involved, and the elevation differences between the water-producing zone in the subject well, and the surface waters of the nearest watercourses, springs, and lakes, the potential for significant hydrologic connectivity between surface waters and groundwater in the deep bedrock aquifer is low. Further, given the apparently limiting condition of 37 feet of low-transmissivity brown silty clay above the water-bearing sandstone unit, the aquifer is likely isolated from, and not significantly hydraulically connected to any other aquifer(s).

As mentioned, on the Larabee Valley USGS topographic quadrangle map, there is one spring mapped in Section 13, more than 1,580 feet northeast of the subject well. Paribaldoe Lake and Sweasey Lake are more than 1,500 feet northeast of this subject well. We interpret the lakes to be separated by a sufficient distance that they would not be significantly connected hydrologically to the confined aquifer tapped by well WCR2016-003430.

We researched the California Department of Water Resources (DWR) database to determine if there were any wells within 1,000 feet of the subject well. Based on the information available at the present time there is only one well that meets that criterion; WCR2016-003990 in Section 13, on parcel APN 210-052-001, is a 20 gpm well, 175-feet deep, more than 500 feet north of the subject well. The wellhead elevation of 3,060 feet, the same as the subject well.

Three other wells are included here that are more than 1,000 feet from well WCR2016-003430:

- WCR2016-003991, is a 115-foot deep, 20 gpm well, 1,200 feet northeast, in Section 13, on parcel 210-052-001, elevation 3,010 feet (50 feet lower than the subject well).
- WCR2017-004066 (legacy well #e0313630), is a 66-foot deep, 30 gpm well, over 1,700 feet northeast in Section 13 on parcel 210-250-008, elevation 2,960 feet (100 feet lower than the subject well).
- WCR2016-005336, is a 200-foot deep, 15 gpm well, more than 1,800 feet northeast, in Section 13, parcel 210-250-008, elevation 2,400 feet (660 below the subject well).

The nearest well is located across the groundwater gradient from each the subject well. As groundwater mimics topography and responds to the force of gravity, in general it will flow down slope in a direction subparallel to topography. The ground surface slopes to the south at the subject well, while at well WCR2016-003990, the topography slopes to the west so groundwater flow in the nearest well is flowing perpendicular and away from well WCR2016-003430. At the time of our visit well WCR2016-003430 did have a pump installed.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating through the soil and bedrock from upslope source areas both proximal and distal to this well site. Ephemeral streams in the vicinity contribute recharge during storms.

The Natural Resources Conservation Service's (NRCS), online Web Soil Survey, shows the subject well within soils of the Rockyglen-Tannin complex, on slopes of 9 to 30 percent, (#4416, Figure 7), which the NRCS describes as well-drained. The Web Soil Survey unit description is attached to this report. Mean annual precipitation in the area is listed by the NRCS as 49 to 71 inches per year. Capacity of the most limiting soil layer to transmit water (Ksat) is described as moderately high to high (0.16 to 0.20 in/hr) with a depth to the water table of more than 80 inches.

If, during the wet season, just ten percent of the "low end" 49 inches of precipitation is absorbed by the soils and does not flow across the surface and into local watercourses, then approximately 16.3 acre-feet, or 5.3 million gallons of water per year (MGPY), may be expected to recharge the local aquifer below this 40-acre subject property. Given that same 49-inches of precipitation, and the same 10 percent partitioned to groundwater recharge, then recharge can be estimated within a 1,000-foot radius of the subject well. Recharge within the 72 acres enclosed by a circle having a 1,000-foot, would be more than 29 acre-feet, and more than 9.6 MGPY. Our estimates are conservative; United States Geological Survey (USGS) researchers estimate that in northwest California, approximately 33 percent of precipitation goes to recharge. (Flint, et al., 2103). Modelling the 72-acre circle surrounding the well with 33 percent of precipitation to recharge results in 31.6 MGPY for groundwater recharge.

On March 28, 2022, Governor Newsom issued an executive order (N-7-22) relating to the ongoing drought in California. In executive order N-7-22, the governor outlined measures the state will undertake to avoid and ameliorate the negative impacts of the current drought. Among these measures, it was ordered that counties, cities, and other public agencies have been prohibited from approving permits for new groundwater wells (or alteration of existing wells) in basins "*subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well is proposed*". This well near Larabee Valley is not within a basin subject to the Act, and there has been no Groundwater Sustainability Agency established with authority over the area where this permitted well is sited.

The order states that counties, cities, and other public agencies are prohibited from issuing permits for new groundwater wells (or alteration of existing wells) "*without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure*". Note that this Order, and that cited in the preceding paragraph, are not applicable to "*wells that provide less than two acre-feet per year* (650,000+ gallons) *of groundwater for individual domestic users, or that will exclusively provide groundwater to public water supply systems.*"

Based on our observations, research, and professional experience, it is our professional opinion that the well on APN 210-051-064, near Larabee Valley, has a low likelihood of being hydrologically connected to nearby surface waters or wells in any manner that might significantly impact or affect adjacent any wetlands, wells, and or surface waters in the vicinity.

Please contact us if you have questions or concerns regarding our findings and conclusions.

Sincerely,

David N. Lindberg

CERTIFIED ENGINEERING GEOLOGIST
DAVID N. LINDBERG
No. 1895
EXP. 02/29/24
STATE OF CALIFORNIA

David N. Lindberg, CEG
Lindberg Geologic Consulting

DNL:sll

Attachments:

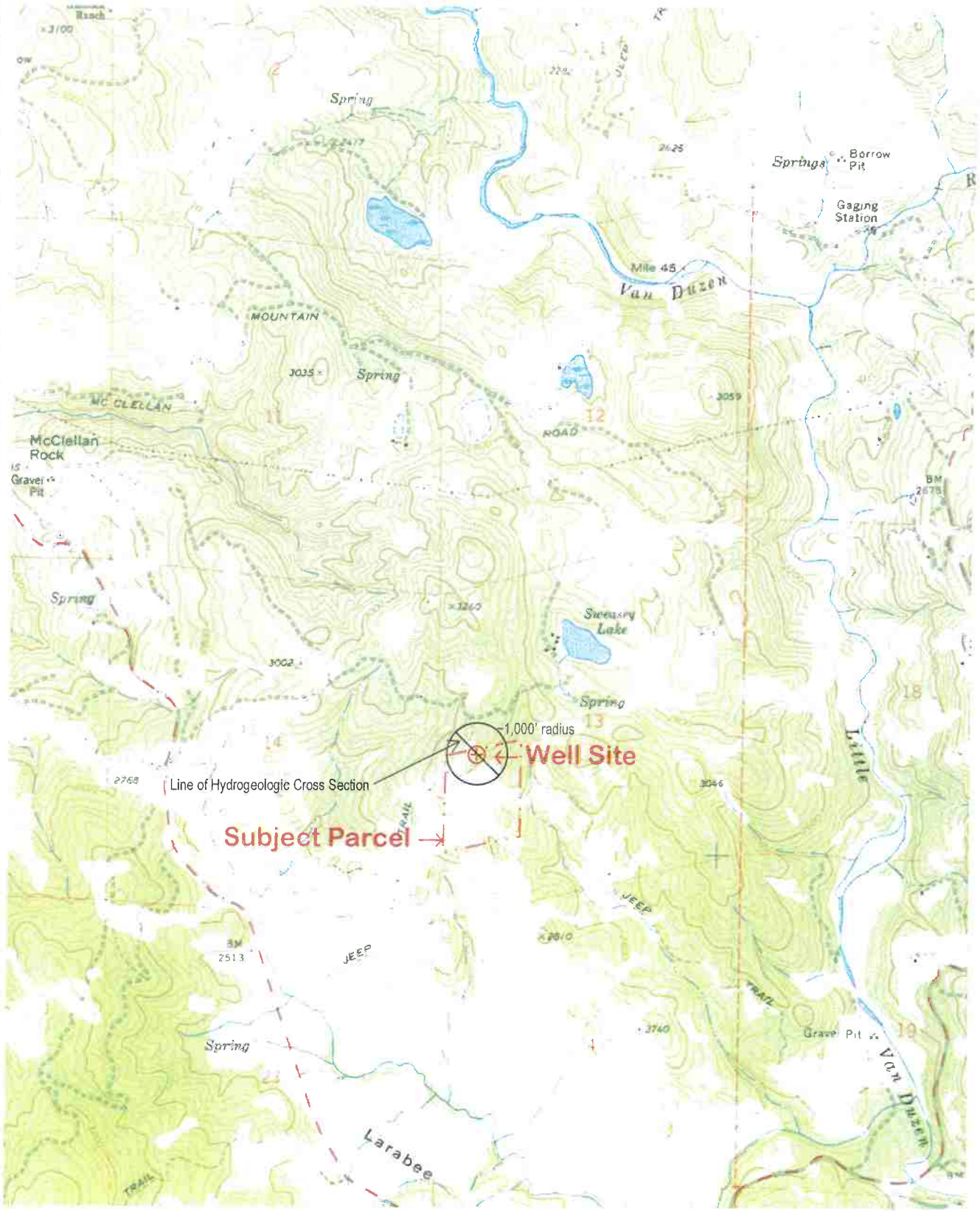
Figure 1:	Topographic Well Location Map
Figure 2:	Humboldt County Assessor's Parcel Map
Figure 3:	Satellite Image of Well Site Vicinity
Figure 4:	Geologic Map
Figure 4a:	Geologic Map Explanation
Figure 5:	Generalized Geologic Cross Section
Figure 6:	Hydrogeologic Cross Section
Figure 7:	USDA-NRCS Soils Map

State of California Well Completion Reports:
WCR2018-003430, APN: 210-051-064 (Subject Well)
WCR2016-003990, APN: 210-052-001 (< 900 feet to the north)
WCR2016-003991, APN: 210-052-001 (1,600 feet to the northeast)
WCR2017-004066 (legacy #e0313630), APN: 210-250-008 (>1,600 feet east)
WCR2016-005336, APN: 210-250-008 (>1,800 feet to east)

Web Soil Survey, NRCS Map Unit Description:
Rockyglen-Tannin complex, 9 to 30 percent slopes.

Reference:
Flint et al.: Fine-scale hydrologic modeling for regional landscape applications: the California Basin Characterization Model development and performance. Ecological Process, 2013, 2:25. (doi:10.1186/2192-1709-2-25)

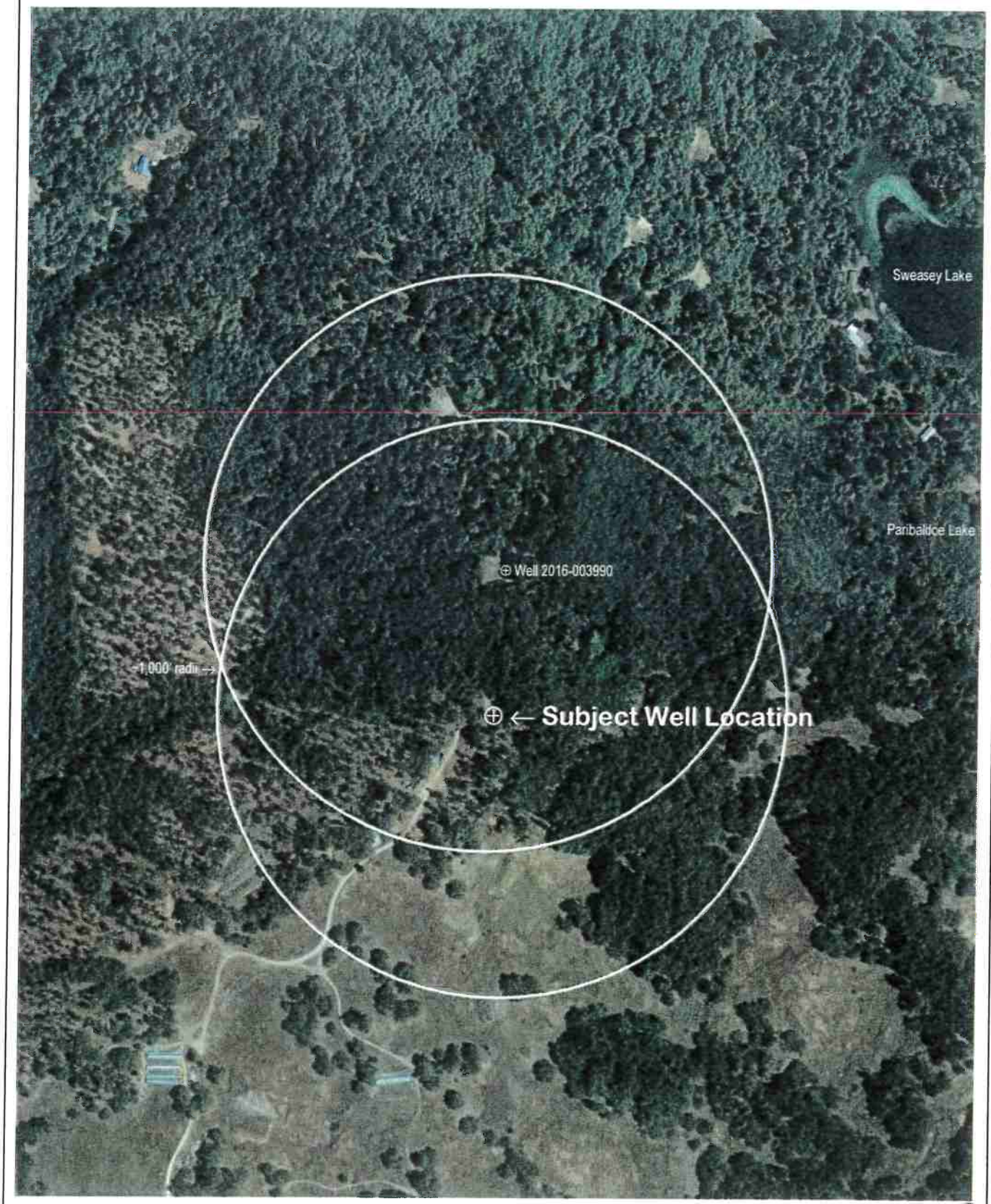
Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 1
Post Office Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	Topographic Well Location Map (locations approximate)	1" ≈ 2,200'



Modified from: USGS "Larabee Valley, Calif." 7.5' Quadrangle Map (1977). N ≡

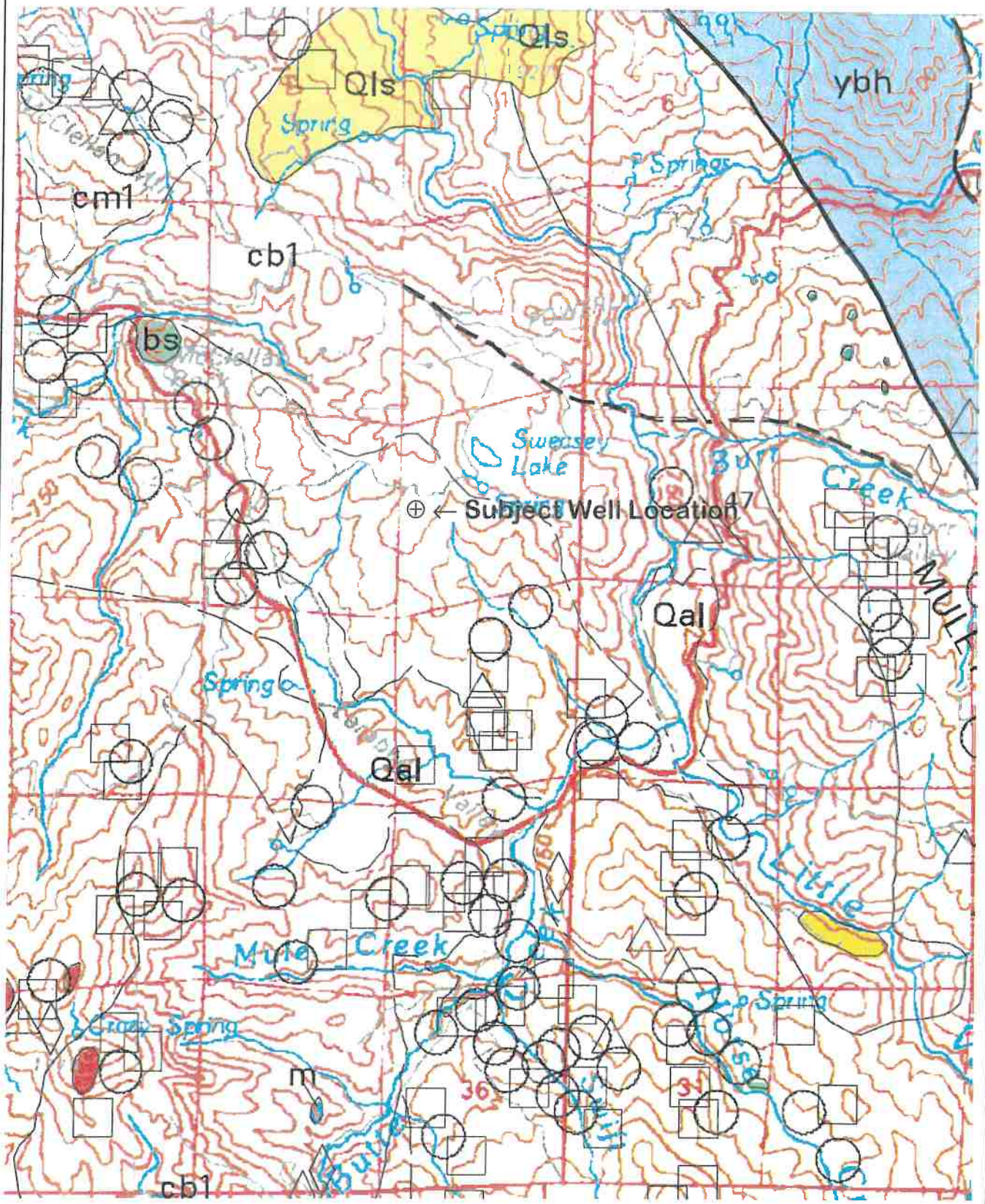
Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 2
Post Office Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	Humboldt County Assessor's Parcel Map (locations approximate)	Scale as Noted

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 3
Post Office Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	Satellite Image of Well Site Vicinity (locations approximate)	1" ≈ 750'



Modified from: Google Earth Imagery of July 17, 2022. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4
Post Office Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	Geologic Map (locations approximate)	1" ≈ 3,700'



Modified from: McLaughlin, et al., (2,000). N ≈

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4a
P. O. Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	Geologic Map Explanation	No Scale

DESCRIPTION OF MAP UNITS

QUATERNARY AND TERTIARY OVERLAP DEPOSITS

- Qal — Alluvial deposits (Holocene and late Pleistocene?)
- Qm — Undeformed marine shoreline and aeolian deposits (Holocene and late Pleistocene)
- Qt — Undifferentiated nonmarine terrace deposits (Holocene and Pleistocene)
- Qls — Landslide deposits (Holocene and Pleistocene)
- QTog — Older alluvium (Pleistocene and [or] Pliocene)
- QTw — Marine and nonmarine overlap deposits (late Pleistocene to middle Miocene)
- Tf — Volcanic rocks of Fickle Hill (Oligocene)

COAST RANGES PROVINCE

FRANCISCAN COMPLEX

-- Coastal Belt --

Coastal terrane (Pliocene to Late Cretaceous)

Sedimentary, igneous, and metamorphic rocks of the Coastal terrane (Pliocene to Late Cretaceous):

- co1 — Melange
- co2 — Melange
- co3 — Broken sandstone and argillite
- co4 — Intact sandstone and argillite
- coh — Basaltic Rocks (Late Cretaceous)
- cols — Limestone (Late Cretaceous)
- cobs — Undivided blueschist (Jurassic?)

King Range terrane (Miocene to Late Cretaceous)

- Krp — Igneous and sedimentary rocks of Point Delgada (Late Cretaceous)
- Krbs — Undivided blueschist blocks (Jurassic?)

Sandstone and argillite of King Peak (middle Miocene to Paleocene(?))

- krk1 — Melange and (or) folded argillite
- krk2 — Highly folded broken formation
- krk3 — Highly folded, largely unbroken rocks
- krl — Limestone
- krc — Chert
- krb — Basalt

False Cape terrane (Miocene? to Oligocene?)

- fc — Sedimentary rocks of the False Cape terrane (Miocene? to Oligocene?)

Yager terrane (Eocene to Paleocene?)

Sedimentary rocks of the Yager terrane (Eocene to Paleocene?):

- y1 — Sheared and highly folded mudstone
- y2 — Highly folded broken mudstone, sandstone, and conglomeratic sandstone
- y3 — Highly folded, little-broken sandstone, conglomerate, and mudstone
- Ycgl — Conglomerate

-- Central belt --

Melange of the Central belt (early Tertiary to Late Cretaceous)

Unnamed Metasandstone and meta-argillite (Late Cretaceous to Late Jurassic):

- cm1 — Melange
- cm2 — Melange
- cb1 — Broken formation
- cb2 — Broken formation
- cwr — White Rock metasandstone of Jayko and others (1989) (Paleogene and [or] Late Cretaceous)
- chr — Haman Ridge graywacke of Jayko and others (1989) (Cretaceous?)
- cfs — Fort Seward metasandstone (age unknown)
- cls — Limestone (Late to Early Cretaceous)
- cc — Chert (Late Cretaceous to Early Jurassic)
- cb — Basaltic rocks (Cretaceous and Jurassic)
- cbl — Undivided blueschist blocks (Jurassic?)
- cg — Greenstone
- cch — Metachert
- yb — Metasandstone of Yolla Bolly terrane, undivided
- b — Melange block, lithology unknown

-- Eastern Belt --

Pickett Peak terrane (Early Cretaceous or older)

Metasedimentary and metavolcanic rocks of the Pickett Peak terrane (Early Cretaceous or older):

- ppsm — South Fork Mountain Schist
- mb — Chinquapin Metabasalt Member (Irwin and others, 1974)
- ppv — Valentine Springs Formation
- mv — Metabasalt and minor metachert

Yolla Bolly terrane (Early Cretaceous to Middle Jurassic?)

Metasedimentary and metaigneous rocks of the Yolla Bolly terrane (Early Cretaceous to Middle Jurassic?):

- ybt — Tallaferro Metamorphic Complex of Suppe and Armstrong (1972) (Early Cretaceous to Middle Jurassic?)
- ybc — Chicago Rock melange of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
- ybg — Greenstone
- ybch — Metachert
- ybh — Metagraywacke of Hammerhorn Ridge (Late Jurassic to Middle Jurassic)
- ybch — Metachert
- ybg — Greenstone
- ybs — Serpentinite
- ybd — Devils Hole Ridge broken formation of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
- ybch — Radiolarian chert
- ybl — Little Indian Valley argillite of McLaughlin and Ohlin (1984) (Early Cretaceous to Late Jurassic)

Yolla Bolly terrane

- yb — Rocks of the Yolla Bolly terrane undivided

GREAT VALLEY SEQUENCE AND COAST RANGE OPHIOLITE

Eden Creek(?) terrane

- ecmss — Mudstone (Early Cretaceous)

Coast Range ophiolite (Middle and Late Jurassic):

- ecg — Layered gabbro
- ecsp — Serpentinite melange

Del Puerto(?) terrane

Rocks of the Del Puerto(?) terrane:

- dpms — Mudstone (Late Jurassic)

Coast Range ophiolite (Middle and Late Jurassic):

- dpch — Tuffaceous chert (Late Jurassic)
- dpab — Basaltic flows and keratophyric tuff (Jurassic?)
- dpd — Diabase (Jurassic?)
- dpsp — Serpentinite melange (Jurassic?)
- sp — Undivided Serpentinized peridotite (Jurassic?)

KLAMATH MOUNTAINS PROVINCE

Undivided Great Valley Sequence:

- Ku — Sedimentary rocks (Lower Cretaceous)

GREAT VALLEY SEQUENCE OVERLAP ASSEMBLAGE

Hayfork terrane

Eastern Hayfork subterrane:

- eh — Melange and broken formation (early? Middle Jurassic)
- ehls — Limestone
- ehsp — Serpentinite

Western Hayfork subterrane:

- whu — Hayfork Bally Meta-andesite of Irwin (1985), undivided (Middle Jurassic)
- whwg — Wildwood (Chanchelulla Peak of Wright and Fahan, 1988) pluton (Middle Jurassic)
- whwp — Clinopyroxenite
- whdi — Diorite and gabbro plutons (Middle? Jurassic)

Bigfoot Creek terrane

- rcm — Melange (Jurassic and older)
- rcls — Limestone
- rcc — Radiolarian chert
- rcb — Volcanic Rocks (Jurassic or Triassic)
- rcic — Intrusive complex (Early Jurassic or Late Triassic)
- rcp — Plutonic rocks (Early Jurassic or Late Triassic)
- rcum — Ultramafic rocks (age uncertain)
- rcpd — Bloody peridotite

Western Klamath terrane

Smith River Subterrane:

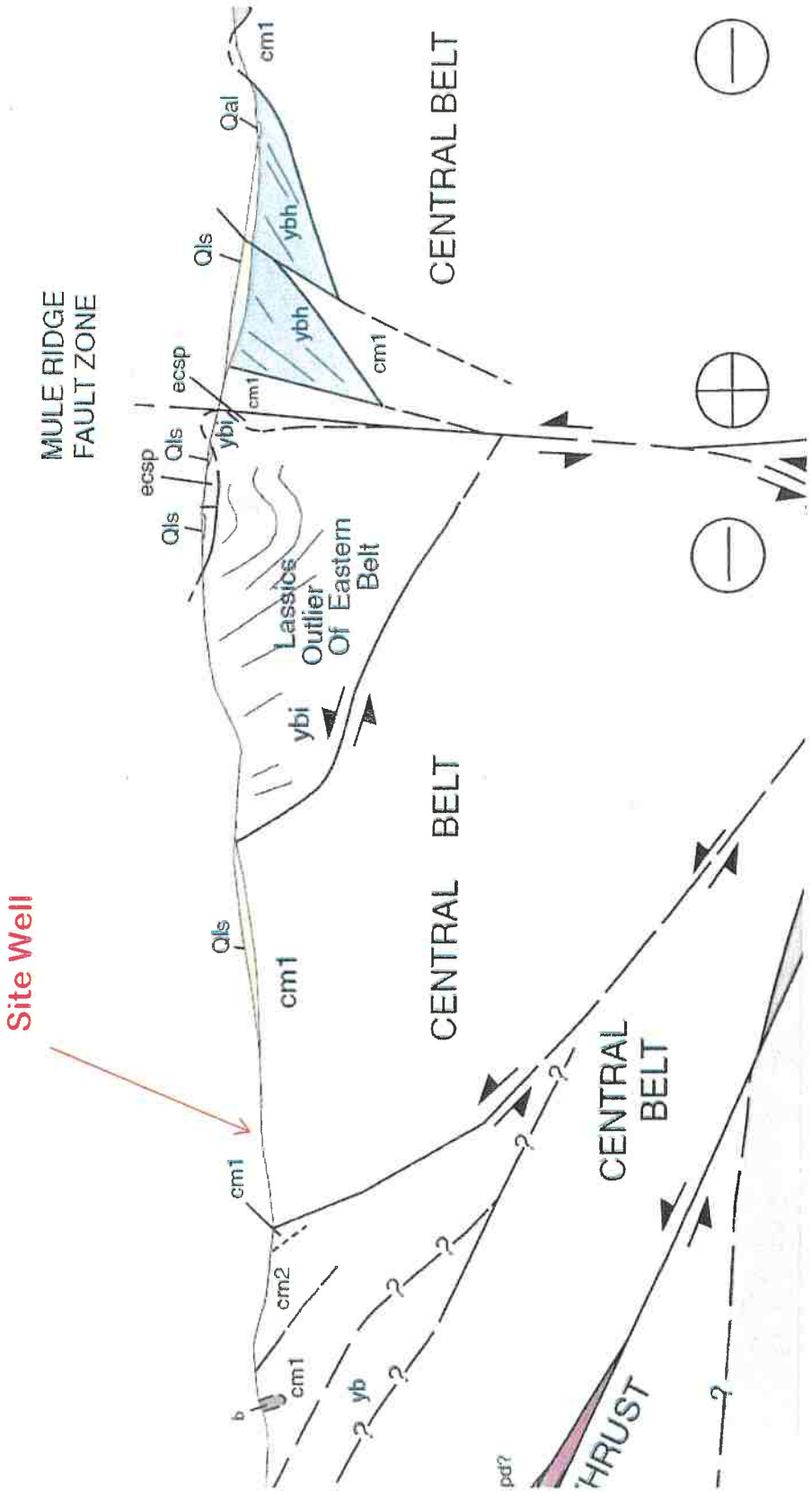
- sns — Galice? formation (Late Jurassic)
- sps — Pyroclastic andesite
- sngb — Glen Creek gabbro-ultramafic complex of Irwin and others (1974)
- snpd — Serpentinized peridotite

MAP SYMBOLS

- Contact
- Fault
- Thrust fault
- Trace of the San Andreas fault associated with 1906 earthquake rupture
- Strike and dip of bedding:
  - Inclined
  - Vertical
  - Horizontal
  - Overturned
  - Approximate
- Joint
- Strike and dip of cleavage:
  - Shear foliation
  - Inclined
  - Vertical
- Folds:
  - Synclinal or synformal axis
  - Anticlinal or antiformal axis
  - Overturned syncline
- Landslide
- Melange Blocks:
  - Serpentinite
  - Chert
  - Blueschist
  - Greenstone
- Fossil locality and number

GEOLOGY OF THE CAPE MENDOCINO, EUREKA, GARBERVILLE, AND SOUTHWESTERN PART OF THE HAYFORK 30 X 60 MINUTE QUADRANGLES AND ADJACENT OFFSHORE AREA, NORTHERN CALIFORNIA (McLaughlin et al., 2000)

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 5
Post Office Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	Generalized Geologic Cross Section (locations approximate)	Not to Scale

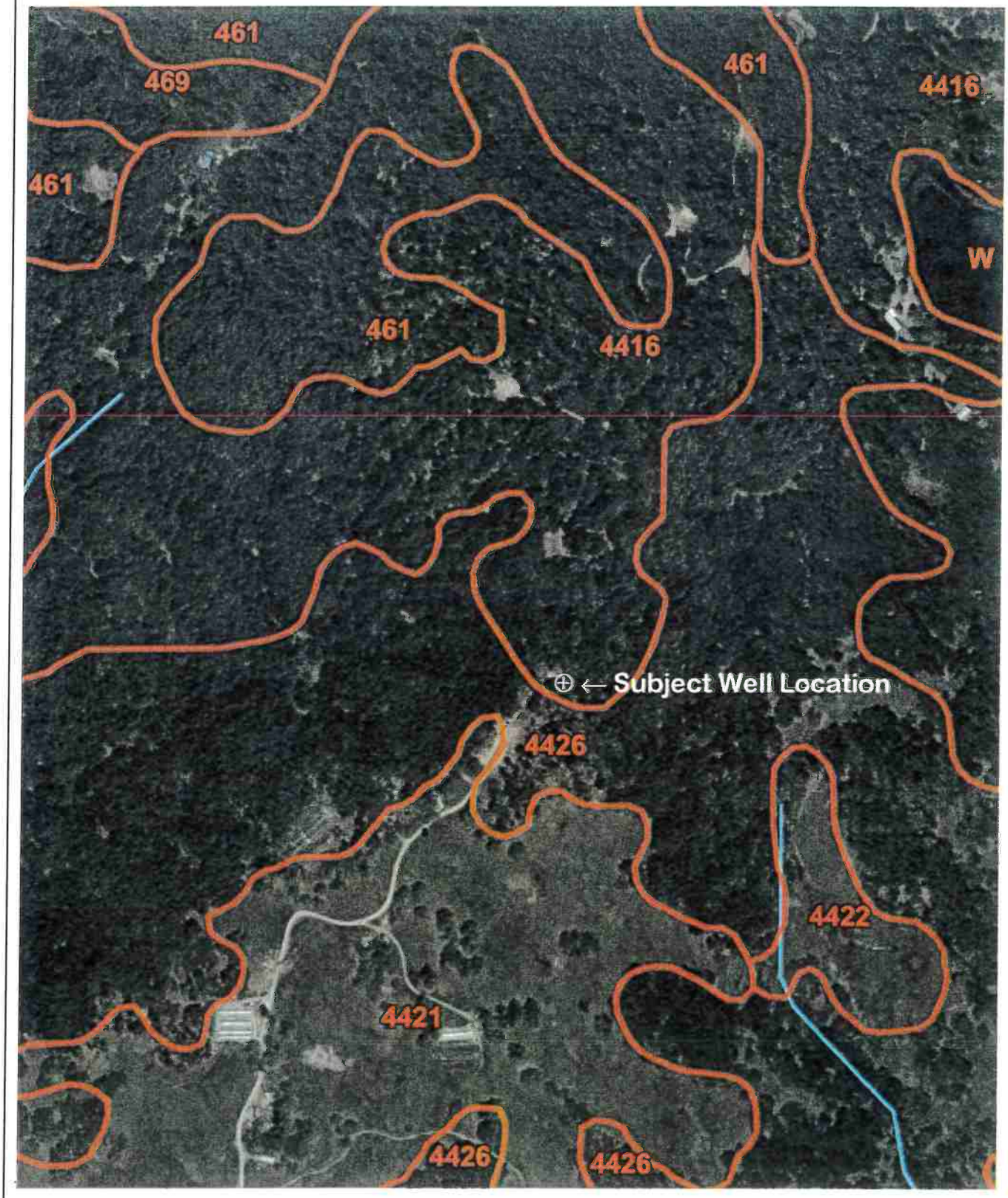


Modified from: McLaughlin, et al., (2,000).

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 6
Post Office Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	Hydrogeologic Cross Section (locations approximate)	V.E. = 2X

In this vertically exaggerated (~2x) cross section, the view is looking to the northeast toward Sweasey Lake. Groundwater flow in this cross section is southwesterly, toward from the viewer, or out of the page. Groundwater is presumed to flow from recharge areas in the higher ground to the northeast on the southeast ridge of McClellan Mountain, to the southwest toward Larabee Valley. Bedrock subgrade was mapped by McLaughlin, et al., (2000), as Mélange of the Central Belt of the Franciscan Complex. The Central Mélange is one of several component lithologies of the Central Belt Franciscan Complex. Groundwater is envisioned to likely be flowing through fractured metasandstone in the Mélange. Fractures in the metasandstone, plus sandstone's inherent porosity, are interpreted to be the primary permeability, providing preferential flow paths for the local groundwater. The driller noted first water at 45 feet below the surface and static water at 20 feet. This well is screened through the 60- to 200-foot depth interval.

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 7
Post Office Box 306	33061 State Highway 36, Bridgeville, California, APN 210-051-064	November 28, 2022
Cutten, CA 95534	Well WCR2016-003430, Mr. Nikolai Erickson, Full Moon Farms, Client	Project 0489.00
(707) 442-6000	USDA-NRCS Soil Map (locations approximate)	Scale Not Determined



Modified from: USGS-NRCS Web Soil Survey, November 23, 2022 N ≈

State of California

Well Completion Report

Form DWR 188 Complete 5/23/2016

WCR2016-003430

Owner's Well Number 1 Date Work Began 05/06/2016 Date Work Ended 05/19/2016

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency Permit Number 15/16-0544 Permit Date 04/04/2016

Well Owner (must remain confidential pursuant to Water Code 13752)

Name XXXXXXXXXXXXXXXXXXX

Mailing Address XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City XXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well

Planned Use Water Supply Domestic

Well Location

Address 0 Larabee Valley RD

City Bridgeville Zip 95526 County Humboldt

Latitude N Longitude W

Deg. Min. Sec. Deg. Min. Sec.

Dec. Lat. 40.4625000 Dec. Long. -123.6828300

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 210-051-64

Township 01 N

Range 04 E

Section 13

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Direct Rotary Drilling Fluid Air

Total Depth of Boring 200 Feet

Total Depth of Completed Well 200 Feet

Water Level and Yield of Completed Well

Depth to first water 45 (Feet below surface)

Depth to Static

Water Level 20 (Feet) Date Measured 05/09/2016

Estimated Yield* 5 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown 180 (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	5	Top Soil
5	42	Silty Clay
42	151	Soft Brown Sandstone
151	200	Shale

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	60	Blank	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563			
1	60	200	Screen	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	200	Filter Pack	Other Gravel Pack	3/8 in	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	200	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: FISCH DRILLING (Person, Firm or Corporation)

3150 JOHNSON ROAD (Address) | HYDESVILLE (City) | CA (State) | 95547 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 05/20/2016 (Date Signed) | 683865 (C-57 License Number)

Attachments

SiteMap.pdf - Location Map

SiteMap_Redacted.pdf - Location Map - Redacted

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

State of California

Well Completion Report

Form DWR 188 Complete 6/27/2016

WCR2016-003990

Owner's Well Number 1 | Date Work Began 06/13/2016 | Date Work Ended 06/17/2016

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency | Permit Number 15/16-0725 | Permit Date 05/19/2016

Well Owner (must remain confidential pursuant to Water Code 13752)

Name XXXXXXXXXXXXXXXXXXX

Mailing Address XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City XXXXXXXXXXXXXXXXXXX | State XX | Zip XXXXX

Planned Use and Activity

Activity New Well

Planned Use Water Supply Domestic

Well Location

Address 3765 N McClellan Mountain RD

City Bridgeville | Zip 95526 | County Humboldt

Latitude | N | Longitude | W

Deg. | Min. | Sec. | Deg. | Min. | Sec.

Dec. Lat. 40.4648000 | Dec. Long. -123.6818300

Vertical Datum | Horizontal Datum WGS84

Location Accuracy | Location Determination Method

APN 210-052-01

Township 01 N

Range 04 E

Section 13

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical | Specify

Drilling Method Direct Rotary | Drilling Fluid Air

Total Depth of Boring 175 Feet

Total Depth of Completed Well 170 Feet

Water Level and Yield of Completed Well

Depth to first water 53 (Feet below surface)

Depth to Static Water Level 46 (Feet) | Date Measured 06/13/2016

Estimated Yield* 20 (GPM) | Test Type Air Lift

Test Length 4.0 (Hours) | Total Drawdown 122 (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	38	Silty Clay
38	67	Soft Brown Sandstone
67	84	Shale
84	175	Sandstone Shale Mix

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	50	Blank	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563			
1	50	170	Screen	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	
1	170	175	No Casing Installed	Other	N/A					

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	175	Filter Pack	Other Gravel Pack	3/8 in	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	175	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: FISCH DRILLING (Person, Firm or Corporation)

3150 JOHNSON ROAD (Address) | HYDESVILLE (City) | CA (State) | 95547 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 06/17/2016 (Date Signed) | 683865 (C-57 License Number)

Attachments

SiteMapMcClellanMtn_Redacted.pdf - Location Map - Redacted

SiteMapMcClellanMtn.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

State of California

Well Completion Report

Form DWR 188 Complete 7/13/2016

WCR2016-003991

Owner's Well Number 2 | Date Work Began 06/14/2016 | Date Work Ended 06/17/2016

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency | Permit Number 15/16-0724 | Permit Date 05/19/2016

Well Owner (must remain confidential pursuant to Water Code 13752)

Name XXXXXXXXXXXXXXXXXXX

Mailing Address XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City XXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well

Planned Use Water Supply Domestic

Well Location

Address 3765 N McClellan Mountain RD

City Bridgeville Zip 95526 County Humboldt

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

Dec. Lat. 40.4653400 Dec. Long. -123.6784200

Vertical Datum | Horizontal Datum WGS84

Location Accuracy | Location Determination Method

APN 210-052-01

Township 01 N

Range 04 E

Section 13

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Other - Under-Ream Down-Hole Hammer Drilling Fluid Air

Total Depth of Boring 115 Feet

Total Depth of Completed Well 115 Feet

Water Level and Yield of Completed Well

Depth to first water 42 (Feet below surface)

Depth to Static Water Level 26 (Feet) Date Measured 06/15/2016

Estimated Yield* 20 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown 89 (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	4	Top Soil
4	38	Brown Sandstone
38	75	Blue Fractured Sandstone
75	115	Shale Sandstone Mix

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	40	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	40	80	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.05	
1	80	115	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	115	Filter Pack	Other Gravel Pack	3/8 in	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	115	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: FISCH DRILLING (Person, Firm or Corporation)

3150 JOHNSON ROAD (Address) | HYDESVILLE (City) | CA (State) | 95547 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 06/17/2016 (Date Signed) | 683865 (C-57 License Number)

Attachments

SiteMapMcClellanMtn.pdf - Location Map

SiteMapMcClellanMtn_Redacted.pdf - Location Map - Redacted

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

SEP 01 2016

Page 1 of 1

State of California
Well Completion Report

Refer to Instruction Pamphlet

No. e0313630

Owner's Well Number

Date Work Began 06/16/2016 Date Work Ended 6/16/2016

Local Permit Agency Humboldt County

Permit Number Permit Date

DWR Use Only – Do Not Fill In

OWNER-13

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Rotary Drilling Fluid Air

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc
0	40	Brown Broken Rock And Silty Clay
40	66	Broken Blue Shale And Water

Total Depth of Boring 70 Feet

Total Depth of Completed Well 66 Feet

Well Owner

Well Location

Address

City County

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

Datum Dec. Lat. Dec. Long.

APN Book 210 Page 250 Parcel 008

Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North / West / East / South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

◉ Water Supply
☑ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water (Feet below surface)

Depth to Static Water Level 40 (Feet) Date Measured 06/17/2016

Estimated Yield * 30 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	61	9	Blank	PVC Sch. 40	1/4	5.5		
61	66	9	Screen	PVC Sch. 40	1/4	5.5	Milled Slots	0.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	20	Bentonite	3/8 hole plug
20	66	Filter Pack	3/8 Pee Gravel

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Rich Well Drilling and Pump Service, Inc.
Person, Firm or Corporation

1251 RailRoad Dr. Mckinleyville CA 95519
Address City State Zip

Signed
C-57 Licensed Water Well Contractor

06/17/2016 902702
Date Signed C-57 License Number

DWR 188 REV. 1/2006

(IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

State of California

Well Completion Report

Form DWR 188 Complete 7/28/2016

WCR2016-005336

Owner's Well Number 1 | Date Work Began 07/22/2016 | Date Work Ended 07/27/2016

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency | Permit Number 15/16-0490 | Permit Date 03/15/2016

Well Owner (must remain confidential pursuant to Water Code 13752)

Name XXXXXXXXXXXXXXXXXXX

Mailing Address XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City XXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well

Planned Use Water Supply Domestic

Well Location

Address 0 Hidden Valley RD

City Bridgeville Zip 95526 County Humboldt

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

Dec. Lat. 40.4641200 Dec. Long. -123.6771900

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 210-250-08

Township 01 N

Range 04 E

Section 13

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Other - Under-Ream Down-Hole Hammer Drilling Fluid Air

Total Depth of Boring 200 Feet

Total Depth of Completed Well 200 Feet

Water Level and Yield of Completed Well

Depth to first water 70 (Feet below surface)

Depth to Static Water Level 65 (Feet) Date Measured 07/26/2016

Estimated Yield* 15 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown 135 (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	4	Overburden
4	26	Brown Sandstone
26	62	Shale
62	92	Blue Sandstone
92	135	Sandstone Shale Mix
135	151	Chirt
151	173	Soft Shale
173	190	Chirt
190	200	Soft Shale

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	60	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	60	190	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.05	
1	190	200	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	200	Other Fill	See description.	3/8 in	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	200	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: FISCH DRILLING (Person, Firm or Corporation)

3150 JOHNSON ROAD (Address) | HYDESVILLE (City) | CA (State) | 95547 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 07/28/2016 (Date Signed) | 683865 (C-57 License Number)

Attachments

SiteMap.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

Humboldt County, Central Part, California

4416—Rockyglen-Tannin complex, 9 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2pdbq
Elevation: 200 to 3,610 feet
Mean annual precipitation: 49 to 71 inches
Mean annual air temperature: 45 to 72 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 50 percent
Rockyglen and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 8 inches: gravelly loam
Bt1 - 8 to 16 inches: loam
Bt2 - 16 to 31 inches: paragravelly clay loam
Bt3 - 31 to 47 inches: paragravelly clay loam
BCt - 47 to 79 inches: very paragravelly clay loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.16 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: very gravelly slightly decomposed plant material
A - 2 to 8 inches: gravelly loam
Bt1 - 8 to 18 inches: very gravelly loam
Bt2 - 18 to 37 inches: very gravelly loam
Bt3 - 37 to 59 inches: extremely gravelly loam
BCt - 59 to 79 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Burgsblock

Percent of map unit: 7 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rock outcrop

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

Data Source Information

Soil Survey Area: Humboldt County, Central Part, California
Survey Area Data: Version 9, Sep 1, 2022

State of California

Well Completion Report

WCR Form Submitted 05/20/2016

WCR2016-003430

Owner's Well Number 1 | Date Work Began 05/06/2016 | Date Work Ended 05/19/2016

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency | Permit Number 15/16-0544 | Permit Date 04/04/2016

Well Owner (must remain confidential pursuant to Water Code 13752)

Name Brian Mitchell

Mailing Address 1617 Amaral Ct.

City Fairfield State CA Zip 94534

Planned Use and Activity

Activity New Well

Planned Use Water Supply Domestic

Well Location

Address 0 Larabee Valley RD

City Bridgeville Zip 95526 County Humboldt

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

Dec. Lat. 40.4625000 Dec. Long. -123.6828300

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 210-051-64

Township 01 N

Range 04 E

Section 13

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Direct Rotary Drilling Fluid Air

Total Depth of Boring 200 Feet

Total Depth of Completed Well 200 Feet

Water Level and Yield of Completed Well

Depth to first water 45 (Feet below surface)

Depth to Static Water Level 20 (Feet) Date Measured 05/09/2016

Estimated Yield* 5 Test Type Air Lift

Test Length 4.0 Total Drawdown 180 (Feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to	Feet	Description
0	5	Top Soil
5	42	Silty Clay
42	151	Soft Brown Sandstone
151	200	Shale

Casings

Casing #	Depth from Surface Feet to	Feet	Casing Type	Material	Casings Specifications	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	60	Blank	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563			
1	60	200	Screen	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to	Feet	Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	200	Filter Pack	Other Gravel Pack	3/8 in	Pea Gravel

Humboldt County Department of Health & Human Services

Environmental Health
100 H Street, Suite 100, Eureka, CA 95501
phone: (707) 445-6215 fax: (707) 445-5699

15/16-0524

WATER WELL APPLICATION

RECEIVED
MAR 22 2016
HUMBOLDT CO. DIVISION OF ENVIRONMENTAL HEALTH

CONSTRUCTION – REPAIR – DESTRUCTION

The Well Permit will be returned to the property owner when approved by Humboldt County Division of Environmental Health (DEH)

Instructions:

1. Complete pages 1 and 2 of the application and submit the required fee with the Well Permit application, including Well Driller's signature and property owner's signature.
2. Work on the well shall not be started prior to approval of the Well Permit Application by DEH.
3. Any changes made to the location of a new well shall be approved by DEH prior to commencement of drilling.
4. DEH shall be notified by the Well Driller a minimum of 24 hours prior to sealing the annular space.

Site Address: Larabee Valley Rd.
City/State/Zip: Bridgeville, CA
APN: 210-051-64
Directions to Site:

Applicant: FISCH DRILLING
Contact: CHRIS FISCH
Mailing Address: 3150 JOHNSON RD
Work Phone: (707) 768-9800
City/State/Zip: HYDESVILLE, CA 95547
Cell Phone: (707) 601-3042

Property Owner: Brian Mitchell
Home Phone: 415-336-0374
Mailing Address: 1617 Amaral Ct.
Work Phone:
City/State/Zip: Fairfield, CA 94534
Cell Phone:

I hereby grant 'right-of-entry' for inspection purposes

Drilling Contractor: FISCH DRILLING
C-57 License #: 683865

I hereby agree to comply with all laws and regulations of the County of Humboldt and the State of California Department of Water Resources Bulletin 74 pertaining to water well construction. I will contact Humboldt County Division of Environmental Health (DEH) when I commence work. Within 30 days after completion of work, I will furnish DEH a report of the work performed.

Well Driller Signature:

Would driller like a copy of approved application? ☑ Yes ☐ No

☐ U.S. Mail address:
☑ Email address: chris@fischdrilling.com

Type of Application:
- ☐ Construction
- ☐ Destruction
- ☐ Repair/Modification

Construction:
- Estimated Depth (ft.):
- Diameter (in.): 10"
- Depth of Seal (ft.): 20'
- Sealing Material: Bentonite

Intended Use:
- ☑ Domestic - private
- ☐ Community Supply
- ☐ Irrigation
- ☐ Other

Estimated Work Dates:

Start _____

Completion _____

Casing:

Diameter (in.) 5"

Material PVC

Type of Sewage System:

☐ Community Sewer

☑ OWTS (Septic)

Distance from well site to OWTS N/A

Special Requirements/Comments:

_____

_____

_____

_____

PLOT PLAN

✓# 15199 **FOR OFFICE USE ONLY**

Fee:	$373.00	Site Approved by:	
Date:	3-22-16	Site Approved Date:	4/4/16
Receipt:	749197	Sealed to Depth of:	
Project #:	15/16-0544	Seal observed:	☐ Yes ☐ No
		Final Approved Date:	

FISCH DRILLING

3150 JOHNSON RD.
HYDESVILLE, CA 95547
PHONE: (707)768-9800 FAX (707)768-9801 LICENSE # 683865

Proposal Submitted to: Date:_____ Phone:_____
Name:_____
Street:_____
City:_____ State_____ Zip:_____

We here by submit the specifications and estimates for the following:

1. Completed Well Drilling, Casing, Perforated Casing, Develop with 700 cu. Ft. of air per minute; quantity and static water level, and well cover. Above labor and materials furnished as required.

Specified Casing:
5" PVC

2. Set up Fee $ 3000.00
3. Well Permit $ 373.00
4. Silica Sand $ 15.00 Bag
5. Test Well/Dry Hole $ 25.00 per ft.
6. Completed Well $ 40.00 per ft.
7. Sanitary Seal 20 ft. $ Included
8. Steel Casing 6" $ 70.00 per ft.
9. Factory Perforated Screen $ Included

Notes:
If steel is required, for hole stabilization,
Costs:
$225.00 for a drive shoe

We hereby propose to furnish labor and materials-complete in accordance with the above specification, for the sum as indicated above with payment to be made as follows: **$500.00 down to Start Permit Process.** This proposal valid for 60 days only. **Balance due and payable upon completion of Drilling.**

1. All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. **We do not guarantee quantity or quality of water.**
2. Contractor and Purchaser shall determine depth of well. Contractor has option to reduce size of hole.
3. Owner hereby gives Contractor, his employees, and equipment, free ingress and egress upon the owner's land, for the purpose of drilling said well or wells. Owner also agrees that any damage to fixed property of owner because of ingress and egress over grounds designated by owner, or any underground damage to property of owner because of the pursuance of this contract and incidental and necessary to the completion thereof at the site designated by owner, shall not be the liability of contractor.
4. Contractor is not liable for the control of water, removal of leveling muds or tailings, or other debris, etc. arising from drilling procedures.
5. The Contractor shall not be liable for any damages arising out of any delay or failure due to hazards of drilling, but in the event of unreasonable delay or failure, this contract may be terminated by the owner, upon payment to the contractor for drilling done and materials furnished.
6. Contractor without charge to purchaser shall undertake necessary inspections, adjustments or repairs, for the period of one-year following completion of the job. Contractor shall have access to the premises of the purchaser for such purposes and ad the work schedule of Contractor permits.
7. Should default be made in payment and it becomes necessary to force collection with or without suit. I/we promise to pay all costs and expenses of such collection including all attorney fees and court costs.2% per month service charge of overdue accounts.

Acceptance:
The above prices, specifications and conditions are satisfactory and hereby accepted. You are authorized to do the work specified. Payment will be made as outlined above.

Date: 3/1/16 Contractor: _____
Purchaser: _____

Please return original signed copy of this contract to our office with the attached worksheet completed & accurate site Plan (showing all proposed and existing buildings, septic systems and existing wells).

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CUSTOMER & SITE INFORMATION

Your decision to drill with Fisch Drilling is appreciated. We need certain information to process your health department permit, state report and billing. The site information that you provide will allow the Health Department and our drillers to easily locate your property well site.

Billing Information:

Name: Nappy Valley Farms Phone H

Street 1617 Amaral Ct Phone C 415/336-0374

City Fairfield State CA Zip 94534 E-mail brian@signature painting.us

Well Site Information:

A.P. # 210-050-064 Parcel Size 40 acres approx

Address 1700 Larabee Valley New Well to Septic

City/Zip Bridgeville, CA Closest Main Rd. 1 mile

Plot Information/Site Drawing

1. **Small map of how to reach parcel from nearest main road-show hwy. Mile markers, streets and identifiers.**
2. **Drawing of property w/parcel dimensions on all sides-house site, septic site, sewer lines and leachfields. All cross referenced w/ dimensions.**
3. **Show all sheds, barns, driveways and proposed well site.**
4. **Mark plot plan with N & S Arrows.**
5. **Your drawing will either expedite or hamper the permit process, so a good drawing will make the difference.**
   An example of map is included in this packet,

Note: Your well must be 100' from all septic tanks, leachfields, expansion areas and those of your neighboring properties. The well also must be 25' from property lines and 50' from sewer lateral.

*If yor property is undeveloped, it probably will not have an address yet. We will have one assigned when we apply for the permit.

**Some new subdivisions do not have A.P.# assigned and recorded yet so we will need the name and lot# until they are available.

Please let us know if there are any locked gates, combinations, site work, or other, Please specify.

Humboldt County Department of Health & Human Services

Environmental Health
100 H Street, Suite 100, Eureka, CA 95501
phone: (707) 445-6215 fax: (707) 441-5699

Authorization for Access to Property

This form may be used in lieu of obtaining property owner's 'right of entry' authorization on the Water Well Application. Property owner's authorization must be received by Environmental Health prior to permit issuance.

I authorize the Department of Health and Human Services, Division of Environmental Health, access to my property for the purpose of the initial and final inspection of water well

APN 210-050-064

- [x] construction
- [ ] destruction
- [ ] modification

Date 3/1/16

Property Owner's Name (print) Happy Valley Farms

Property Owner's Signature Brian O'Mitchell

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CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W.Wabash Eureka,CA 95501-2138 Tel:707/441-8855 FAX:707/441-8877 E-mail:shninfo@shn-engr.com

Reference: 013034.112

August 24, 2016

Dave Lindberg
Lindberg Geologic Consulting
PO Box 306
Cutten, CA 95534

SOIL PERCOLATION SUITABILITY / TEXTURAL ANALYSIS RESULTS

Job Name: Lindberg Mitchell **Sampled By: DL**
Date Sampled: 7/8/16 **Date Tested: 08/22/16**
Date Received: 7/22/16 **AP Number: 210-051-063**

Sample ID	Depth	% Sand	% Clay	% Silt	% Coarse Fragments by Volume	Zone	Bulk Density
Site 2	0-2'	41.2	35.5	23.3	8.9	3	*
	Material: **Clay Loam**						

* = no peds provided

Regional Water Quality Control Board Zone Descriptions:

Zone 1 - Soils in this zone are very high in sand content. They readily accept effluent, but because of their low silt and clay content they provide minimal filtration. These soils demand greater separation distances from groundwater.

Zone 2 - Soils in this zone provide adequate percolation rates and filtration of effluent. They are suitable for use of a conventional system without further testing.

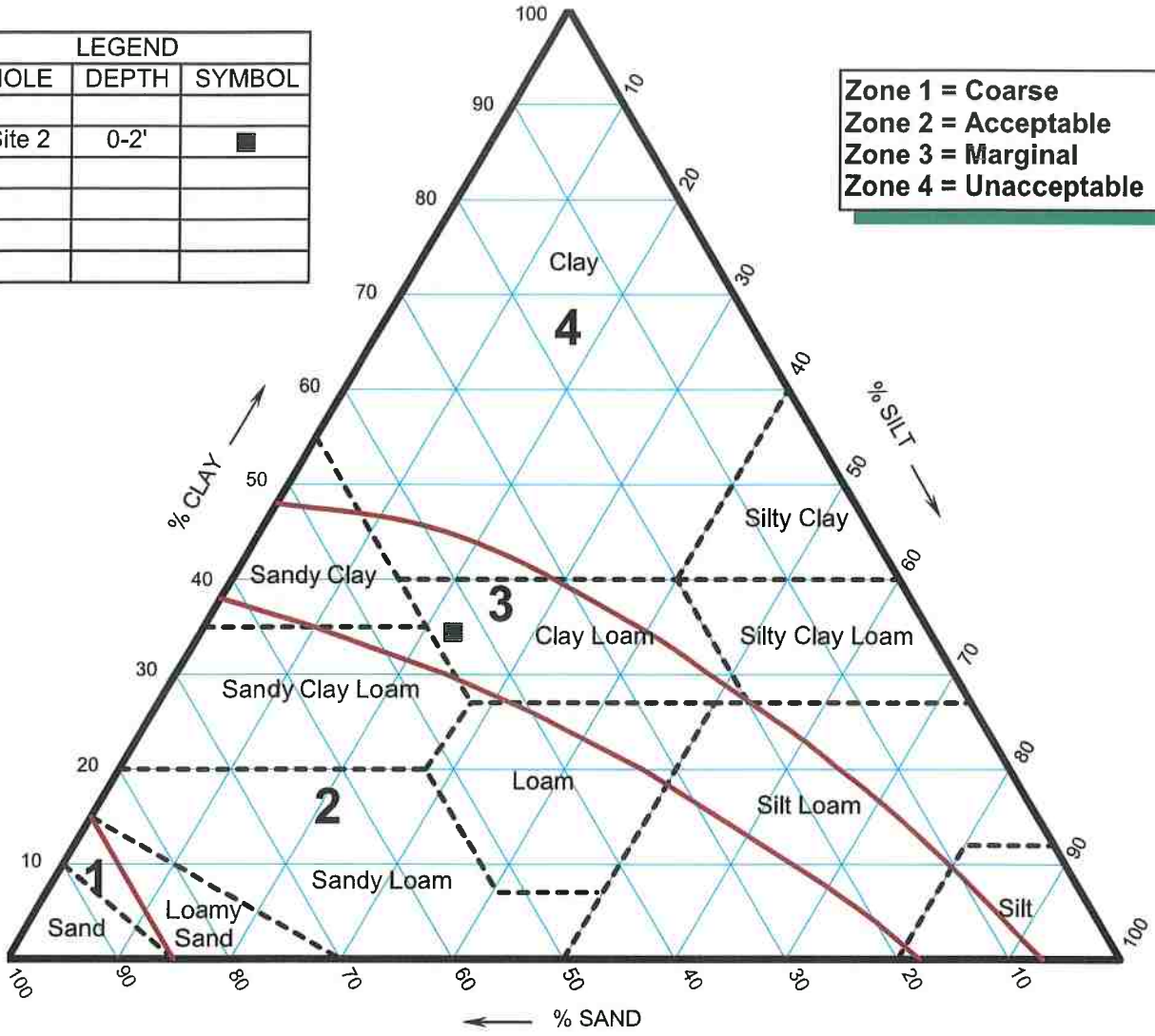
Zone 3 - Soils in this zone are expected to provide good filtration of effluent, but their ability to accept effluentat at a suitable rate is questionable. These soils require wet-weather percolation tests to verify their suitability for effluent disposal by conventional leachfield methods.

Zone 4 - Soils in this zone are unsuitable for a conventional leachfield because of their severe limitations for accepting effluent.

SOIL PERCOLATION SUITABILITY CHART

LEGEND		
HOLE	DEPTH	SYMBOL
Site 2	0-2'	■

Zone 1 = Coarse
Zone 2 = Acceptable
Zone 3 = Marginal
Zone 4 = Unacceptable



NOTES

1. Soil texture is plotted on triangle based on percent sand, silt, and clay as determined by hydrometer analysis.
2. Adjustment for coarse fragments has been made by moving the plotted point in the sand direction an additional 2% for each 10% (by volume) of fragments greater than 2mm in diameter.
3. Adjustment for compactness of soil has been made by moving the plotted point in the clay direction an additional 15% for soils having a bulk-density greater than 1.7 gm/cc, when analyzed.
4. For soils falling in sand, loamy sand, or sandy loam, classification adjustment for bulk density will generally not affect suitability and a bulk-density analysis was not necessary.

JOB NUMBER: 013034.112 **DATE:** 08/22/16

JOB NAME: Lindberg Mitchell **APN:** 210-051-063

Consulting Engineers & Geologists, Inc.

812 W. Wabash
Eureka, CA 95501-2138
(707) 441-8855

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Please let us know if there are any locked gates, combinations, site work, or other, Please specify.

5.0 PRIORITIZED CORRECTIVE ACTIONS AND SCHEDULE TO REACH FULL COMPLIANCE

The following check list should be followed to become fully compliant with the Order. Please see the detailed comments and recommendations, above, for a more complete description of the problems and the needed corrective actions and monitoring requirements.

Table 1. Features Needing Improvement or Action Items (Prioritized implementation schedule for corrective actions)

Standard Condition requiring action		Treatment Priority	Schedule	Summary of Corrective Actions / Recommendations	Map point and photo #	Estimated cost	Date completed
#1 Site Maintenance, Erosion Control and Drainage Features	b	Moderate	Oct. 31, 2017	Install road drainage structures such as rolling dips to break up the road and disperse flow at frequent intervals.	N/A	TBD	
	c, d, e	Moderate	Oct.31, 2017	Disconnect flow from the road surface/graded flat by channelizing flow at the gully so that it has one primary flow path and installing a rocked ford at the road crossing.	MP 3, Photo 2	TBD	
#2 Stream Crossing Maintenance	a, b	Moderate	Oct. 31, 2019	- Replace the culverts at stream crossing #1 and #2 with 24-inch culverts installed at grade and in-line with the natural stream channel. - Obtain all necessary permits prior to commencing work in any watercourse. Permits/agreements may include, and may not be limited to: CDFW LSAA 1602, SWRCB 401 Certification, and ACOE 404 Permit.	MP 1-2, Photos 3-4	TBD	
	f	Moderate	Summer 2017	Construct critical dips at the right hinge line of the newly installed culverts to prevent stream.	MP 2, Photo4	TBD	
#5 Water Storage and Use	a	High	Summer 2016, annually	- A Water Budget should be developed to determine water storage requirements to forbear during the low flow period from May 15 through October 31. - A Water Monitoring Plan should be developed and implemented. Under the Order, you are required to document in detail the amount of water you are diverting, storing and using through time.	N/A	--	
	b	High	Summer 2016, annually	- Continue implementing current water conservation measures in addition to: 1) timed or volume limited drip irrigation; 2) irrigation scheduling; 3) capturing and storing rainwater; 4) the use of cover crops; 5) the use of compost and mulch fertilizer;	N/A	--	

				and 6) the use of soil mediums that retain moisture. - Begin quantifying use, testing drip rates, incorporating water holding amendments and native soil during the initial soil preparation at the start of the season.			
	c	Moderate	Summer 2016, annually	- Work to limit or eliminate diversion of surface flows during the low flow period (May 15- October 31). - Determine if increased water storage is necessary. - Work with a qualified professional engineer (PE) and the Humboldt County Building department to design and permit a rainwater catchment pond to service your irrigation needs.	N/A	TBD	
	d	High	Summer 2016, annually	Start measuring and recording your average water usage on a per plant basis, based on type and size of plant pot, full term versus short season (light deprivation) plant, and type of irrigation, in order to refine your Water Budget.	N/A	--	
	e	Moderate	July 1, 2017	File an Initial Statement of Diversion and Use (ISDU) and apply for a Small Domestic Use Appropriation with the State Water Resources Control Board Division of Water Rights for one surface water diversion to service your domestic needs.	N/A	TBD	
#7 – Fertilizers and Soil Amendments	b	High	2016-2021	Under the Order you are required to keep detailed records (logs) of the timing and volume of fertilizers and/or other soil amendments you use in your operations (see Appendix E for log sheets).	N/A	--	
#8 – Pesticides/ Herbicides	a	High	2016-2021	Under the Order you are required to keep detailed records (logs) of the timing and volume of pesticides, herbicides and related chemicals used in your operations (see Appendix F).	N/A	--	
#9 Petroleum Products and other Chemicals	a	High	Oct. 31, 2017	- The 500 gallon diesel storage tank which is currently in use requires you to prepare a Hazardous Material Business Plan (HMBP) and a Petroleum Storage Spill Prevention, Control and Countermeasures (SPCC) Plan. - The second 500 gallon diesel tank which is not in use needs to have a sign stating 'NOT IN USE'. It should have containment for residual fuel contained in the tank.	MP 4-5, Photos 13-14	TBD	
	b	High	Nov. 15, 2016	- All generators and diesel tanks onsite must be stored under cover and off the ground and must have a secondary containment basin. - The 70k watt generator and any generator which is not in use needs to have a sign stating 'NOT IN USE'. If it is ever used	MP 4-5, Photos 13-14	--	

				again, it will have to meet all the above containment and housing requirements as well as air quality requierments.			
	d	High	Summer 2016	Have one or more spill prevention cleanup kits onsite and easily accessible at all times to help clean up small spills. We suggest you have a kit at each storage and refueling location.	N/A	<$100	

WRPP - APN 210-051-062, 210-051-063, 210-051-064, 210-051-065
PWA ID# PWA180101050901-5106

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
REGION 1 – NORTHERN REGION
619 Second Street
Eureka, CA 95501

STREAMBED ALTERATION AGREEMENT

NOTIFICATION NO. 1600-2017-0395-R1
Unnamed Tributaries to Butte Creek, Tributary to the Little Van Duzen River, Tributary to the Van Duzen River, Tributary to the Eel River and the Pacific Ocean

Brian Mitchell
Mitchell Stream Crossings and Remediation Project
5 Encroachments

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Brian Mitchell (Permittee).

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, the Permittee initially notified CDFW on June 27, 2017, with revisions received on July 9, 2018 and October 1, 2018, that the Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, the Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, the Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project to be completed is located within the Butte Creek and Van Duzen River watersheds, approximately 8 miles east southeast of the town of Bridgeville, County of Humboldt, State of California. The project is located in Section 13, T1N, R2E, Humboldt Base and Meridian; in the Larabee Valley U.S. Geological Survey 7.5-minute quadrangle; Assessor's Parcel Numbers 210-051-062, 210-051-063, 210-061-064, and 210-051-065; approximate latitude 40.4585 N and longitude 123.6829 W.

PROJECT DESCRIPTION

The project is limited to five encroachments (Table 1). The five proposed encroachments are to remediate road/stream crossings and graded areas adjacent to

streams. Work for these encroachments will include excavation, grading to restore or improve drainage, removal of a culvert and replacement of three culverts or road stream decommissioning at the three crossing locations, installation of a rocked ford, backfilling and compaction of fill, and rock armoring as necessary to minimize erosion.

Table 1. Project Encroachments with Description

ID	Latitude/Longitude	Description
Crossing-1 (SR-1)	40.4596, -123.6850	Remove 4" diameter culvert and associated fill from Class III stream, pull back graded fill within stream, wet area
Crossing-2 (CV-1)	40.4589, -123.6841	Replace undersized 12" diameter culvert with minimum 18" diameter culvert and rock armor as necessary to minimize erosion or decommission road/stream crossing
Crossing-3 (CV-2)	40.4589, -123.6839	Replace undersized 12" diameter culvert with minimum 18" diameter culvert and rock armor as necessary to minimize erosion or decommission road/stream crossing
Crossing-4 (CV-3)	40.4589, -123.6843	Install new 18" diameter culvert at dirt ford or decommission stream/road crossing
Crossing-5 (AC-1)	40.4589, -123.6833	Install rocked ford or decommission road/stream crossing

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include Chinook Salmon (*Oncorhynchus tshawytscha*), Coho Salmon (*O. kisutch*), Steelhead Trout (*O. mykiss*), Pacific Giant Salamander *(Dicamptodon tenebrosus)*, Foothill Yellow-legged Frog *(Rana boylii),* amphibians, reptiles, aquatic invertebrates, mammals, birds, and other aquatic and riparian species.

The adverse effects the project could have on the fish or wildlife resources identified above include:

Impacts to water quality:
temporary increase in fine sediment transport;

Impacts to bed, channel, or bank and direct effects on fish, wildlife, and their habitat:
loss or decline of riparian habitat;
direct impacts on benthic organisms;

Impacts to natural flow and effects on habitat structure and process:
direct and/or incidental take;
indirect impacts;
impediment of up- or down-stream migration;
water quality degradation; and
damage to aquatic habitat and function.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

The Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. The Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. The Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of the Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Adherence to Existing Authorizations. All water diversion facilities that the Permittee owns, operates, or controls shall be operated and maintained in accordance with current law and applicable water rights.

1.4 Change of Conditions and Need to Cease Operations. If conditions arise, or change, in such a manner as to be considered deleterious by CDFW to the stream or wildlife, operations shall cease until corrective measures approved by CDFW are taken. This includes new information becoming available that indicates that the bypass flows and diversion rates provided in this agreement are not providing adequate protection to keep aquatic life downstream in good condition or to avoid "take" or "incidental take" of federal or State listed species.

1.5 Notification of Conflicting Provisions. The Permittee shall notify CDFW if the Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact the Permittee to resolve any conflict.

1.6 Project Site Entry. The Permittee agrees to allow CDFW employees access to any property it owns and/or manages for the purpose of inspecting and/or monitoring the activities covered by this Agreement, provided CDFW: a) provides 24 hours advance notice; and b) allows the Permittee or representatives to participate in the inspection and/or monitoring. This condition does not apply to CDFW enforcement personnel.

1.7 CDFW Notification of Work Initiation and Completion. The Permittee shall contact CDFW within the seven-day period preceding the beginning of work permitted by this Agreement. Information to be disclosed shall include Agreement number, and

the anticipated start date. Subsequently, the Permittee shall notify CDFW no later than seven (7) days after the project is fully completed.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, the Permittee shall implement each measure listed below.

2.1 Permitted Project Activities. Except where otherwise stipulated in this Agreement, all work shall be in accordance with the Permittee Notification received on June 27, 2017, with revisions received on July 9, 2018 and October 1, 2018, together with all maps, BMP's, photographs, drawings, and other supporting documents submitted with the Notification.

2.2 Incidental Take. This Agreement does not allow for the take, or incidental take of any state or federal listed threatened or endangered listed species.

Project Timing

2.3 Work Period. All work, not including diversion of water, shall be confined to the period **June 15 through October 15** of each year. Work within the active channel of a stream shall be restricted to periods of **dry weather**. Precipitation forecasts and potential increases in stream flow shall be considered when planning construction activities. Construction activities shall cease and all necessary erosion control measures shall be implemented prior to the onset of precipitation.

2.4 Work Completion. The proposed work shall be completed by no later than **October 1, 2019**. A notice of completed work, including photographs of each site, shall be submitted to CDFW within seven (7) days of project completion.

2.5 Extension of the Work Period. If weather conditions permit, and the Permittee wishes to extend the work period after October 15, a written request shall be made to CDFW at least 5-working days before the proposed work period variance. Written approval (letter or e-mail) for the proposed time extension must be received from CDFW prior to activities continuing past October 15.

Vegetation Management

2.6 Minimum Vegetation Removal. No native riparian vegetation shall be removed from the bank of the stream, except where authorized by CDFW. Permittee shall limit the disturbance or removal of native vegetation to the minimum necessary to achieve design guidelines and standards for the Authorized Activity. Permittee shall take precautions to avoid damage to vegetation outside the work area.

2.7 Vegetation Management. Permittee shall limit vegetation management (e.g., trimming, pruning, or limbing) and removal for the purpose of stream crossing or

diversion infrastructure placement/maintenance to the use of hand tools. Vegetation management shall not include treatment with herbicides.

Diversion to Storage

2.8 Water Storage. All water storage facilities (WSFs) (e.g., reservoirs, storage tanks, mix tanks, and bladders tanks) must be located outside the active 100-year floodplain and outside the top of bank of a stream. Covers/lids shall be securely affixed to water tanks at all times to prevent potential entry by wildlife. Permittee shall cease all water diversion at the point of diversion when WSFs are filled to capacity.

2.9 Water Storage Maintenance. WSFs shall have a float valve to shut off the diversion when tanks are full to prevent overflow. The Permittee shall install any other measures necessary to prevent exorbitant use or waste of water. Water shall not leak, overflow, or overtop WSFs at any time. Permittee shall regularly inspect all WSFs and infrastructure used to divert water to storage and use and repair any leaks.

2.10 Water Conservation. The Permittee shall make best efforts to minimize water use, and to follow best practices for water conservation and management.

Stream Crossings

2.11 Stream Protection. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other deleterious material from project activities shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into the stream. All project materials and debris shall be removed from the project site and properly disposed of off-site upon project completion.

2.12 Equipment Maintenance. Refueling of machinery or heavy equipment, or adding or draining oil, lubricants, coolants or hydraulic fluids shall not take place within stream bed, channel and bank. All such fluids and containers shall be disposed of properly off-site. Heavy equipment used or stored within stream bed, channel and bank shall use drip pans or other devices (e.g., absorbent blankets, sheet barriers or other materials) as needed to prevent soil and water contamination.

2.13 Hazardous Spills. Any material, which could be hazardous or toxic to aquatic life and enters a stream (i.e. a piece of equipment tipping-over in a stream and dumping oil, fuel or hydraulic fluid), the Permittee shall immediately notify the California Emergency Management Agency State Warning Center at 1-800-852-7550, and immediately initiate clean-up activities. CDFW shall be notified by the Permittee within 24 hours at 707-445-6493 and consulted regarding clean-up procedures.

2.14 Excavated Fill. Excavated fill material shall be placed in upland locations where it cannot deliver to a watercourse. To minimize the potential for material to enter the watercourse during the winter period, all excavated and relocated fill material shall be tractor contoured (to drain water) and tractor compacted to effectively incorporate and stabilize loose material into existing road and/or landing features.

2.15 Runoff from Steep Areas. The Permittee shall make preparations so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential or contained behind erosion control structures. Erosion control structures such as straw bales and/or siltation control fencing shall be placed and maintained until the threat of erosion ceases. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

2.16 Culvert Installation.

2.16.1 The project is located in a moderate to very high Fire Hazard Severity Zone as designated by CAL FIRE. Culvert materials should consist of corrugated metal pipe (CMP). Use of High Density Polyethylene (HDPE) pipe is not recommended.

2.16.2 Existing fill material in the crossing shall be excavated down vertically to the approximate original channel and outwards horizontally to the approximate crossing hinge points (transition between naturally occurring soil and remnant temporary crossing fill material) to remove any potential unstable debris and voids in the older fill prism.

2.16.3 Culvert shall be installed to grade (not perched or suspended), aligned with the natural stream channel, and extend lengthwise completely beyond the toe of fill. If culvert cannot be set to grade, it shall be oriented in the lower third of the fill face, and a downspout or energy dissipator (such as boulders, rip-rap, or rocks) shall be installed above or below the outfall as needed to effectively control stream bed, channel, or bank erosion (scouring, headcutting, or downcutting). The Permittee shall ensure basins are not constructed and channels are not be widened at culvert inlets.

2.16.4 Culvert bed shall be composed of either compacted rock-free soil or crushed gravel. Bedding beneath the culvert shall provide for even distribution of the load over the length of the pipe, and allow for natural settling and compaction to help the pipe settle into a straight profile. The crossing backfill materials shall be free of rocks, limbs, or other debris that could allow water to seep around the pipe, and shall be compacted.

2.16.5 Culvert inlet, outlet (including the outfall area), and fill faces shall be armored where stream flow, road runoff, or rainfall energy is likely to erode fill material and the outfall area.

2.16.6 Permanent culverts shall be sized to accommodate the estimated 100-year flood flow [i.e. ≥1.0 times the width of the bankfull channel width or the 100-year flood size, whichever is greater], including debris, culvert embedding, and sediment loads.

2.17 Fords, Armored Fill and Vented Crossings.

2.17.1 Fords, armored and vented crossings are considered permanent watercourse encroachments and shall accommodate the 100-year flood flow plus associated sediment and debris.

2.17.2 Hydrologically-connected road approaches to fords, armored and vented crossings shall be rocked and maintained to avoid delivery of fine sediment to the watercourse below.

2.17.3 Fords, armored and vented crossings shall be maintained as necessary to avoid delivery of fine sediment to the watercourse below.

2.17.4 Fords, armored and vented crossings shall be sufficiently outsloped to minimize aggradation of suspended sediments at the crossing.

2.17.5 The lowest point of fords, armored and vented crossings shall be constructed within or directly over the original stream channel, to the extent feasible, in order to contain high flows up to twice bank-full and to avoid diversion potential.

2.17.6 Armor material shall be comprised of durable angular screened quarry rock of sufficient size and placement to minimize mobilization during a 100-year storm event. Wood may be used for armoring if sound, tight-grained, redwood is applied and sufficiently keyed into the fillslope to resist movement during a 100-year storm event.

2.17.7 If maximum fill heights exceed 15 feet or fills exceed 500 cubic yards of fill, rock sizing, armoring thickness, chute width and chute depth shall be calculated and sized using the nomograph provided in Figure 23 of Cafferata et al (2017).

2.17.8 Stream crossing spillway fill slopes shall be armored from roadbed to the natural channel in a manner sufficient to prevent significant scour or removal of armor during high flows. Scour is expected through road surface rock cap.

2.18 Road Approaches. The Permittee shall treat road approaches to new or re-constructed permanent crossings *on Class I and II watercourses* to minimize erosion and sediment delivery to the watercourse. Permittee shall ensure road

approaches are hydrologically disconnected to the maximum extent feasible to prevent sediment from entering the crossing site, including when a Stream Crossing is being constructed or reconstructed. Road approaches shall be armored from the crossing for a minimum of *50* feet in both directions, or to the nearest effective water bar or point where road drainage does not drain to the crossing, with durable rock, compacted grindings, pavement, or chip-seal.

2.19 Project Inspection. The Project shall be inspected by Mother Earth Engineering or a licensed engineer to ensure that the stream crossings were installed as designed. A copy of the inspection report, including photographs of each site, shall be submitted to CDFW within 90 days of completion of this project.

Erosion Control and Pollution

2.20 Erosion Control. Permittee shall use erosion control measures throughout all work phases where sediment runoff threatens to enter a stream, lake, or other Waters of the State.

2.21 Erosion Control. Permittee shall use erosion control measures throughout all work phases where sediment runoff threatens to enter a stream, lake, or other Waters of the State.

2.22 Seed and Mulch. Upon completion of construction operations and/or the onset of wet weather, Permittee shall stabilize exposed soil areas within the work area by applying mulch and seed. Permittee shall restore all exposed or disturbed areas and access points within the stream and riparian zone by applying local native and weed free erosion control grass seeds. Locally native wildflower and/or shrub seeds may also be included in the seed mix. Permittee shall mulch restored areas using at least two to four inches of weed-free clean straw or similar biodegradable mulch over the seeded area. Alternately, Permittee may cover seeding with jute netting, coconut fiber blanket, or similar non-synthetic monofilament netting erosion control blanket.

2.23 Erosion and Sediment Barriers. Permittee shall monitor and maintain all erosion and sediment barriers in good operating condition throughout the work period and the following rainy season, defined herein to mean October 15 through June 15. Maintenance includes, but is not limited to, removal of accumulated sediment and/or replacement of damaged sediment fencing, coir logs, coir rolls, and/or straw bale dikes. If the sediment barrier fails to retain sediment, Permittee shall employ corrective measures, and notify the department immediately.

2.24 Prohibition on Use of Monofilament Netting. To minimize the risk of ensnaring and strangling wildlife, Permittee shall not use any erosion control materials that contain synthetic (e.g., plastic or nylon) monofilament netting, including photo- or biodegradable plastic netting. Geotextiles, fiber rolls, and other erosion control

measures shall be made of loose-weave mesh, such as jute, hemp, coconut (coir) fiber, or other products without welded weaves.

2.25 Site Maintenance. Permittee shall be responsible for site maintenance including, but not limited to, re-establishing erosion control to minimize surface erosion and ensuring drainage structures and altered streambeds and banks remain sufficiently armored and/or stable.

2.26 Cover Spoil Piles. Permittee shall have readily available erosion control materials such as wattles, natural fiber mats, or plastic sheeting, to cover and contain exposed spoil piles and exposed areas in order to prevent sediment from moving into a stream or lake. Permittee shall apply and secure these materials prior to rain events to prevent loose soils from entering a stream, lake, or other Waters of the State.

2.27 No Dumping. Permittee shall not deposit, permit to pass into, or place where it can pass into a stream, lake, or other Waters of the State any material deleterious to fish and wildlife, or abandon, dispose of, or throw away within 150 feet of a stream, lake, or other Waters of the State any cans, bottles, garbage, motor vehicle or parts thereof, rubbish, litter, refuse, waste, debris, or the viscera or carcass of any dead mammal, or the carcass of any dead bird.

3. Reporting Measures

3.1 Work Completion. The proposed work shall be completed by no later than **October 1, 2019**. A notice of completed work (condition 2.4), with supplemental photos, shall be submitted to CDFW **within seven (7) days** of project completion.

3.2 Project Inspection. The Permittee shall submit the **Project Inspection Report** (condition 2.19) to CDFW, LSA Program at 619 Second Street, Eureka, CA 95501.

CONTACT INFORMATION

Written communication that the Permittee or CDFW submits to the other shall be delivered to the address below unless the Permittee or CDFW specifies otherwise.

To Permittee:

Brian Mitchell
Happy Valley Farms
1617 Amaral Court
Fairfield, California 94534
415-336-0374
bmitchell007@gmail.com

To CDFW:

Department of Fish and Wildlife
Northern Region
619 Second Street
Eureka, California 95501
Attn: Lake and Streambed Alteration Program
Notification #1600-2017-0395-R1

LIABILITY

The Permittee shall be solely liable for any violation of the Agreement, whether committed by the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require the Permittee to proceed with the project. The decision to proceed with the project is the Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety this Agreement if it determines that the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide the Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide the Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to the Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against the Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq.* (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

The Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and the Permittee. To request an amendment, the Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by the Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, the Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), the Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, the Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If the Permittee fails to submit a request to extend the Agreement prior to its expiration, the Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (FGC section 1605(f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after the Permittee signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall **expire five years** from date of execution, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. The Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of the Permittee, the signatory hereby acknowledges that he or she is doing so on the Permittee's behalf and represents and warrants that he or she has the authority to legally bind the Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If the Permittee begins or completes a project different from the project the Agreement authorizes, the Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR Brian Mitchell

Brian Mitchell — Date: 10/22/18

FOR DEPARTMENT OF FISH AND WILDLIFE

Scott Bauer — Date: 5/20/19

Senior Environmental Scientist Supervisor

Prepared by: David Manthorne, Senior Environmental Scientist Specialist, October 19, 2018

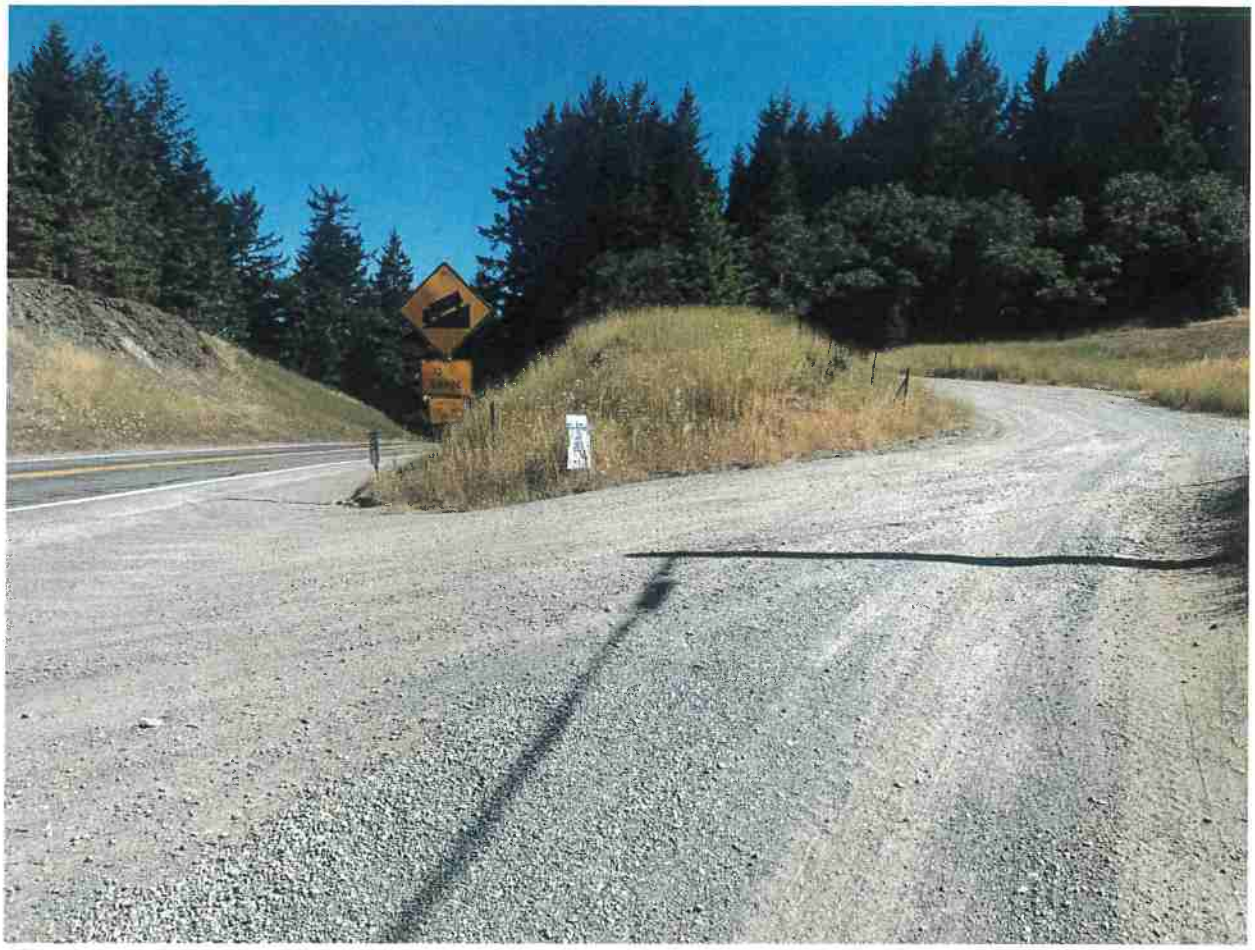
Road Evaluation and Photos

Joe Rice Road, a.k.a. Upper Larabee Valley Road, a.k.a. Larabee Valley Ridge Road

Happy Valley Farms, Inc.

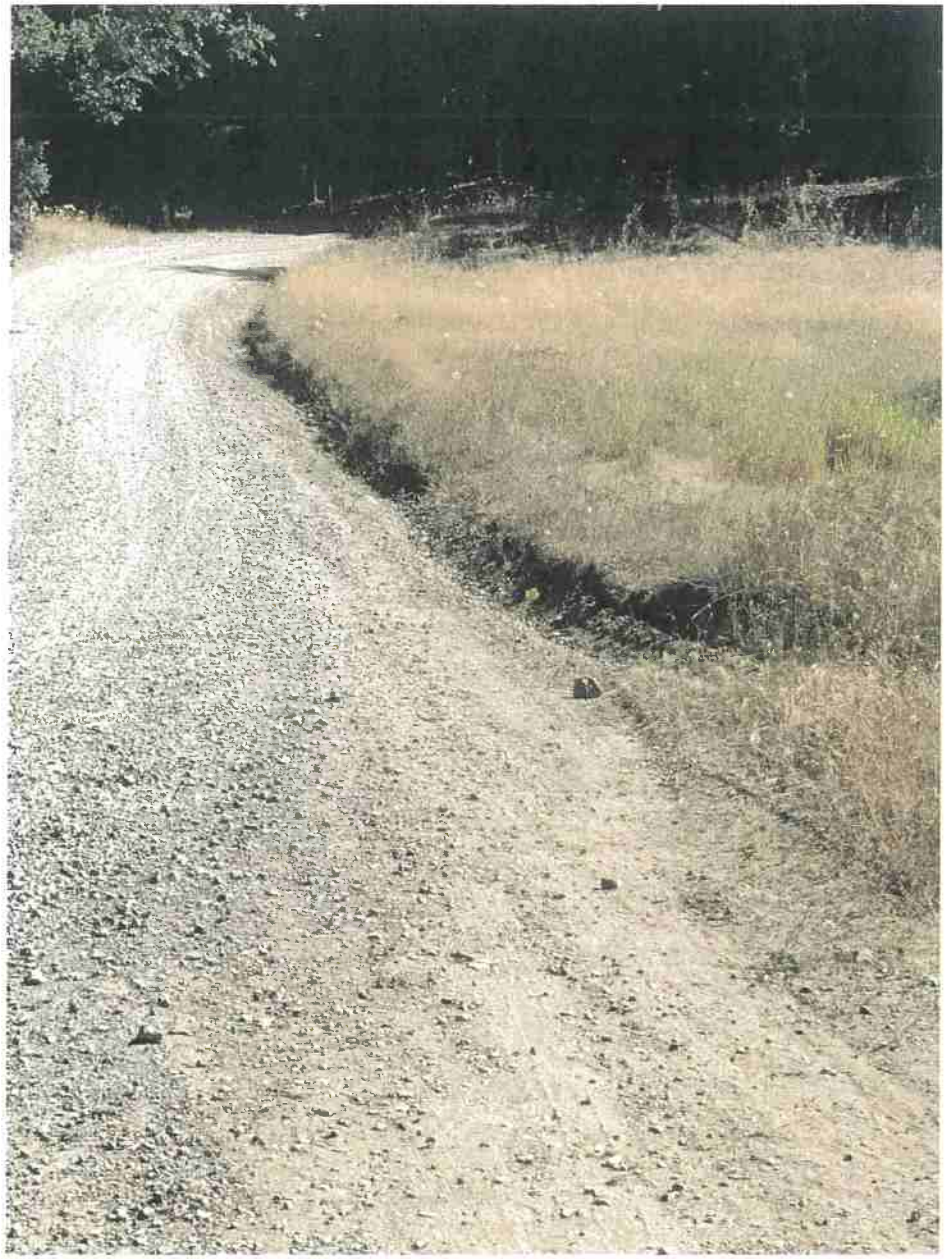
APN 210-051-081, Apps 12166

APN 210-051-064, Apps 12170

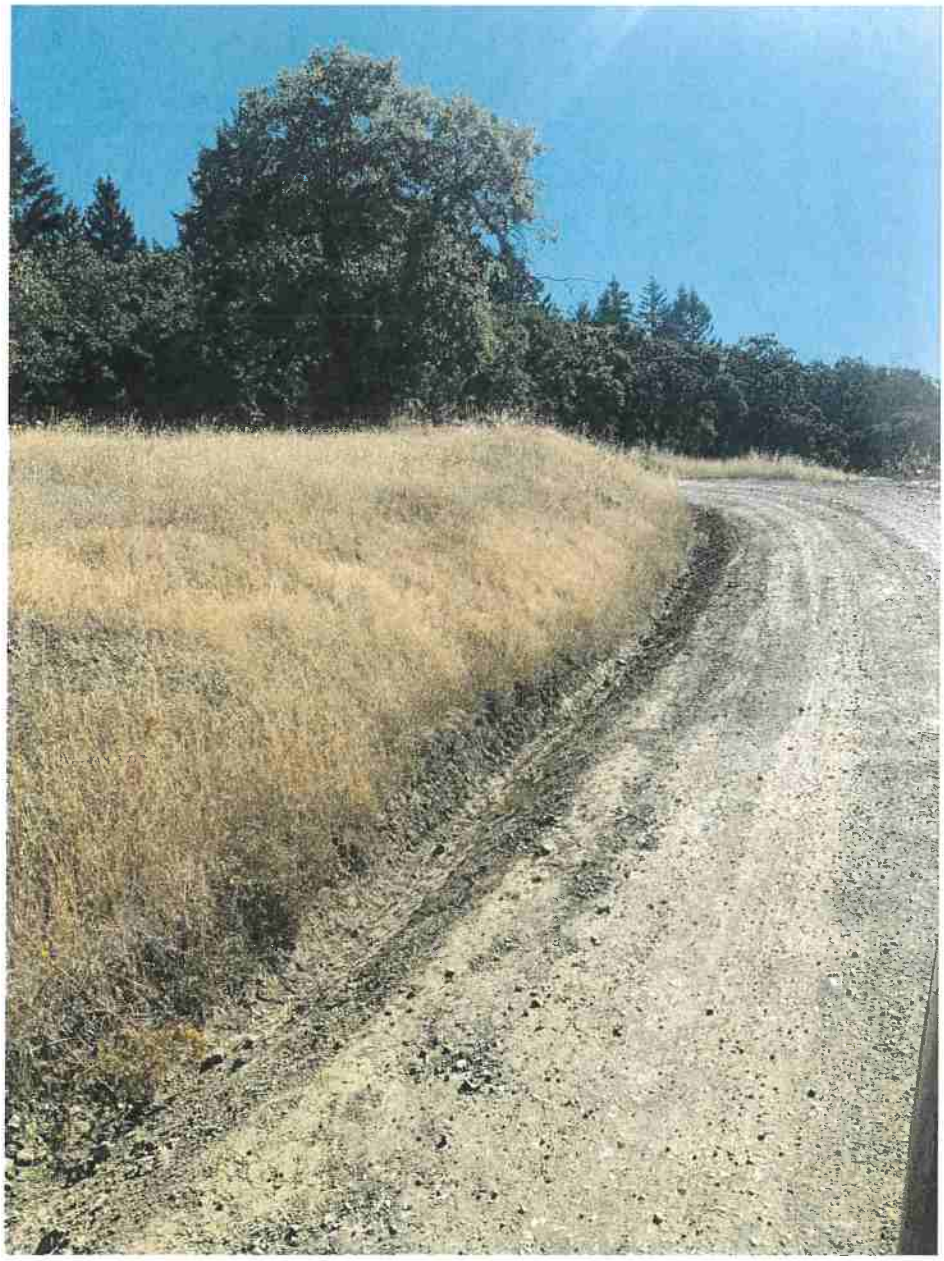


Mm —0 photo 1 At the turn off from highway 36 mile marker 32.00 summit brake check pull out looking up the Larabee valley ridge road

Mm —.25. Photos 2/3 large pull out and recently graded road with new ditches for proper water drainage

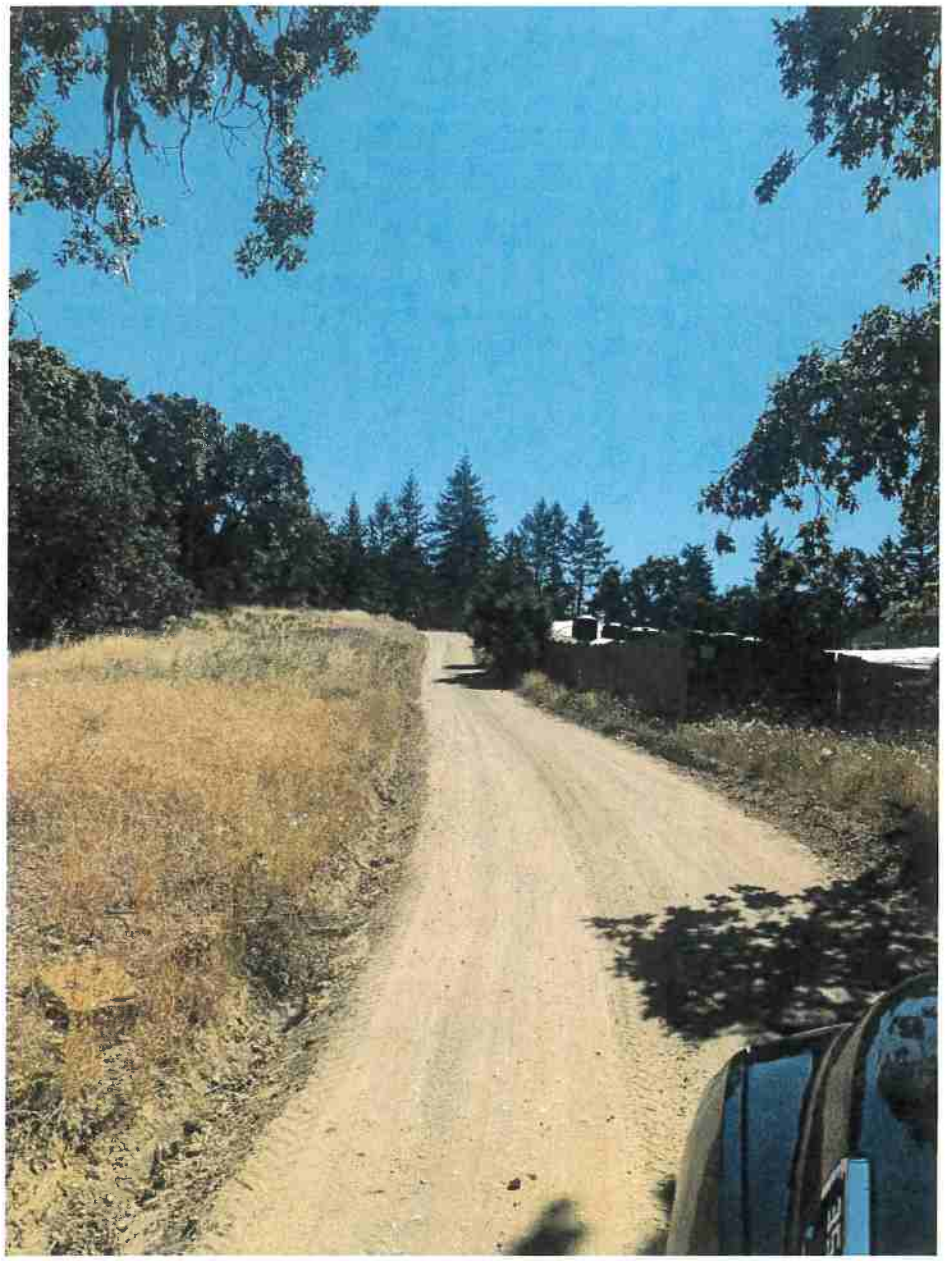


Mm —.25. Photos 2/3 large pull out and recently graded road with new ditches for proper water drainage

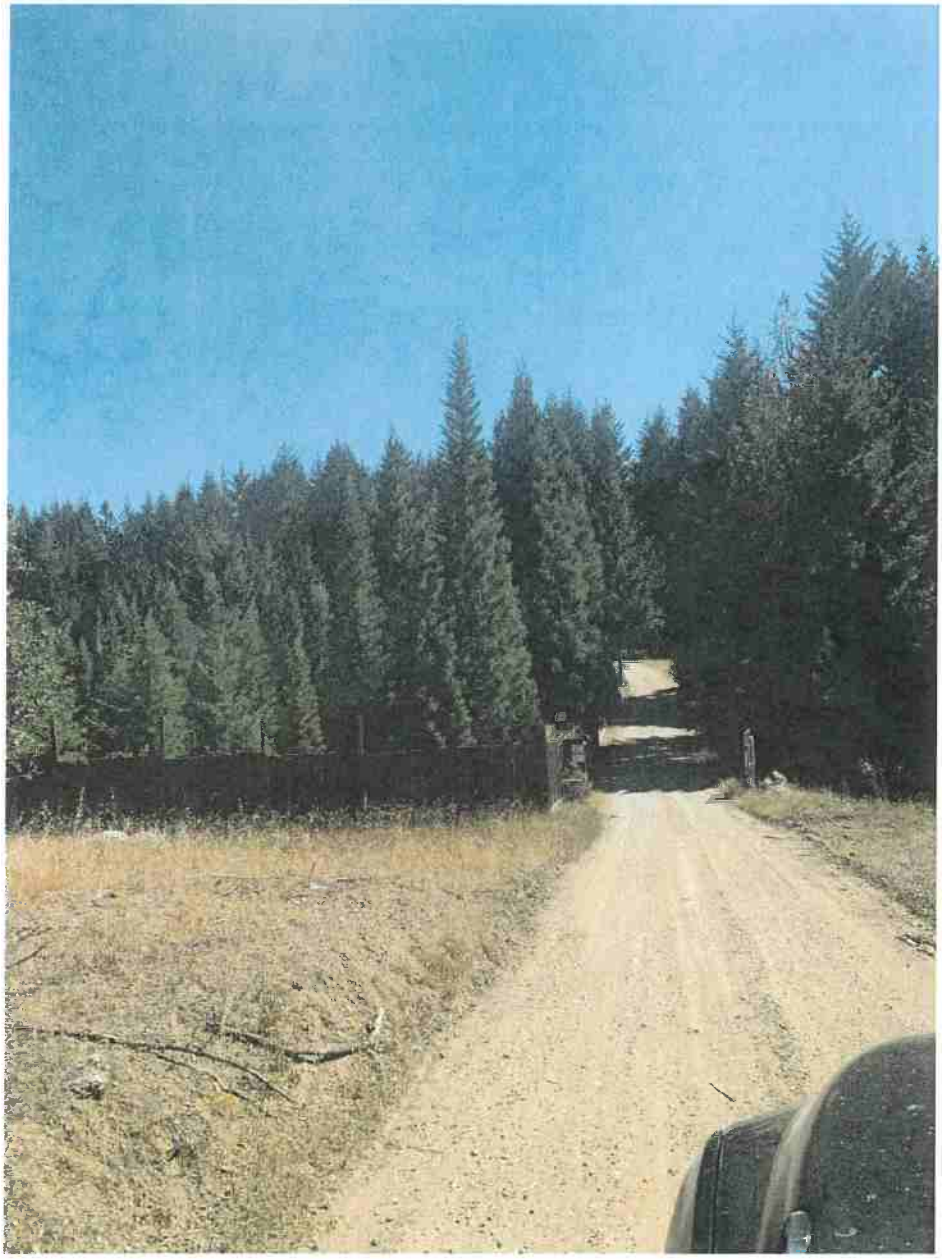


Mm-.75 photo 4 Ditch relief

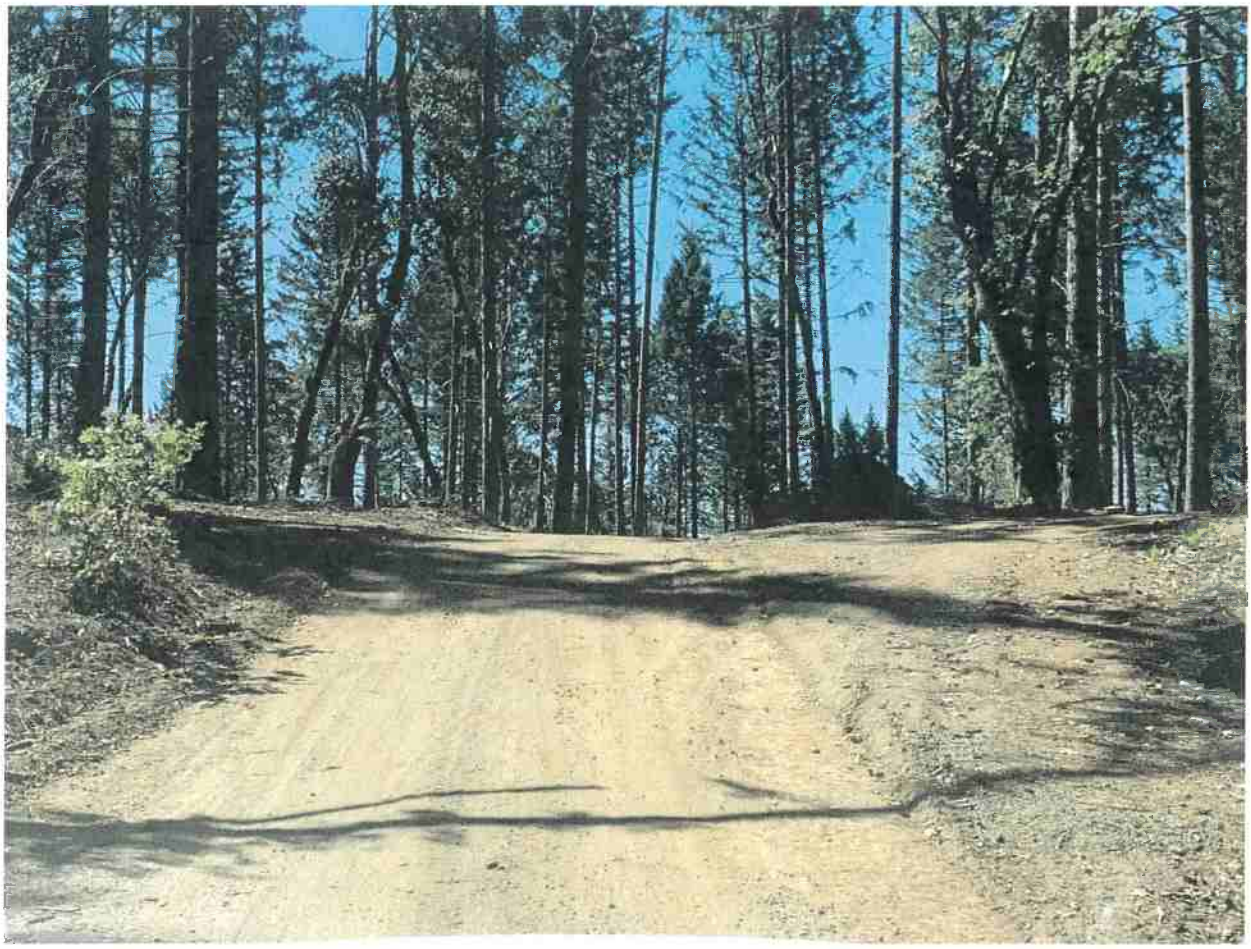
Mm- .9 photo 5 Property line with cloud hands farm plus pull out



Mm-1.0 photo 6 Matt Pucket property line gate



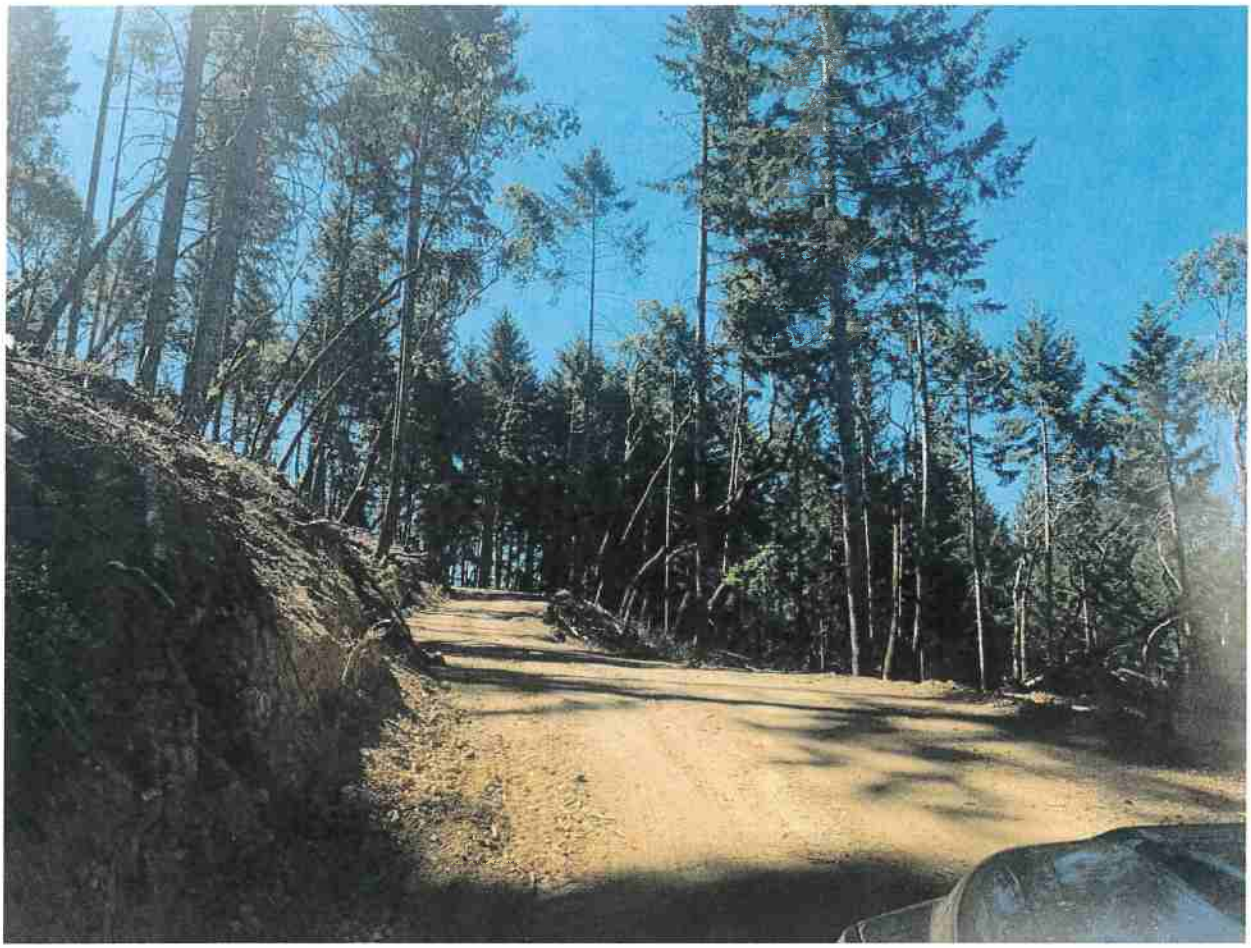
Mm 1.6 photo 9 Joe rice gate



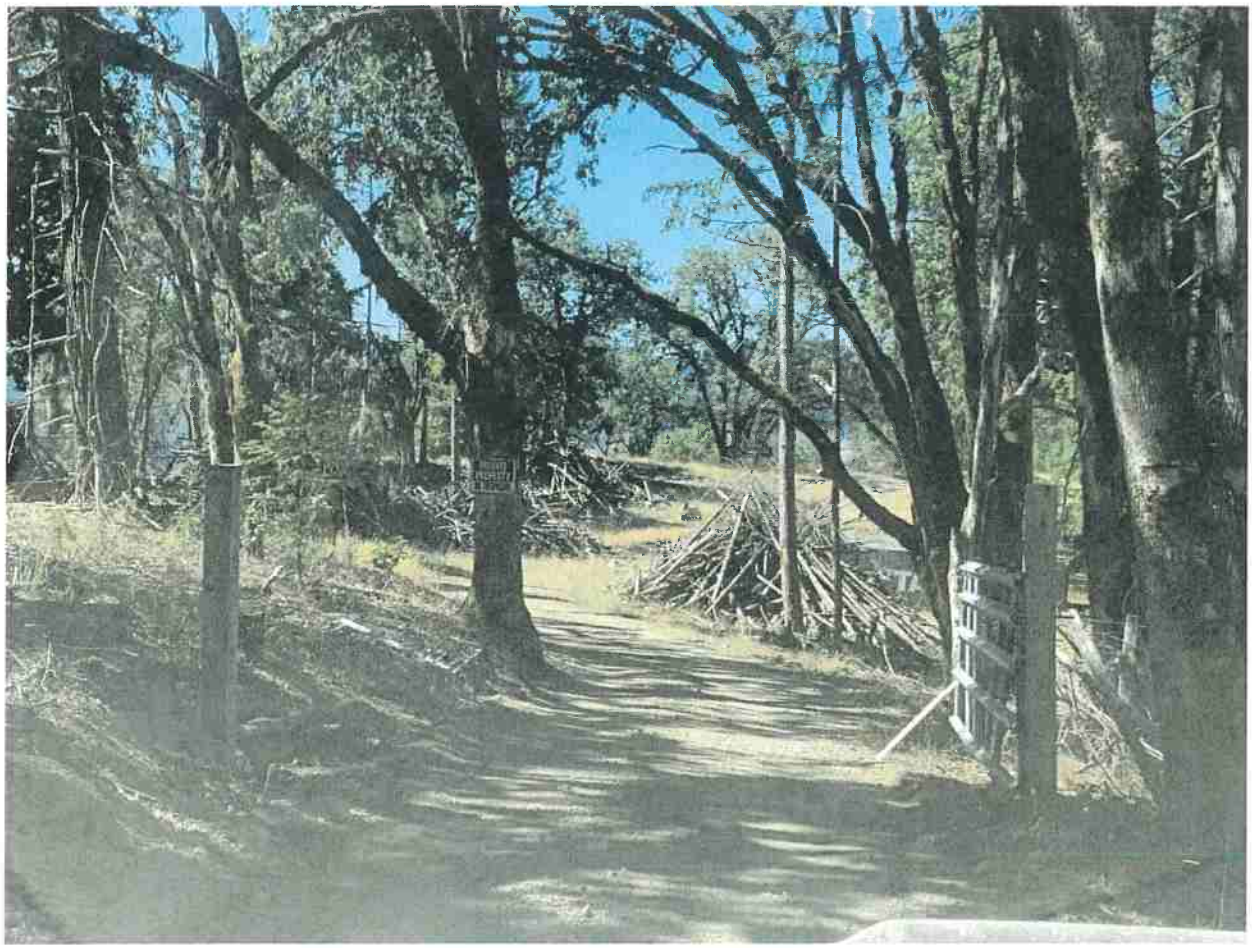
1.75 photo 10 pull out

1.75 photo 10 pull out

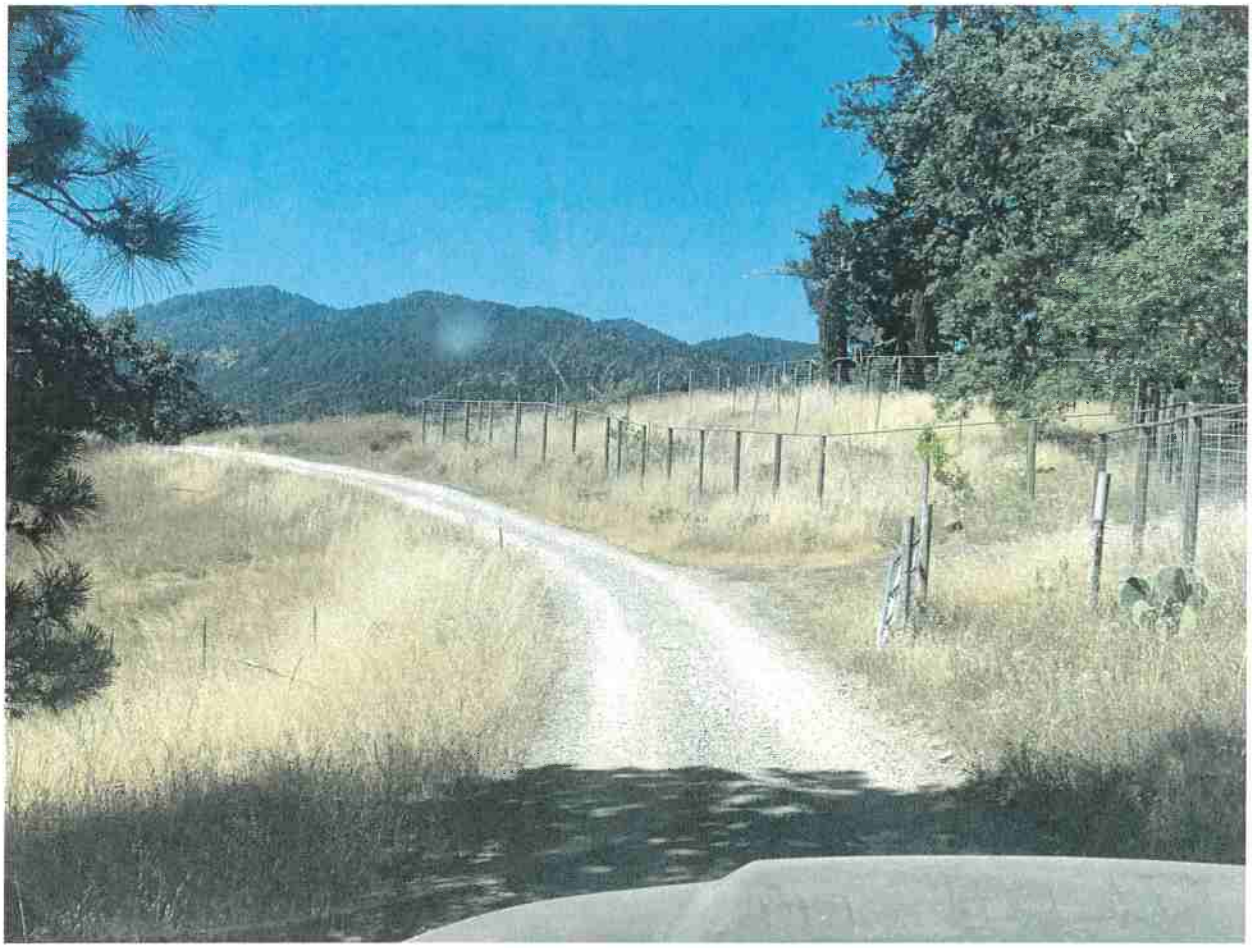
2.0 mm Photo 11 our gate and property line



2.3 mm photo 13 pull out



2.5 mm photo 14 ranch out, roads end , turn around area



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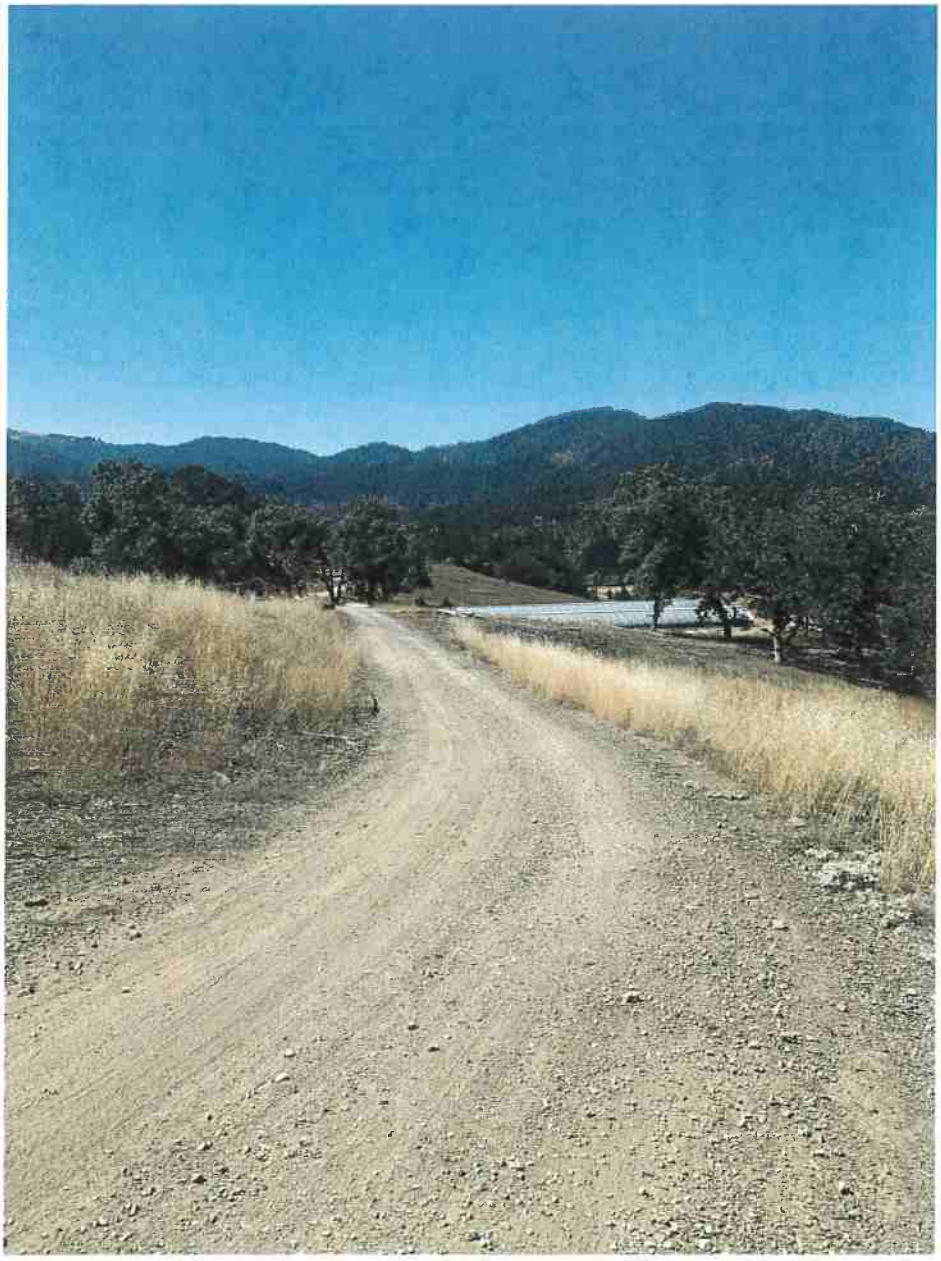

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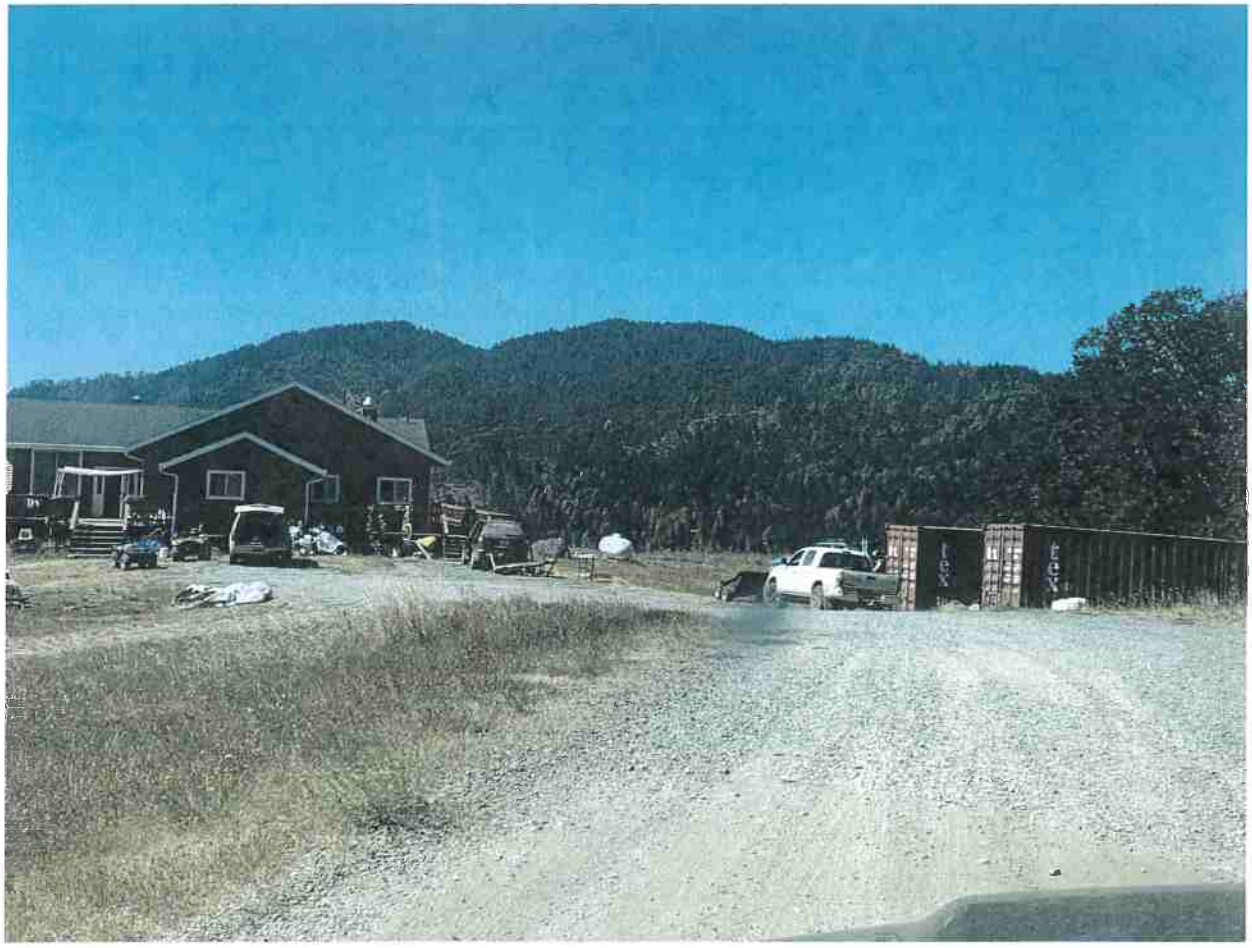


2.5 mm photo 14 ranch out, roads end , turn around area

HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS
ROAD EVALUATION REPORT

PART A: *Part A may be completed by the applicant*

Applicant Name: Nikolai Erickson APN: 210-051-081

Planning & Building Department Case/File No.: _____

Road Name: Larabee Valley Ridge Rd *(complete a separate form for each road)*

From Road (Cross street): High Way 36 mile marker 32.00

To Road (Cross street): Larabee Valley Ridge Rd End

Length of road segment: 2.5 miles miles Date Inspected: 7-28-23

Road is maintained by: ☐ County ☒ Other Private
(State, Forest Service, National Park, State Park, BLM, Private, Tribal, etc)

Check one of the following:

Box 1 ☐ The entire road segment is developed to Category 4 road standards (20 feet wide) or better. If checked, then the road is adequate for the proposed use without further review by the applicant.

Box 2 ☒ The entire road segment is developed to the equivalent of a road category 4 standard. If checked, then the road is adequate for the proposed use without further review by the applicant.

An equivalent road category 4 standard is defined as a roadway that is generally 20 feet in width, but has pinch points which narrow the road. Pinch points include, but are not limited to, one-lane bridges, trees, large rock outcroppings, culverts, etc. Pinch points must provide visibility where a driver can see oncoming vehicles through the pinch point which allows the oncoming vehicle to stop and wait in a 20 foot wide section of the road for the other vehicle to pass.

Box 3 ☐ The entire road segment is not developed to the equivalent of road category 4 or better. The road may or may not be able to accommodate the proposed use and further evaluation is necessary. Part B is to be completed by a Civil Engineer licensed by the State of California.

The statements in PART A are true and correct and have been made by me after personally inspecting and measuring the road. A map showing the location and limits of the road being evaluated in PART A is attached.

Signature 7-28-23
Date

Nikolai Erickson
Name Printed

Important: Read the instructions before using this form. If you have questions, please call the Dept. of Public Works Land Use Division at 707.445.7205

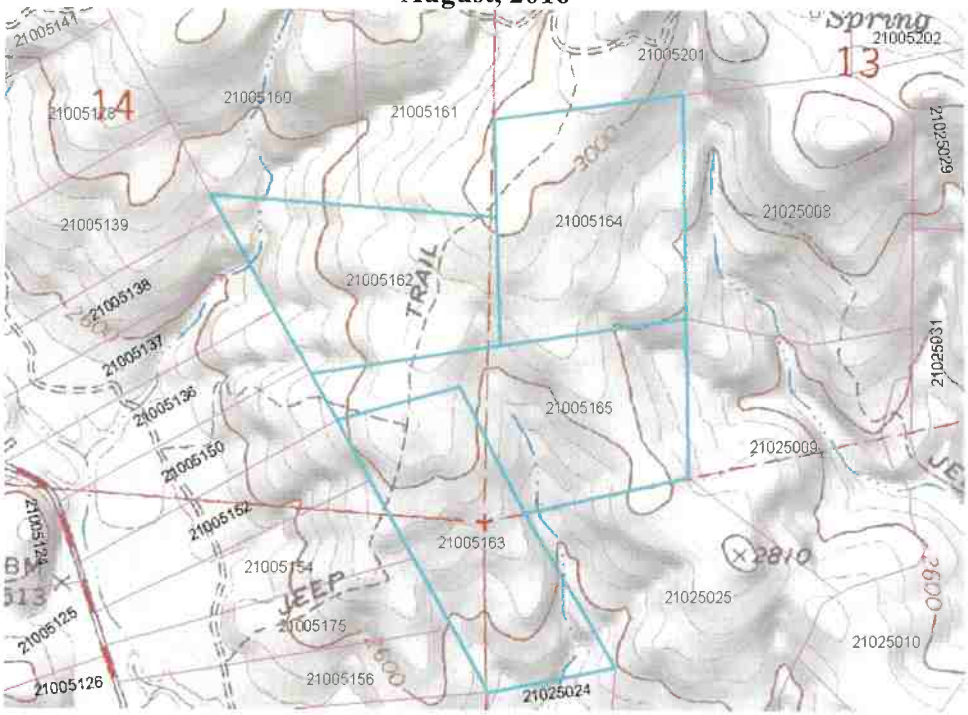
Water Resource Protection Plan (WRPP)

for

**APNs 210-051-062, 210-051-063,
210-051-064, 210-051-065**

Located at
**1700 Larabee Valley Road
Bridgeville, California**

August, 2016



Prepared for:
Brian Mitchell
WDID# 1B16495CHUM
PWA ID#PWA180101050901-5106
1700 Larabee Valley Road, Bridgeville, CA

Prepared by:
Courtney Sundberg, Staff Geologist
Chris Moore, Riparian/Permaculture Specialist
chrism@pacificwatershed.com
Pacific Watershed Associates Inc.
P.O. Box 4433, Arcata, CA 95518
(707) 839-5130

J. Karnow, Inc.
Jerry Karnow, Jr
(530) 575-5974
jkarnow@saber.net

For all four applications @ the above listed APN's

#12166
#12168
#12170
#12167

Found with WRPP. Unsure of it's importance or relevance.

CVS

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Water Resource Protection Plan (WRPP)
APNs 210-051-062, 210-051-063, 210-051-064, 210-051-065
1700 Larabee Valley Road,
Bridgeville, California

1.0 PROJECT SUMMARY

This report documents Pacific Watershed Associate's (PWA)[1] Water Resource Protection Plan (WRPP) for APN 210-051-062, 210-051-063, 210-051-064, 210-051-065 located at 1700 Larabee Valley Road, Bridgeville, CA, as shown on Figure 1. This property is located approximately 8 miles east of Bridgeville, Humboldt County, CA, and hereinafter is referred to as the "Project Site." Based on either site conditions and/or total cultivation area, this property falls within **Tier 2** of the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023, Waiver of Waste Discharge and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects ("Order"). Properties that fall into Tier 2 of the Order are required to develop a WRPP. Therefore, as required, this WRPP has been developed for you based on site inspections made by PWA on your property. PWA's recommendations for any remediation or corrective actions are a result of water quality requirements under the Order, including Best Management Practices (BMPs) designed to meet those requirements (Appendix A). This WRPP documents the findings of a site visit conducted on July 25, 2016 by PWA geologists Courtney Sundberg and Michelle Robinson, when a reconnaissance level investigation of the property was conducted and the conditions of the property noted.

2.0 CERTIFICATIONS, LIMITATIONS AND CONDITIONS

This WRPP has been prepared by Pacific Watershed Associates, Inc. (PWA), and all information herein, including treatment recommendations, are based on observations, data and information collected by PWA staff.

This WRPP has been prepared to: 1) describe the general conditions of the property at the time of our inspection; 2) summarize the site conditions and how they relate to the NCRWQCB twelve (12) Standard Conditions of the Order; 3) provide recommendations for remediation and/or correction of existing or potential water quality threats or impacts; and 4) recommend work to be conducted on this property to meet the 12 Standard Conditions of the Order. The analysis and recommendations submitted in this WRPP are based on PWA's evaluation of the Project Site and your activities which fall under the Order.

In this WRPP we have described the current conditions of the property and any water resource and water quality risk factors we observed at the time of our site inspection. PWA is not responsible for problems or issues we did not observe on our site inspection, or for changes that have naturally occurred or been made to the property after our site review. The interpretations and conclusions presented in this WRPP are based on a reconnaissance level site investigation of inherently limited scope. Observations are qualitative, or semi-quantitative, and confined to surface expressions of

[1] PWA is an approved Third Party Program for the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023, Waiver of Waste Discharge and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects ("Order").

limited extent and artificial exposures of subsurface materials. Interpretations of problematic geologic, geomorphic or hydrologic features such as unstable hillslopes, erosion processes and water quality threats are based on the information available at the time of our inspection and on the nature and distribution of existing features we observed on the property.

We have also included recommendations for remediation and/or correction that are based on these observations. The recommendations included in this WRPP are professional opinions derived in accordance with current standards of professional practice, and are valid as of the date of field inspection. No other warranty, expressed or implied, is made. Furthermore, to ensure proper applicability to existing conditions, the information and recommendations contained in this report shall be regularly reevaluated and it is the responsibility of the landowner and/or lessee operating under the Order to ensure that no recommendations are inappropriately applied to conditions on the property that have changed since the recommendations were developed.

If site conditions have changed for any reason, the site should be re-evaluated and the WRPP revised and updated as required. These conditions include any changes in land management activities or property conditions that have occurred since our site visit (regardless of what they are, how they occurred or who performed them). Similarly, if the landowner/lessee uses portions of this property not identified or covered under the current WRPP, this Water Resource Protection Plan will need to be updated with the new information, including possible additions or changes to the recommended remedial or corrective actions and BMPs (Appendix A).

If the property owner has enrolled their property under the Order, they are responsible for complying with all the requirements thereunder, regardless of who is operating or cultivating on that property. If the property is being formally or informally leased to an operator, and the lessee has enrolled under the Order, then the lessee is responsible for complying with the Order's requirements, including the WRPP and related recommendations and requirements. If the lease expires or the lessee is not otherwise available or does not respond to information requests by the NCRWQCB or PWA, then the landowner automatically assumes responsibility under the Order for the requirements therein and for all related penalties or actions brought by the NCRWQCB.

If at any time in the future the property is to transfer ownership, it is the responsibility of the current owner, or their representatives, to ensure that the information and recommendations contained herein are called to the attention of any future owner or agent for the property. Unless this WRPP is modified by the NCRWQCB, or another approved Third Party Program representative, the findings and recommendations contained in this WRPP shall be utilized as a tool while implementing the recommendations made within this WRPP. Necessary steps shall be taken to see that contractor(s) and subcontractors carry out such recommendations in the field in accordance with the most current WRPP and BMP standards.

As a Third Party Program, PWA will be responsible for the data; interpretations and recommendations developed by PWA, but will not be responsible for the interpretation by others of that information, for implementation of corrective actions by others, or for additional or modified work arising out of those plans, interpretations and recommendations. PWA assumes no liability for the performance of other workers or suppliers while following PWA's recommendations in the WRPP, unless PWA is under contract to perform or oversee those activities. Additionally, PWA is not responsible for changes in applicable or appropriate standards

beyond our control, such as those arising from changes in legislation or regulations, or the broadening of knowledge which may invalidate or alter any of our findings or recommended actions.

Any WRPP plan review or construction management services that may be needed or identified in the recommendations sections of this report are separate tasks from the preparation of this WRPP, and are not a part of the contract under which this WRPP was prepared. If requested, additional PWA field inspections, surveys, WRPP revisions/updates, project layout, design, permitting, construction oversight/management, or other related services arising from tasks described and recommended in the WRPP may be performed under separate agreements requiring advance notice and contracting.

PWA's services consist of professional opinions and recommendations made in accordance with generally accepted principles and practices. No warranty, expressed or implied, or merchantability or fitness, is made or intended in connection with our work, by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings. If the client desires assurances against project failures, they shall obtain appropriate insurance through their own insurance broker or guarantor.

This WRPP is considered a living document and shall be updated at least annually or sooner if conditions have changed or land management actions have been undertaken after our site inspection. As an official part of the Waiver Program, this WRPP (including all its text, appendices, maps and photos) shall remain on-site and available for NCRWQCB staff to inspect and review upon request.

Prepared by:

Courtney Sundberg
Staff Geologist
Pacific Watershed Associates, Inc.
P.O. Box 4433, Arcata, California 95518

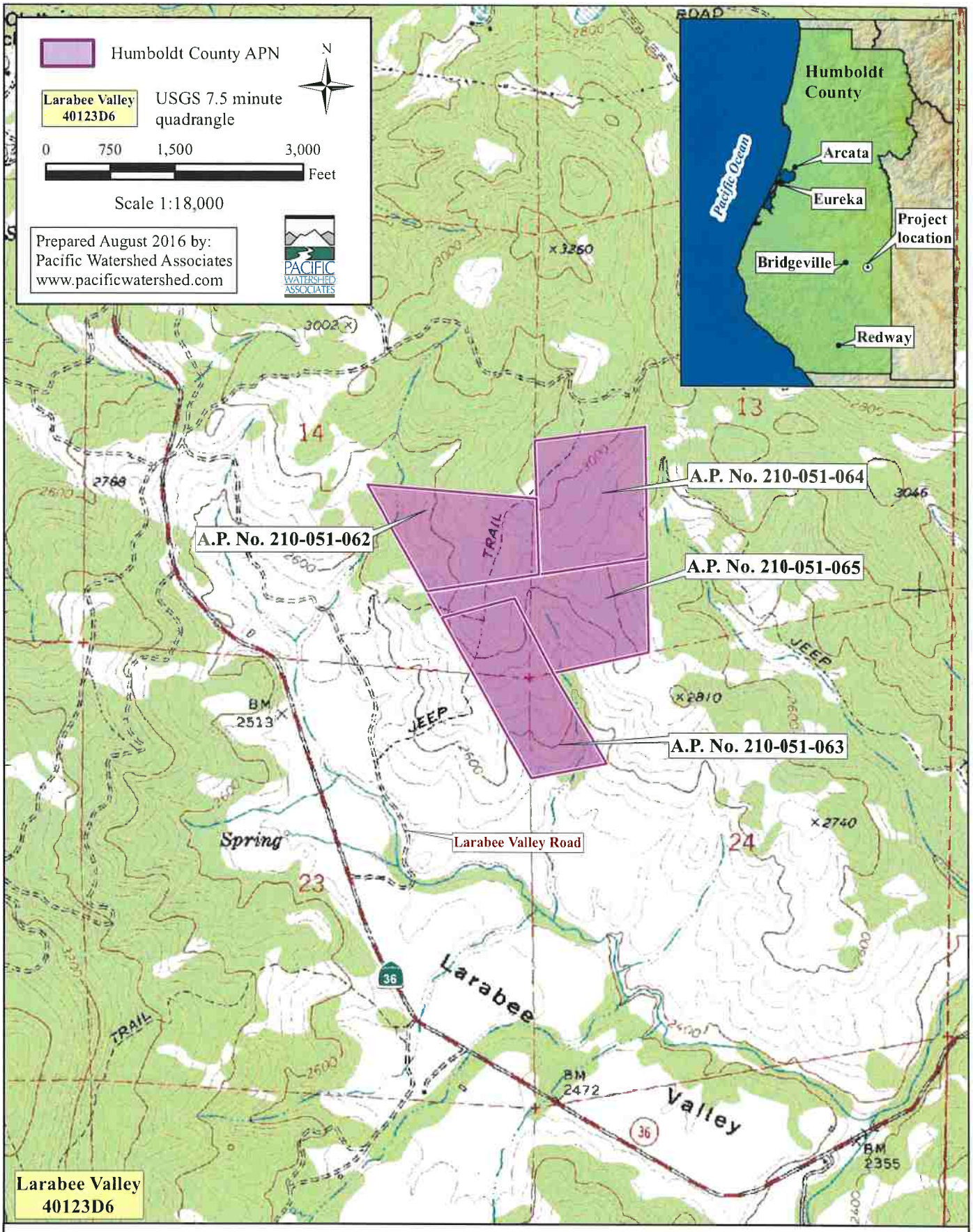

Figure 1. Location map for WDID #1B16495CHUM; APN 210-051-062, 210-051-063, 210-051-064, 210-051-065; located off Larabee Valley Road, Bridgeville, Humboldt County, California.

P:\GIS\5106

3.0 INTRODUCTION

This Water Resources Protection Plan (WRPP) summarizes the results of Pacific Watershed Associate's (PWA) site visit and subsequent analysis and documentation of site conditions on APNs 210-051-062, 210-051-063, 210-051-064, 210-051-065 located at 1700 Larabee Valley Road, Bridgeville, California, as shown on Figure 1 and hereinafter referred to as the "Project Site." The WRPP describes and addresses the required elements and compliance with the 12 Standard Conditions established by the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023 (Order) to protect water quality from cannabis cultivation and related activities. You property and cultivation operations appear to meet all 12 of the Standard Conditions of the Order. Section 4, below, identifies and discusses each of the 12 Standard Conditions as related to your property with regard to compliance with the NCRWQCB's Order.

The WRPP contains the following required sections:

1. Legible map (Figure 2) depicting the required site elements and features associated with the 12 Standard Conditions of the Order;
2. Description of current site conditions, compliance with the 12 Standard Conditions, and prioritized remediation or corrective actions needed to bring the site into compliance with the requirements of the Order;
3. A monitoring and inspection plan to ensure BMPs used to protect and prevent impacts to water quality are being implemented as recommended by PWA (implementation monitoring), and that they are effective (effectiveness monitoring); and
4. A water use plan, including water sources, water use and storage rights documentation, monthly water use documentation (quantity), and water conservation measures that are employed to prevent adverse impacts to water quality and water quantity in the watershed;
5. List of fertilizers and chemicals stored and used onsite, including a log of the frequency and quantity of these materials used;

4.0 STANDARD CONDITIONS CHECKLIST FOR APNs 210-051-062, 210-051-063, 210-051-064, 210-051-065 as of 7/25/2016

The NCRWQCB has developed a set of 12 Standard Conditions that shall be followed and implemented to protect and improve water quality as required under the NCRWQCB's Order. For a property to become compliant with the Order, all 12 Standard Conditions must be fully satisfied.

The following section details the specific requirements listed and described in the Order for each of the 12 Standard Conditions. Each Standard Condition has from 1 to 6 sub-requirements (*listed in italic type*), each of which must be satisfied to protect water quality and comply with the Order. The checklist developed by PWA for your property indicates: 1) whether the Standard Condition or Standard Condition sub-requirement was adequately met as of the date of PWA's field inspection, 2) PWA's observations and comments related to the Standard Condition or Standard Condition sub-requirement, 3) whether a relevant photo has been taken and included in the WRPP, and 4) recommended corrective or remedial actions that need additional work to meet the requirements of the Order.

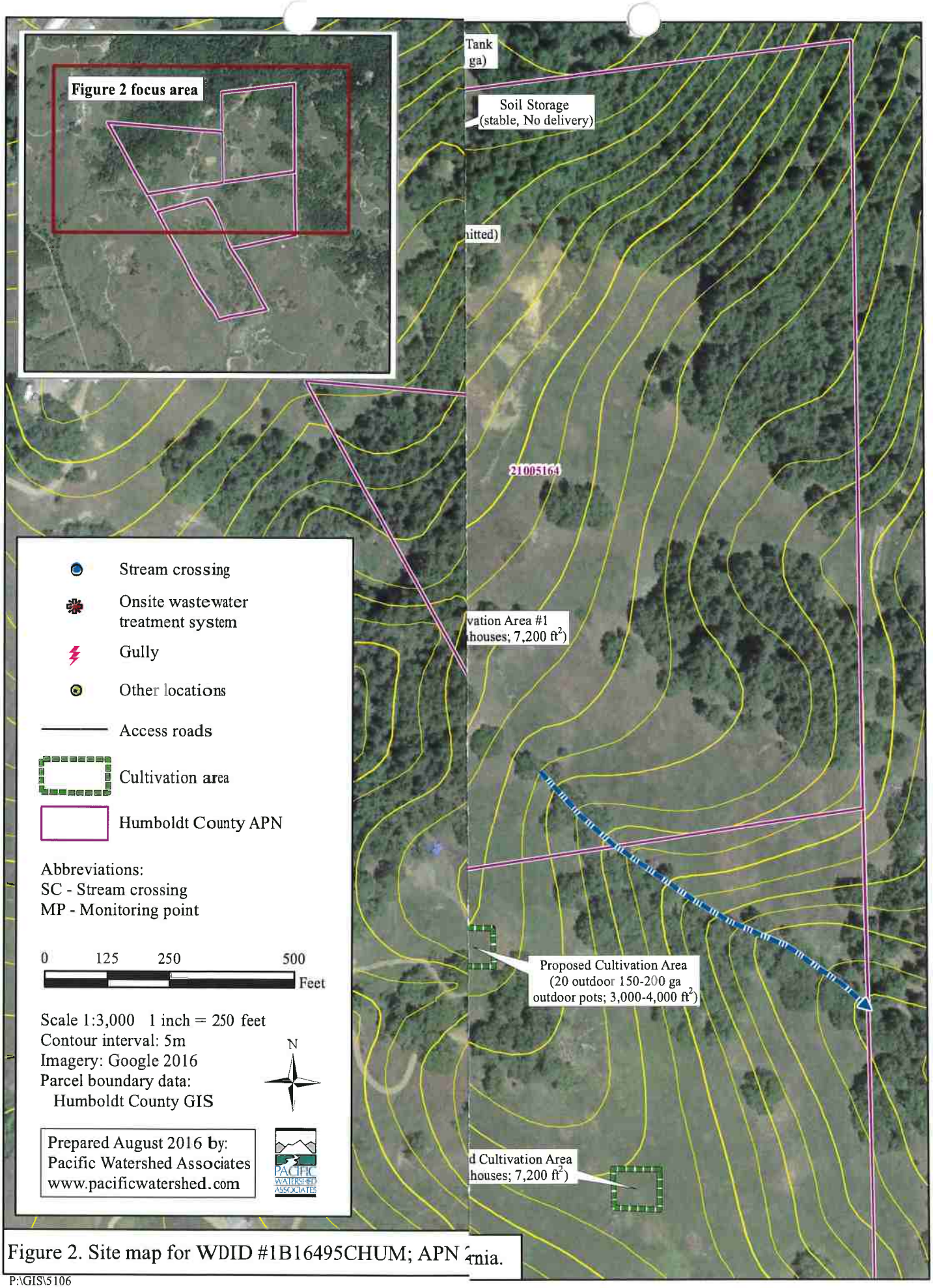

Figure 2. Site map for WDID #1B16495CHUM; APN [illegible]rnia.

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In Section 5 of this WRPP, PWA has provided a summary prioritized list (Table 1) of the recommended treatments and actions to be implemented by you to meet the requirements of the Order. We will consult with you to review the WRPP document and findings, and to set a preliminary schedule for implementation of the recommended measures for achieving compliance with the Order. Please note that some of the PWA recommended actions are based on regulatory requirements and deadlines, while others can be scheduled to fit the needs of both you and your property.

4.1 Standard Condition #1. Site Maintenance, Erosion Control and Drainage Features

a) *Roads shall be maintained as appropriate (with adequate surfacing and drainage features) to avoid developing surface ruts, gullies, or surface erosion that results in sediment delivery to surface waters.*

Meets condition? Yes

Observations/Comments: Approximately 0.5 mile of road was inspected during the site inspection. All roads within the Project site are maintained and spot rocked with no observable sediment delivery. However, roads lack sufficient drainage structures to effectively disperse flow and minimize hydrologic connectivity.

Photos: Photo 1

Corrective or remedial actions needed: Install permanent road drainage structures which shape the road surface (such as rolling dips) to minimize road maintenance and more effectively disperse flow.

b) *Roads, driveways, trails, and other defined corridors for foot or vehicle traffic of any kind shall have adequate ditch relief drains or rolling dips and/or other measures to prevent or minimize erosion along the flow paths and at their respective outlets.*

Meets condition? No

Observations/Comments: Approximately 0.5 mile of road was inspected during the site inspection. All roads, driveways and trails within the Project site are maintained and spot rocked with no observable sediment delivery. However, roads lack sufficient drainage structures to effectively disperse flow and minimize hydrologic connectivity.

Photos: Photo 1

Corrective or remedial actions needed: Install permanent road drainage structures which shape the road surface (such as rolling dips) to minimize road maintenance and effectively disperse flow.

c) *Roads and other features shall be maintained so that surface runoff drains away from potentially unstable slopes or earthen fills. Where road runoff cannot be drained away from an unstable feature, an engineered structure or system shall be installed to ensure that surface flows will not cause slope failure.*

Meets condition? No

Observations/Comments: During our site inspection we observed concentrated road and surface runoff from a graded flat which is causing active gully and headcut erosion with sediment delivery to a class III watercourse (MP#3).

Photos: Photo 2

Corrective or remedial actions needed: Road treatments (see 4.1.b) will reduce the amount of surface erosion contributing to this location. Additional treatments include:

1) channelizing flow at the gully so that it has one primary flow path and 2) installing a rocked ford at the point where flow from the gully intersects the (quad) road (Figure 2).

d) *Roads, clearings, fill prisms, and terraced areas (cleared/developed areas with the potential for sediment erosion and transport) shall be maintained so that they are hydrologically disconnected, as feasible, from surface waters, including wetlands, ephemeral, intermittent and perennial streams.*

Meets condition? No
Observations/Comments: During our site inspection we observed concentrated road and surface runoff from a graded flat that is causing active gully and headcut erosion with sediment delivery to a class III watercourse (MP#3).
Photos: Photo 2
Corrective or remedial actions needed: Road treatments (see 4.1.b) will reduce the amount of surface erosion contributing to this location. Additional treatments include: 1) channelizing flow at the gully so that it has one primary flow path and 2) installing a rocked ford at the point where flow from the gully intersects the quad road (Figure 2).

e) *Ditch relief drains, rolling dip outlets, and road pad or terrace surfaces shall be maintained to promote infiltration/dispersal of outflows and have no apparent erosion or evidence of soil transport to receiving waters.*

Meets condition? No
Observations/Comments: See 4.1.b
Photos: No
Corrective or remedial actions needed: See 4.1.b

f) *Stockpiled construction materials are stored in a location and manner so as to prevent their transport to receiving waters.*

Meets condition? Yes
Observations/Comments: No construction materials were observed on the Project Site during the initial inspection.
Photos: No
Corrective or remedial actions needed: No corrective actions required.

Standard Condition #1. - General comments and recommendations: Approximately 0.5 mi. of road was inspected, mostly comprised of ridge-top roads. Roads are maintained and spot rocked, with no formal drainage structures and no observable sediment delivery. During the site inspection, we observed one point of sediment delivery due to concentrated road and surface runoff from a graded flat (MP#3, Figure 2). We recommend disconnecting flow from the road surface by: 1) installing road drainage structures, such as rolling dips, to break up road surface runoff and disperse flow at frequent intervals; 2) channelizing flow at the gully so that it has one primary flow path; and 3) installing a rocked ford at the road crossing. .

4.2 Standard Condition #2. Stream Crossing Maintenance

a) *Culverts and stream crossings shall be sized to pass the expected 100-year peak streamflow.*

Meets condition? No
Observations/Comments: Two stream crossings were identified on the Project Site which include: 1) 12-inch diameter culvert on a near origin class III watercourse (stream crossing #1); and 2) 12-inch diameter culvert on a near origin class III watercourse (stream crossing #2).
Photos: Photos 3-4
Corrective or remedial actions needed: Based on our brief assessment, we determined that the culverted stream crossings (#1 and #2) are undersized for 100-year peak streamflow but are functioning. The two undersized stream crossing culverts need to be replaced with 24" diameter culverts placed at the base of the fill, with a critical on the road dip to prevent stream diversion or construct armored fill crossings that are designed to withstand 100-year flow events.

b) *Culverts and stream crossings shall be designed and maintained to address debris associated with the expected 100-year peak streamflow.*

Meets condition? No
Observations/Comments: See 4.2.a
Photos: Photos 3-4
Corrective or remedial actions needed: See 4.2.a

c) *Culverts and stream crossings shall allow passage of all life stages of fish on fish-bearing or restorable streams, and allow passage of aquatic organisms on perennial or intermittent streams.*

Meets condition? N/A
Observations/Comments: Neither stream is perennial or intermittent so passage is not an issue.
Photos: No
Corrective or remedial actions needed: None

d) *Stream crossings shall be maintained so as to prevent or minimize erosion from exposed surfaces adjacent to, and in the channel and on the banks.*

Meets condition? Yes
Observations/Comments: The culverts at stream crossing #1 and 2 are well installed with no active erosion in the channel or on the banks
Photos: Photos 3-4
Corrective or remedial actions needed: See general comments below.

e) *Culverts shall align with the stream grade and natural stream channel at the inlet and outlet where feasible.*

Meets condition? Yes
Observations/Comments: The culverts at stream crossing #1 and #2 are installed at grade and in line with the natural stream channel.
Photos: Photos 3-4

Corrective or remedial actions needed: See general comments below.

f) Stream crossings shall be maintained so as to prevent stream diversion in the event that the culvert/crossing is plugged, and critical dips shall be employed with all crossing installations where feasible.

Meets condition? No
Observations/Comments: One stream crossing on the Project Site exhibits diversion potential. At the time of the site inspection, stream crossings #2 lacked a critical dip to prevent stream diversion down the right road approach.
Photos: None
Corrective or remedial actions needed: Install one critical dip at the right hinge line of stream crossing #2 to prevent diversion in the event that the culvert fails or plugs.

Standard Condition #2. - General comments and recommendations: Two stream crossings were identified on the Project Site, both located on a low volume ranch road/quad trail. Stream crossings include: 1) 12-inch diameter plastic culvert on a near origin class III watercourse (stream crossing #1); 2) 12-inch diameter plastic culvert on a near origin class III watercourse, with diversion potential to the right (stream crossing #2). Culverted stream crossing #1 and #2 are undersized for 100-year peak stream flow and associated debris but are currently functioning. We recommend, two options 1) installing new 24-inch diameter steel culverts at the natural channel grade and in-line with the natural stream channel at both stream crossings (#1 and #2), or 2) constructing armored fill crossings designed to withstand 100-year flows. Additionally, we recommend installing a critical dip to the right of stream crossing #2 to prevent diversion in the event that the culvert fails or plugs. Obtain all necessary permits and notifications prior to commencing work in any watercourse. Permits/notifications may include, and may not be limited to: CDFW LSAA 1602, SWRCB 401 Certification, and ACOE 404 Permit.

4.3 Standard Condition #3. Riparian and Wetland Protection and Management

a) For Tier 1 Dischargers, cultivation areas or associated facilities shall not be located within 200 feet of surface waters. While 200 foot buffers are preferred for Tier 2 sites, at a minimum, cultivation areas and associated facilities shall not be located or occur within 100 feet of any Class 1 or 2 watercourse or within 50 feet of any Class 3 water course or wetlands.

Meets condition? Yes
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: None

b) Buffers shall be maintained at natural slope with native vegetation.

Meets condition? Yes
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: None

c) *Buffers shall be of sufficient width to filter wastes from runoff discharging from production lands and associated facilities to all wetlands, streams, drainage ditches, or other conveyances.*

Meets condition? Yes
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: None

d) *Riparian and wetland areas shall be protected in a manner that maintains their essential functions, including temperature and microclimate control, filtration of sediment and other pollutants, nutrient cycling, woody debris recruitment, groundwater recharge, streambank stabilization, and flood peak attenuation and flood water storage.*

Meets condition? Yes
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: None

Standard Condition #3. - General comments and recommendations: For this Project Site, all cultivation areas and associated facilities are located great than 200 feet from any watercourse. The riparian buffer is undisturbed and intact, although it is mostly composed of natural grassland. There is no intent from the operator to disturb, modify or develop the existing riparian buffer within the ownership. The slope buffer is more than adequate as a filter for any errant waste or entrained sediment from cultivation and related activities.

4.4 Standard Condition #4. Spoils Management

a) *Spoils shall not be stored or placed in or where they can enter any surface water.*

Meets condition? Yes
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: None

b) *Spoils shall be adequately contained or stabilized to prevent sediment delivery to surface waters.*

Meets condition? Yes
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: None

c) *Spoils generated through development or maintenance of roads, driveways, earthen fill pads, or other cleared or filled areas shall not be sidecast in any location where they can enter or be transported to surface waters.*

Meets condition? Yes
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: None

Standard Condition #4 - General comments and recommendations: Based on field observations it is PWA's opinion that the Project site is currently compliant with this condition. All road fillslopes appear stable. It appears that any recent grading activities at the project site were associated with development of the cultivation area, of which all spoils were stored locally, on site in a stable site where there is no threat of delivery to surface waters.

4.5 Standard Condition #5. Water Storage and Use

a) *Size and scope of an operation shall be such that the amount of water used shall not adversely impact water quality and/or beneficial uses, including and in consideration with other water use operations, instream flow requirements and/or needs in the watershed, defined at the scale of a HUC 12 watershed or at a smaller hydrologic watershed as determined necessary by the Regional Water Board Executive Officer.*

Meets condition? Unknown
Observations/Comments: See general comment below.
Photos: None
Corrective or remedial actions needed: A Water Budget should be developed to determine exact timing and volumes of water diversion, storage and use for the low flow period from May 15 through October 31. A Water Monitoring Plan will also need to be developed to refine and improve the water budget (see comments below).

b) *Water conservation measures shall be implemented. Examples include use of rainwater catchment systems or watering plants with a drip irrigation system rather than with a hose or sprinkler system.*

Meets condition? Unknown
Observations/Comments: We did not observe irrigation during the site inspection, however the operator reported that when irrigation was occurs, conservation measures include: controlled hand watering and watering late in the afternoon or evening to minimize water loss through evaporation and maximize water up-take by the plants; the use of compost and mulch fertilizer; and the use of soil mediums that retain moisture.
Photos: None
Corrective or remedial actions needed: Evaluate and employ additional water conservation measures (if they are not already being employed) such as : 1) timed or volume controlled drip irrigation; 2) irrigation scheduling; 3) capturing and storing rainwater; 4) the use of cover crops; and 5) the use of compost and mulch fertilizer. Begin quantifying use, testing drip rates, incorporating water holding amendments and native soil during the initial soil preparation at the start of the season. And lastly, water conservation measures should continue to be investigated and employed in order to most effectively maximize water use efficiency.

c) *For Tier 2 Dischargers, if possible, develop off-stream storage facilities to minimize surface water diversion during low flow periods.*

Meets condition? Yes

Observations/Comments: Currently there is approximately 225,300 gallons of water storage on the property. In the future, the operator intends to develop a pond with rainwater catchment. See general comment below. A water budget needs to be developed to determine overall water needs (including both domestic and agricultural) so the operation can forbear using on-site water storage during the summer period from May 15 through October 31.
Photos: Photos 5-10
Corrective or remedial actions needed: Determine if increased water storage is necessary; develop a water budget to determine overall water needs including both domestic and irrigation needs. The water budget and water monitoring is needed to ensure you limit or eliminate diversion of surface flows during the low flow period (May 15 - October 31). Work with a qualified professional engineer (PE) and the Humboldt County Building department to design and permit a pond to service your irrigation needs.

d) *Water is applied using no more than agronomic rates.*
Meets condition? Unknown
Observations/Comments: During the site inspection, the Project Site was being developed and no watering was occurring.
Photos: No
Corrective or remedial actions needed: Start measuring and recording your average water usage on a per plant basis, based on type and size of plant pot, full term versus short season (light deprivation) plant, and type of irrigation, in order to refine a Water Budget for your operation.

e) *Diversion and/or storage of water from a stream should be conducted pursuant to a valid water right and in compliance with reporting requirements under Water Code section 5101.*
Meets condition? No
Observations/Comments: The operator reported one surface water diversion from a spring on a neighboring parcel is used as a domestic water source. PWA was not shown the diversion during the site inspection. The spring source feeds storage tanks (6,000 gallons total) for domestic use. The remaining 219,300 gallons of water storage are filled by the 2 permitted wells on the property.
Photos: None
Corrective or remedial actions needed: Generally, water diversion and water storage requires valid water rights documentation. We recommend you file an annual Initial Statement of Diversion and Use (ISDU) and apply for the Small Domestic Use Appropriation for the spring diversion to cover your domestic use requirements such as drinking, bathing, cooking and fire control. As it currently stands, according to regulatory requirements, this type of water right cannot be used for commercial crop irrigation.

Note: the SWRCB may develop a small irrigation water right in this region in the near future but until they do, the full appropriation appears to be the only option for diversion water use associated with commercial agricultural production. Any water storage tanks over 5,000 gallons will require a Humboldt County Building Permit.

Storage of well water is currently unregulated however DWR has requested that all wells be out fitted with a flow tantalizer to accurately measure water use by volume.

f) Water storage features, such as ponds, tanks, and other vessels shall be selected, sited, designed, and maintained so as to insure integrity and to prevent release into waters of the state in the event of a containment failure.

Meets condition? Yes
Observations/Comments: All storage tanks and one bladder are located on stable slopes, far from any watercourses making it unlikely that water storage structure failures will result in delivery to the stream network. However bladders are viewed as a temporary water storage solution and will need to be replaced in the near term.
Photos: Photos 5-10
Corrective or remedial actions needed: PWA advises that all bladders be replaced with rigid sided tanks or off-channel ponds. There are many options for large water tank storage available on the market, many have the additional capacity to harvest rainwater from the tank roof, greatly minimizing the need for diversion or pumping.

Standard Condition #5 - General comments and recommendations: A Water Budget should be developed to determine exact timing and volumes of water diversion, storage and use for the low flow period from May 15 through October 31. A Water Monitoring Plan will also need to be developed and implemented.

We recommend implementing additional water conservation measures such as 1) timed or volume limited drip irrigation; 2) irrigation scheduling; 3) capturing and storing rainwater; 4) the use of cover crops; 5) the use of compost and mulch fertilizer; and 6) the use of soil mediums that retain moisture should be employed. Begin quantifying use, testing drip rates, incorporating water holding amendments and native soil during the initial soil preparation at the start of the season.

Currently, there are 2 wells on the property feeding roughly 219,300 gallons of storage to several tanks and one bladder. There is also one point-of-diversion located at a spring source on a neighboring parcel which was not inspected by PWA. The spring feeds 3 storage tanks totaling 6,000 gallons of water storage used for domestic purposes.

Currently, there is no water right for the spring diversion. The operator has utilized this spring source for domestic purposes. At this time PWA recommends a three pronged approach to water security on your property: 1) registering one surface water diversion with the SWRCB and the DWR under the Small Domestic Use Appropriation as well as filing an Initial Statement of Diversion and Use (ISDU) each year that source is used. This will service your domestic needs; 2) develop a water budget to determine water needs; 3) if necessary increase water storage capacity through the installation of additional tanks or a pond; and 4) develop a rainwater collection system from the road and other surfaces to fill the pond. The latter two sources will be used to service you irrigation needs.

PWA highly recommends, and state agencies may require, that you install flow meters on your water tanks and/or on your diversion lines, to accurately document your diversion volumes and rates. Under the Order, you are required to document in detail the amount of

water you are diverting, storing and using through time. PWA has created a simple log sheet to help you monitor your water usage (Appendix D).

4.6 Standard Condition #6. Irrigation Runoff

a) *Implementing water conservation measures, irrigating at agronomic rates, applying fertilizers at agronomic rates and applying chemicals according to the label specifications, and maintaining stable soil and growth media should serve to minimize the amount of runoff and the concentration of chemicals in that water. In the event that irrigation runoff occurs, measures shall be in place to treat/control/contain the runoff to minimize the pollutant loads in the discharge. Irrigation runoff shall be managed so that any entrained constituents, such as fertilizers, fine sediment and suspended organic particles, and other oxygen consuming materials are not discharged to nearby watercourses. Management practices include, but are not limited to, modifications to irrigation systems that reuse tailwater by constructing off-stream retention basins, and active (pumping) and or passive (gravity) tailwater recapture/redistribution systems. Care shall be taken to ensure that irrigation tailwater is not discharged towards or impounded over unstable features or landslides.*

Meets condition? Yes
Observations/Comments: See the general comments below.
Photos: None
Corrective or remedial actions needed: None

Standard Condition #6 - General comments and recommendations: Irrigation is limited to controlled hand watering and overwatering is unlikely. With the closest stream located well away from the cultivation area, any runoff that theoretically might make it off-project site (from the cultivation area) could not travel far due to the low gradient topography and the wide vegetative buffer between the cultivation area and the stream network.

According to the Order, irrigation and fertilization shall occur at agronomic rates and chemicals shall be applied according to the label instructions and specifications. Agronomic rates are those rates of application of water, fertilizers and other amendments that are sufficient for utilization of the crop being grown, but not at a rate that would result in surface runoff or infiltration below the root zone of the crop being grown.

In the event that irrigation runoff occurs, or could occur, the discharger shall ensure that contaminated runoff does not enter nearby watercourses. If needed, this can be accomplished by constructing or designing containment measures, including sediment basins, berms, infiltration ditches and/or other Best Management Practices (BMPs), as needed, to contain and control surface runoff (see Appendix A).

4.7 Standard Condition #7. Fertilizers and Soil Amendments

a) *Fertilizers, potting soils, compost, and other soils and soil amendments shall be stored in locations and in a manner in which they cannot enter or be transported into surface waters and such that nutrients or other pollutants cannot be leached into groundwater.*

Meets condition? Yes
Observations/Comments: All fertilizer, soil amendments or any plant related chemical that are not directly being used within the planting beds or greenhouses are being stored in a watertight storage shed (shop). Currently, potting soil is being stored on stable, low gradient topography with no delivery watercourses.
Photos: Photos 11-12
Corrective or remedial actions needed: When not being used on the planting beds or in greenhouses, all soil amendments, potting soils, compost and fertilizers shall continue to be stored within the watertight storage shed (shop) or fully tarped in a stable location with no chance of delivery to surface waters.

b) *Fertilizers and soil amendments shall be applied and used per packaging instructions and/or at proper agronomic rates.*
Meets condition? Unknown
Observations/Comments: Based on verbal communication with the operator, the recommended application rates are being followed.
Photos: None
Corrective or remedial actions needed: You are required by the Order to keep detailed records of any fertilizers and/or other soil amendments you use in your operations. They can be recorded on log sheets such as those provided in Appendix E or by using some other record keeping method. Observe and monitor soil moisture so watering, fertilizer and chemical applications are made only when necessary and overwatering and excess infiltration is avoided.

c) *Cultivation areas shall be maintained so as to prevent nutrients from leaving the site during the growing season and post-harvest.*
Meets condition? Yes
Observations/Comments: The cultivation area is located on moderate to low gradient topography and has a wide vegetative buffer and therefore does not present a significant threat to water quality. All pots/beds are planted with cover crops in between rotations and in the winter to protect the soil from runoff, improve soil stability and soil health.
Photos: None
Corrective or remedial actions needed: Continue the use of cover crops in spent pots and beds to enrich soil and lock up nutrients. If you plan to burn the plant stalks, you'll first need to obtain burn permits from CAL FIRE and the North Coast Unified Air Quality Management District (or relevant jurisdiction for your area). You can then, incorporate the ash into the pots or planting holes prior to planting the cover crop to add minerals and recycle the ash.

Standard Condition #7 - General comments and recommendations: Based on field observations PWA noted that fertilizers and soil amendments were being properly stored. Most growing amendments will be brought in during the growing season and stored inside the shop. Fertilizers and amendments were reported to be organic and applied according to packaging instructions. Usage is diminished or eliminated toward the end of the growing season. With the closest stream located well away from the cultivation area, any runoff that theoretically might make it off-project site (from the cultivation area) could not travel far

due to the low gradient topographic terrace and wide vegetative buffer between the cultivation area and the stream network.

Under the Order, you are required to keep track of the timing and volume of fertilizers and other soil amendments that are applied. This can be done using a simple log form we have provided in Appendix E.

4.8 Standard Condition #8. Pesticides/Herbicides

a) *At the present time, there are no pesticides or herbicides registered specifically for use directly on cannabis and the use of pesticides on cannabis plants has not been reviewed for safety, human health effects, or environmental impacts. Under California law, the only pesticide products not illegal to use on cannabis are those that contain an active ingredient that is exempt from residue tolerance requirements and either registered and labeled for a broad enough use to include use on cannabis or exempt from registration requirements as a minimum risk pesticide under FIFRA section 25(b) and California Code of Regulations, title 3, section 6147. For the purpose of compliance with conditions of this Order, any uses of pesticide products shall be consistent with product labeling and any products on the site shall be placed, used, and stored in a manner that ensures that they will not enter or be released into surface or ground waters.*

Meets condition? Unknown
Observations/Comments: Neither pesticides nor herbicides were observed on the Project Site at the time of our inspection. The operator stated that only organic chemicals will be employed and recommended application rates will be followed.
Photos: None
Corrective or remedial actions needed: All pesticides, herbicides and related materials (e.g., fungicides) must be used and applied consistent with product labeling. When present, these chemicals should be stored within enclosed buildings in such a way they cannot enter or be released into surface or ground waters and where they are not a hazard to humans. Under the Order you are required to keep detailed records (logs) of the timing and volume of pesticides and herbicides used in your operations (see Appendix F).

Standard Condition #8 - General comments and recommendations: No pesticide or herbicide chemicals were observed on the Project Site during our inspection. When present, pesticides and herbicides should be stored within enclosed buildings in such a way they cannot enter or be released into surface or ground waters and they are not a hazard to humans.

For the health of the environment and your workers, you are encouraged to utilize organic or biologic controls, rather than toxic petro-chemicals, to prevent pest and mildew problems. Several safe alternatives are available. Please ask about our cultivators BMP handbook.

Under the Order you are required to keep records (logs) of the timing and volume of pesticides and herbicides used in your operations. This can be done using a simple log

form, such as the one included in Appendix F1. Additionally, for any pesticide use you must comply with any Pesticide Registration Requirements. See Appendix F2 included in the NCRWQCB Order, or on their web site at:
http://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2015/150728_Appendix_E2_DPR_MJ%20Pesticide%20Handout.pdf

4.9 Standard Condition #9. Petroleum Products and other Chemicals

a) *Petroleum products and other liquid chemicals, including but not limited to diesel, biodiesel, gasoline, and oils shall be stored so as to prevent their spillage, discharge, or seepage into receiving waters. Storage tanks and containers must be of suitable material and construction to be compatible with the substance(s) stored and conditions of storage such as pressure and temperature.*

Meets condition? No
Observations/Comments: There are currently two 500 gallon diesel storage tanks on the property, although only one is currently in use. Additionally, the operator intends to install a propane generator in the future to avoid using petroleum. Note that all petroleum products onsite will need to be stored under cover and off the ground and in a secondary containment basin (tote, tub, etc.) capable of containing the entire volume of the fuel container if there was a tank failure.
Photos: Photos 13-15
Corrective or remedial actions needed: The 500 gallon diesel storage tank which is currently in use requires a Hazardous Material Business Plan (HMBP). The second 500 gallon diesel tank which is not in use needs to have a sign stating 'NOT IN USE'. In addition, the Order requires that a Petroleum Storage Spill Prevention, Control and Countermeasures (SPCC) Plan be developed for the site

b) *Above ground storage tanks and containers shall be provided with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation.*

Meets condition? No
Observations/Comments: In addition to the two 500 gallon diesel storage tanks noted above, there are several generators on the property, at least one portable generator in use, one 15k watt generator in use and one 70k watt generator not in use. Note that all generators and petroleum products onsite will need to be stored under cover and off the ground and in a secondary containment basin (tote, tub, etc.).
Photos: Photos 15-17
Corrective or remedial actions needed: The 70k watt generator and any generator which is not in use needs to have a sign stating 'NOT IN USE'. If it is ever used again, it will have to meet all the above containment and housing requirements.

c) *Dischargers shall ensure that diked areas are sufficiently impervious to contain discharged chemicals.*

Meets condition? N/A
Observations/Comments: N/A
Photos: None
Corrective or remedial actions needed: None

d) *Discharger(s) shall implement spill prevention, control, and countermeasures (SPCC) and have appropriate cleanup materials available onsite.*

Meets condition? No
Observations/Comments: No spill prevention cleanup kit is kept onsite to help clean up small spills.
Photos: None
Corrective or remedial actions needed: Have one or more spill prevention cleanup kits onsite at all times to help clean up small spills. There should be one kit at each site where fuel is being stored or used, and where refueling takes place.

e) *Underground storage tanks 110 gallons and larger shall be registered with the appropriate County Health Department and comply with State and local requirements for leak detection, spill overflow, corrosion protection, and insurance coverage.*

Meets condition? N/A
Observations/Comments: N/A
Photos: None
Corrective or remedial actions needed: None

Standard Condition #9 - General comments and recommendations: There are currently two 500 gallon diesel storage tanks on the property, only one is in use. Additionally, there are several generators on the property, at least one portable generator in use, one 15k watt generator in use, and one 70k watt generator not in use. Note that all petroleum products onsite will need to be stored under cover and off the ground and in a secondary containment basin (tote, tub, etc.). All generators onsite and in use must be stored under cover and off the ground and must have a secondary containment basin. The 70k watt generator and any generator which is not in use needs to have a sign stating 'NOT IN USE'. One or more spill prevention cleanup kits should be kept on-site at all times to help contain and clean up small spills.

Note that the State of California requires an owner or operator of a facility to complete and submit a Hazardous Material Business Plan (HMBP) if the facility handles a hazardous material or mixture containing a hazardous material that has a quantity at any one time during the reporting year equal to or greater than: 55 gallons (liquids), 500 pounds (solids), or 200 cubic feet for compressed gas (propane). If at any time during the year you exceed any one of these quantities for use on your cultivation operations, you need to prepare and file a HMBP for your operation. Information regarding HWBPs can be found at http://ca-humboldtcounty.civicplus.com/DocumentCenter/Home/View/3224.

Additionally, while it is not explicitly stated in the Order, please note that the Humboldt County Division of Environmental Health (HCDEH) also requires that anyone that has over 55 gallons or more of any petroleum liquid at any time of the year, including fuels and waste oil, develop a Hazardous Material Business Plan (HMBP).

Finally, the Order requires that a Petroleum Storage Spill Prevention, Control and Countermeasures (SPCC) Plan is developed for the site (see the CA-EPA fact sheet: http://www.rivcoeh.org/Portals/0/documents/guidance/hazmat/FactSheetSPCC.pdf).

4.10 Standard Condition #10. Cultivation-Related Wastes

a) *Cultivation-related wastes including, but not limited to, empty soil/soil amendment/ fertilizer/pesticide bags and containers, empty plant pots or containers, dead or harvested plant waste, and spent growth medium shall, for as long as they remain on the site, be stored at locations where they will not enter or be blown into surface waters, and in a manner that ensures that residues and pollutants within those materials do not migrate or leach into surface water or groundwater.*

Meets condition? Yes
Observations/Comments: No cultivation-related wastes were observed. When present, such wastes are stored in a manner where they pose no threat to surface or groundwater. The discharger maintained good housekeeping measures at the time of our site visit.
Photos: None
Corrective or remedial actions needed: None

Standard Condition #10 - General comments and recommendations: Based on field observations, it is PWA's opinion that the Project Site was compliant with the cultivation-related wastes condition.

We encourage that you to chip or shred the plant stalks and compost them after harvest. If you burn the stalks, you can recycle the ash and add minerals to the soil by mixing the ash into your spent pots and plant holes prior to planting a cover crop at the end of the season. Burning requires that you first obtain and then follow instructions in all the necessary burn permits. Other cultivation-related waste can be easily contained by keeping soils and cultivation-related wastes greater than 200 feet from drainage areas and on gentle slopes, tarping or otherwise covering soils piles, and/or by placing straw waddles or other containment structures around the perimeter of spoils piles.

4.11 Standard Condition #11. Refuse and Human Waste

a) *Disposal of domestic sewage shall meet applicable County health standards, local agency management plans and ordinances, and/or the Regional Water Board's Onsite Wastewater Treatment System (OWTS) policy, and shall not represent a threat to surface water or groundwater.*

Meets condition? Yes
Observations/Comments: The Project site has two permitted OWTS in use; one for the 3-bedroom house and one for the 2-bedroom storage shed (shop). The systems are adequately sized for the current and expected level of use and the operator reports that they have been functioning as expected.
Photos: Photos 18-19
Corrective or remedial actions needed: None

b) *Refuse and garbage shall be stored in a location and manner that prevents its discharge to receiving waters and prevents any leachate or contact water from entering or percolating to receiving waters.*

Meets condition? Yes
Observations/Comments: All refuse and garbage is both secured properly and promptly removed on a regular basis
Photos: Photo 20
Corrective or remedial actions needed: None

c) *Garbage and refuse shall be disposed of at an appropriate waste disposal location.*

Meets condition? Yes
Observations/Comments: The operator periodically hauls refuse off site and dumps at official transfer stations.
Photos: None
Corrective or remedial actions needed: None

Standard Condition #11 - General comments and recommendations: Currently, there are two permitted OWTS in use for the 3-bedroom house and 2-bedroom storage shed (shop). Additional observations made on this Project site indicate that the operator maintains good housekeeping measures and garbage is both secured properly and promptly removed on a regular basis.

4.12 Standard Condition #12. Remediation/Cleanup/Restoration

a) *Remediation/cleanup/restoration activities may include, but are not limited to, removal of fill from watercourses, stream restoration, riparian vegetation planting and maintenance, soil stabilization, erosion control, upgrading stream crossings, road outsloping and rolling dip installation where safe and suitable, installing ditch relief culverts and overside drains, removing berms, stabilizing unstable areas, reshaping cutbanks, and rocking native-surfaced roads. Restoration and cleanup conditions and provisions generally apply to Tier 3 sites, however owners/operators of Tier 1 or 2 sites may identify or propose water resource improvement or enhancement projects such as stream restoration or riparian planting with native vegetation and, for such projects, these conditions apply similarly.*

Appendix A accompanying the NCRWQCB Order, (and Appendix A in your WRPP), *includes environmental protection and mitigation measures that apply to cleanup activities such as: temporal limitations on construction; limitations on earthmoving and construction equipment; guidelines for removal of plants and revegetation; conditions for erosion control, limitations on work in streams, riparian and wetland areas; and other measures.*

These protection and mitigation measures have been developed to prevent or reduce the environmental impacts and represent minimum, enforceable standards by which cleanup activities shall be conducted under this Order.

Meets condition? Yes

Observations/Comments: No remediation/cleanup/restoration required.
Photos: None
Corrective or remedial actions needed: None

Standard Condition #12 - General comments and recommendations: No major site remediation or clean-up work that otherwise threatened water quality was identified at the Project Site. All corrective and remedial actions needed to satisfy the other 11 Standard Conditions have been outlined above.

5.0 PRIORITIZED CORRECTIVE ACTIONS AND SCHEDULE TO REACH FULL COMPLIANCE

The following check list should be followed to become fully compliant with the Order. Please see the detailed comments and recommendations, above, for a more complete description of the problems and the needed corrective actions and monitoring requirements.

Table 1. Features Needing Improvement or Action Items (Prioritized implementation schedule for corrective actions)

Standard Condition requiring action		Treatment Priority	Schedule	Summary of Corrective Actions / Recommendations	Map point and photo #	Estimated cost	Date completed
#1 Site Maintenance, Erosion Control and Drainage Features	b	Moderate	Summer 2017	Install road drainage structures such as rolling dips to break up the road and disperse flow at frequent intervals.	N/A	TBD	
	c, d, e	Moderate	Summer 2017	Disconnect flow from the road surface/graded flat by channelizing flow at the gully so that it has one primary flow path and installing a rocked ford at the road crossing.	MP 3, Photo 2	TBD	
#2 Stream Crossing Maintenance	a, b	Moderate	Summer 2017	- Replace the culverts at stream crossing #1 and #2 with 24-inch culverts installed at grade and in-line with the natural stream channel. - Obtain all necessary permits prior to commencing work in any watercourse. Permits/agreements may include, and may not be limited to: CDFW LSAA 1602, SWRCB 401 Certification, and ACOE 404 Permit.	MP 1-2, Photos 3-4	TBD	
	f	Moderate	Summer 2017	Construct critical dips at the right hinge line of the newly installed culverts to prevent stream.	MP 2, Photo4	TBD	
#5 Water Storage and Use	a	High	Summer 2016, annually	- A Water Budget should be developed to determine water storage requirements to forbear during the low flow period from May 15 through October 31. - A Water Monitoring Plan should be developed and implemented. Under the Order, you are required to document in detail the amount of water you are diverting, storing and using through time.	N/A	--	

Table 1. Features Needing Improvement or Action Items (Prioritized implementation schedule for corrective actions)

Standard Condition requiring action		Treatment Priority	Schedule	Summary of Corrective Actions / Recommendations	Map point and photo #	Estimated cost	Date completed
	b	High	Summer 2016, annually	- Continue implementing current water conservation measures in addition to: 1) timed or volume limited drip irrigation; 2) irrigation scheduling; 3) capturing and storing rainwater; 4) the use of cover crops; 5) the use of compost and mulch fertilizer; and 6) the use of soil mediums that retain moisture. - Begin quantifying use, testing drip rates, incorporating water holding amendments and native soil during the initial soil preparation at the start of the season.	N/A	--	
	c	Moderate	Summer 2016, annually	- Work to limit or eliminate diversion of surface flows during the low flow period (May 15- October 31). - Determine if increased water storage is necessary. - Work with a qualified professional engineer (PE) and the Humboldt County Building department to design and permit a rainwater catchment pond to service your irrigation needs.	N/A	TBD	
	d	High	Summer 2016, annually	Start measuring and recording your average water usage on a per plant basis, based on type and size of plant pot, full term versus short season (light deprivation) plant, and type of irrigation, in order to refine your Water Budget.	N/A	--	
	e	Moderate	2016	File an Initial Statement of Diversion and Use (ISDU) and apply for a Small Domestic Use Appropriation with the State Water Resources Control Board Division of Water Rights for one surface water diversion to service your domestic needs.	N/A	TBD	
#7 – Fertilizers and Soil Amendments	b	High	2016	Under the Order you are required to keep detailed records (logs) of the timing and volume of fertilizers and/or other soil amendments you use in your operations (see Appendix E for log sheets).	N/A	--	
#8 – Pesticides/ Herbicides	a	High	2016	Under the Order you are required to keep detailed records (logs) of the timing and volume of pesticides, herbicides and related chemicals used in your operations (see Appendix F).	N/A	--	

Table 1. Features Needing Improvement or Action Items (Prioritized implementation schedule for corrective actions)

Standard Condition requiring action		Treatment Priority	Schedule	Summary of Corrective Actions / Recommendations	Map point and photo #	Estimated cost	Date completed
#9 Petroleum Products and other Chemicals	a	High	2016	- The 500 gallon diesel storage tank which is currently in use requires you to prepare a Hazardous Material Business Plan (HMBP) and a Petroleum Storage Spill Prevention, Control and Countermeasures (SPCC) Plan. - The second 500 gallon diesel tank which is not in use needs to have a sign stating 'NOT IN USE'. It should have containment for residual fuel contained in the tank.	MP 4-5, Photos 13-14	TBD	
	b	High	Fall 2016	- All generators and diesel tanks onsite and in use must be stored under cover and off the ground and must have a secondary containment basin. - The 70k watt generator and any generator which is not in use needs to have a sign stating 'NOT IN USE'. If it is ever used again, it will have to meet all the above containment and housing requirements.	MP 4-5, Photos 13-14	--	
	d	High	Summer 2016	Have one or more spill prevention cleanup kits onsite and easily accessible at all times to help clean up small spills. We suggest you have a kit at each storage and refueling location.	N/A	<$100	

6.0 MONITORING AND INSPECTION PLAN

Under the Order, sites are required to be monitored and inspected periodically to ensure conformance with the 12 Standard Conditions. In most cases, inspections and records of inspections identify conditions that have been corrected and are now in compliance; conditions that remain in compliance; and conditions that have changed and may no longer be in compliance with the Order. An inspection and monitoring plan is used to document these conditions, identify problems and make corrections using best management practices (BMPs) to protect water quality (Appendix A).

Monitoring Plan – Please refer to Appendix B and Figure 2 to review the monitoring plan and specific monitoring points for which you are responsible.

Monitoring guidelines and reporting standards have been created by the NCRWQCB as part of the Order. Monitoring of the project site includes visual inspection and photographic documentation of each feature of interest listed on the project site map, with new photographic documentation recorded with any notable changes to the feature of interest.

Site inspection schedule - According to the NCRWQCB, periodic inspections should include visual inspection of the site, including any management measures/practices, to ensure they are being implemented correctly and are functioning as expected. Inspections include photographic documentation of any controllable sediment discharge sites, as identified on the site map, and a visual inspection of those locations on the site where pollutants or wastes, if uncontained, could be transported into receiving waters, and those locations where runoff from roads or developed areas drains into or towards surface water.

At a minimum, sites shall be inspected at the following times to ensure timely identification of changed site conditions and to determine whether implementation of additional management measures is necessary to prevent or minimize discharges of waste or pollutants to surface water:

1) Before and after any significant alteration or upgrade to a given stream crossing, road segment, or other controllable sediment discharge site. Inspection should include photographic documentation, with photo records to be kept on-site.
2) Prior to October 15 to evaluate site preparedness for storm events and stormwater runoff.
3) Following the accumulation of 3 inches cumulative precipitation (starting September 1st) or by December 15th, whichever is sooner.
4) Following any rainfall event with an intensity of 3 inches precipitation in 24 hours. Precipitation data can be obtained from the National Weather Service by entering the site zip code at http://www.srh.noaa.gov/forecast; Pick the nearest or most relevant zip code and then select the 3 day history that will also show precipitation totals.

Inspection and Monitoring Checklist – Appendix B contains a checklist data form that will be used by the landowner and/or operator to 1) document inspection dates, 2) document visual and photographic inspection results, 3) describe remediation and management measures that are being applied, 4) identify new problems and their treatments, and 5) document the progress and effectiveness of implementing remedial and corrective measures that are needed to meet the 12 Standard Conditions, as outlined in this WRPP. Appendix C contains photo documentation of your

monitoring points and will need to be updated as corrective treatments are implemented and treatments are monitored and evaluated over time.

Annual Reporting – An Annual Report is to be submitted directly to the NCRWQCB or to PWA (through their 3rd Party Program). The information in the annual reporting form must be submitted by March 31 of each year. The reported information is to be reflective of current site conditions, and includes monitoring data and tasks accomplished to protect water quality. Among other things, the report includes such items as the reporting of monthly monitoring data collected during the year (e.g., chemical use, water diversions, water storage, water use, etc.), management measures (BMPs) applied during the year and their effectiveness, and tasks accomplished during the year towards meeting each of the 12 Standard Conditions identified as deficient in this WRPP.

7.0 WATER USE PLAN

Requirements - According to the Order, a Water Use Plan shall record water source, relevant water right documentation, and amount used monthly. All water sources shall be recorded, including alternative sources such as rain catchment and groundwater, and/or hauled water. Other elements of the Water Use Plan will include:

- Developing a water budget for determining the timing and volume of actual water use on the site. Water related data will be summarized monthly for the preceding month.
- Designing and implementing water conservation measures to reduce water diversion and water use.
- Calculating water storage requirements needed to support cultivation activities during the dry season, and implementing those required storage measures

The Water Use Plan must also describe water conservation measures and document your approach to ensure that the quantity and timing of water use is not impacting water quality objectives and beneficial uses (including cumulative impacts based on other operations using water in the same watershed). Water use will only be presumed to not adversely impact water quality under one of the following scenarios:

- No surface water diversions occur from May 15 to October 31.
- Water diversions are made pursuant to a local plan that is protective of instream beneficial uses.
- Other options that may affect water quality: (e.g., percent of flow present in stream; minimum allowable riffle depth; streamflow gage at bottom of Class I stream; AB2121 equations; CDFW instream flow recommendations; promulgated flow objective in Basin Plan; etc.).

Site Water Use Plan –The record of activities, accomplishments and water monitoring results for the Water Use Plan for this site will be logged and recorded in data tables and site records in Appendix D of this WRPP. These will be tracked and kept up-to-date by the landowner or cultivator of the site.

Water Conservation - Water conservation measures currently practiced include using controlled

hand watering, and watering late in the afternoon or evening to minimize water loss through evaporation and maximize water up-take by the plants; the use of compost and mulch fertilizer; and the use of soil mediums that retain moisture. Starting this year, new water conserving techniques and equipment will be utilized and tested, to evaluate effectiveness and efficiency.

Water sources and use – Domestic water for the site is supplied from an off-site spring diversion that flows year round. Two ground water wells service irrigation needs. There is approximately 225,300 gallons of water storage in tanks and one bladder on the Project Site.

You will need to develop a water budget to determine your overall water needs for both domestic and irrigation purposes. You goal should be to minimize (or eliminate) you groundwater pumping for irrigation uses during the dry summer period. The water budget and water monitoring is also needed to ensure you limit or eliminate diversion of surface flows during the low flow period (May 15- October 31).

Over the course of the current season, water use will be documented using the log forms attached in Appendix D3. As more accurate data is gathered, refined targets can be made to ensure water conservation and efficiency are of the utmost importance. Water rights notifications and registrations for the spring diversion will be submitted to the State Water Resource Control Board (Division of Water Rights) and a Lake and Streambed Alteration Agreement (LSAA) sought through the California Department of Fish and Wildlife (CDFW).

8.0 LIST OF CHEMICALS

The WRPP must contain a list of chemicals being stored on site, in addition to quantities used and frequency of application. These include fertilizers/soil amendments, pesticides, herbicides, petroleum products and other chemicals used in, or associated with, your cultivation activities and related operations.

Because this is the first year of enrollment, information regarding chemical use and storage is deficient or anecdotal. Appendices E and F contains monitoring forms that should be used to list the chemical inventory record over time, as supplies are added to the site and used during the growing season. The landowner or operator will use these forms to track the types, storage volumes, timing of application, and volume of use of these products throughout the year. The initial chemicals and amendment list that may be used and stored onsite include:

Fertilizers and amendments:
Microbezen compost tea
Fish Fusion NPK 1.9-0.8-0.2
Primordial Solutions True Blooms NPK 0.1-0.3-0.5
Krazy Kelp sea kelp supplement
Worm Castings

Pesticides, Herbicides, and Fungicides:
Azatrol, OMRI Listed

Petroleum and Other Chemicals:
Gasoline

9.0 LANDOWNER/ LESSEE CERTIFICATION/SIGNATURES

This Water Resource Protection Plan (WRPP) has been prepared by Pacific Watershed Associates, an approved Third Party Program acting on behalf of the North Coast Regional Water Quality Control Board (NCRWQCB).

"I have read and understand this WRPP, including Section 2.0 – Certifications, Conditions and Limitations. I agree to comply with the requirements of the California Regional Water Quality Control Board North Coast Region Order No. 2015-0023 (Waiver of Waste Discharge Requirements and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region), including the recommendations and actions listed in this WRPP."

Name of legally responsible person (LRP) Brian Mitchell

Title (owner, lessee, operator, etc.): Landowner; Operator

Signature: _____ Date: 8/5/16

WRPP prepared by (if different from LRP): **Pacific Watershed Associates, Inc.**

WRPP prepared and finalized on (date): _____

Signature: _____ Date: _____

Best Management Practices for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects

I. Introduction

Best management practices (BMPs) provided here may be applicable to prevent, minimize, and control the discharge of waste and other controllable water quality factors associated with site restoration/cleanup/remediation and site operations and maintenance. These BMPs are all considered enforceable conditions under the Order as applicable to a given site, and are referenced by and made conditions in the mitigated negative declaration (CEQA document) for the Order, as well.

This appendix to Order No. R1-2015-0023 includes section II. Standard BMPs for Construction, section III. BMPs for Site Maintenance and Operations (per standard conditions), and section IV. References. For additional BMP suggestions, staff encourage consultation of the various manuals listed in section IV. References, many of which are available online for free.

II. Standard BMPs for Construction

Where applicable during restoration, remediation, cleanup, or site maintenance activities, the following BMPs will be used.

A. General BMPs to Avoid or Minimize Adverse Impacts

Temporal Limitations on Construction

1. To avoid impacting migrating fish and causing erosion and sedimentation of the stream channel, the project work season shall be from May 1 to October 15. If operations are to be conducted during the winter period from October 15 to May 1, a winter period operating plan must be incorporated into the project work plan. This plan shall include specific measures to be taken in the winter operating period to avoid or substantially lessen erosion and sedimentation into surface waters.
2. A 2-day (48-hour) forecast[1] of rain shall be the trigger for temporary cessation of project activities and winterization/erosion protection of the work site.

[1] Any weather pattern that is forecasted by NOAA to have a 50% or greater probability of producing precipitation in the project area. The permittee shall obtain and keep for record likely precipitation forecast information from

Limitation on Earthmoving

3. Disturbance to existing grades and vegetation shall be limited to the actual site of the cleanup/remediation and necessary access routes.
4. Placement of temporary access roads, staging areas, and other facilities shall avoid or minimize disturbance to habitat.
5. Disturbance to native shrubs, woody perennials or tree removal on the streambank or in the stream channel shall be avoided or minimized. If riparian trees over six inches dbh (diameter at breast height) are to be removed, they shall be replaced by native species appropriate to the site at a 3:1 ratio. Where physical constraints in the project area prevent replanting at a 3:1 ratio and canopy cover is sufficient for habitat needs, replanting may occur at a lesser replacement ratio.
6. If shrubs and non-woody riparian vegetation are disturbed, they shall be replaced with similar native species appropriate to the site.
7. Whenever feasible, finished grades shall not exceed 1.5:1 side slopes. In circumstances where final grades cannot achieve 1.5:1 slope, additional erosion control or stabilization methods shall be applied as appropriate for the project location.
8. Spoils and excavated material not used during project activities shall be removed and placed outside of the 100-year floodplain, and stored/disposed of in compliance with Order conditions related to spoils management.
9. Upon completion of grading, slope protection of all disturbed sites shall be provided prior to the rainy season through a combination of permanent vegetative treatment, mulching, geotextiles, and/or rock, or equivalent.
10. Vegetation planting for slope protection purposes shall be timed to require as little irrigation as possible for ensuring establishment by the commencement of the rainy season.
11. Only native plant species shall be used with the exception of non-invasive, non-persistent grass species used for short-term vegetative cover of exposed soils.
12. Rock placed for slope protection shall be the minimum necessary to avoid erosion, and shall be part of a design that provides for native plant revegetation and minimizes bank armoring.

Limitations on Construction Equipment

13. Dischargers and/or their contractors shall ensure that chemical contamination (fuel, grease, oil, hydraulic fluid, solvents, etc.) of water and soils is prohibited during routine equipment operation and maintenance.
14. Heavy equipment shall not be used in flowing water. Please refer to BMPs 57 through 64 for dewatering of live streams.

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the National Weather Service Forecast Office (e.g. by entering the zip code of the project's location at http://srh.noaa.gov/forecast).

15. When possible, existing ingress or egress points shall be used or work shall be performed from the top of the creek banks.
16. Use of heavy equipment shall be avoided or minimized in a channel bottom with rocky or cobbled substrate.
17. If project work or access to the work site requires heavy equipment to travel on a channel bottom with rocky or cobbled substrate, wood or rubber mats shall be placed on the channel bottom prior to use by heavy equipment.
18. Heavy equipment shall not introduce chemicals or foreign sediment to the channel (e.g., remove mud from tracks or cover channel work area with plastic sheeting prior to heavy equipment entry).
19. The amount of time this equipment is stationed, working, or traveling within the channel shall be minimized.
20. When heavy equipment is used, any woody debris and stream bank or streambed vegetation disturbed shall be replaced to a pre-project density with native species appropriate to the site. If riparian trees over six inches dbh are to be removed, they shall be replaced by native species appropriate to the site at a 3:1 ratio per BMP 5.
21. The use or storage of petroleum-powered equipment shall be accomplished in a manner that prevents the potential release of petroleum materials into waters of the state (Fish and Game Code 5650). To accomplish this, the following precautionary measures shall be followed:
    - Schedule excavation and grading activities for dry weather periods.
    - Designate a contained area for equipment storage, short-term maintenance, and refueling. Ensure it is located at least 50 feet from waterbodies.
    - Inspect vehicles for leaks and repair immediately.
    - Clean up leaks, drips and other spills immediately to avoid soil or groundwater contamination.
    - Conduct major vehicle maintenance and washing offsite (except as necessary to implement BMP 18).
    - Ensure that all spent fluids including motor oil, radiator coolant, or other fluids and used vehicle batteries are collected, stored, and recycled as hazardous waste offsite.
    - Ensure that all construction debris is taken to appropriate landfills and all sediment disposed of in upland areas or offsite, beyond the 100-year floodplain.
    - Use dry cleanup methods (e.g., absorbent materials, cat litter, and/or rags) whenever possible. If necessary for dust control, use only a minimal amount of water.
    - Sweep up spilled dry materials immediately.

Revegetation and Removal of Exotic Plants

22. The work area shall be restored to pre-project work condition or better.

23. All exposed soil resulting from the cleanup/restoration activities shall be revegetated using live planting, seed casting or hydroseeding.
24. Any stream bank area left barren of vegetation as a result of cleanup/restoration activities shall be stabilized by seeding, replanting, or other means with native trees, shrubs, and/or grasses appropriate to the site prior to the rainy season in the year work was conducted.
25. Soil exposed as a result of project work, soil above rock riprap, and interstitial spaces between rocks shall be revegetated with native vegetation by live planting, seed casting, or hydroseeding prior to the rainy season of the year work is completed.
26. The spread or introduction of exotic plant species shall be avoided to the maximum extent possible by avoiding areas with established native vegetation during cleanup/restoration activities, restoring disturbed areas with appropriate native species, and post-project monitoring and control of exotic species.
27. Removal of invasive exotic species is strongly recommended. Mechanical removal (hand tools, weed whacking, hand pulling) of exotics shall be done in preparation for establishment of native perennial plantings.
28. Revegetation shall be implemented after the removal of exotic vegetation occurs. Erosion control implementation shall be timed in accordance with BMPs 1 and 2.
29. Native plants characteristic of the local habitat shall be used for revegetation when implementing and maintaining cleanup/restoration work in riparian and other sensitive areas. Non-invasive, non-persistent grass species (e.g., barley grass) may be used for their temporary erosion control benefits to stabilize disturbed slopes and prevent exposure of disturbed soils to rainfall.
30. Annual inspections for the purpose of assessing the survival and growth of revegetated areas and the presence of exposed soil shall be conducted for three years following project work.
31. Dischargers and/or their consultant(s) or third party representative(s) shall note the presence of native/non-native vegetation and extent of exposed soil, and take photographs during each inspection.
32. Dischargers and/or their consultant(s) or third party representative(s) shall provide the location of each work site, pre- and post-project work photos, diagram of all areas revegetated and the planting methods and plants used, and an assessment of the success of the revegetation program in the annual monitoring report as required under the Order.

Erosion Control

33. Erosion control and sediment detention devices and materials shall be incorporated into the cleanup/restoration work design and installed prior to the end of project work and before the beginning of the rainy season. Any continuing, approved project work conducted after October 15 shall have erosion control works completed up-to-date and daily.

34. Erosion control materials shall be, at minimum, stored on-site at all times during approved project work between May 1 and October 15.
35. Approved project work within the 5-year flood plain shall not begin until all temporary erosion controls (straw bales or silt fences that are effectively keyed-in) are installed downslope of cleanup/restoration activities.
36. Non-invasive, non-persistent grass species (e.g., barley grass) may be used for their temporary erosion control benefits to stabilize disturbed slopes and prevent exposure of disturbed soils to rainfall.
37. Upon work completion, all exposed soil present in and around the cleanup/restoration sites shall be stabilized within 7 days.
38. Soils exposed by cleanup/restoration operations shall be seeded and mulched to prevent sediment runoff and transport.

Miscellaneous

39. During temporary stream crossing siting, locations shall be identified where erosion potential is low. Areas where runoff from roadway side slopes will spill into the side slopes of the crossing shall be avoided.
40. Vehicles and equipment shall not be driven, operated, fueled, cleaned, maintained, or stored in the wet or dry portions of a waterbody where wetland vegetation, riparian vegetation, or aquatic organisms may be impacted.
41. Riparian vegetation, when removed pursuant to the provisions of the work, shall be cut off no lower than ground level to promote rapid re-growth. Access roads and work areas built over riparian vegetation shall be covered by a sufficient layer of clean river run cobble to prevent damage to the underlying soil and root structure. The cobble shall be removed upon completion of project activities.
42. Avoidance of earthwork on steep slopes and minimization of cut/fill volumes, combined with proper compaction, shall occur to ensure the area is resilient to issues associated with seismic events and mass wasting. If cracks are observed, or new construction is anticipated, consultation with a qualified professional is appropriate.
43. Operations within the 100-year floodplain shall be avoided. Refuse and spoils shall not be stored within the hundred-year floodplain. If roads are located within the 100-year floodplain, they shall be at grade; bridges shall have vented approaches and bridge deck shall be above anticipated 100-year flood water surface elevations. Consultation with a qualified professional is required for project work within the floodplain. .
44. Project work-related dust shall be controlled. Dust control activities shall be conducted in such a manner that will not produce sediment-laden runoff. Dust control measures, including pre-watering of excavation/grading sites, use of water trucks, track-out prevention, washing down vehicles/equipment before leaving site, and prohibiting grading/excavation activities during windy periods, shall be implemented as appropriate.

45. Short term impacts from project work-related emissions can be minimized via retrofitting equipment and use of low emissions vehicles when possible.
46. Position vehicles and other apparatus so as to not block emergency vehicle access.

B. BMPs for Specific Activities

Critical Area Planting, Channel Vegetation and Restoration and Management of Declining Habitats

The following measures shall be employed:

47. Plant materials used shall be native to the site and shall be locally collected if possible.
48. Straw mulch shall be applied at a rate of 2 tons per acre of exposed soils and, shall be secured to the ground.
49. When implementing or maintaining a critical area planting above the high water line, a filter fabric fence, straw wattles, fiber rolls and/or hay bales shall be utilized to keep sediment from flowing into the adjacent water body.

Structure for Water Control and Stream Crossings

These practices shall be used generally to replace or retrofit existing culverts and to install culverts where water control is needed at a stream crossing or road ditch to restore natural hydrology, and to reduce potential diversions and road-related erosion. In addition to the general limitations set forth in the previous section, the following measures shall be employed for these types of projects:

50. Culvert fill slopes shall be constructed at a 2:1 slope or shall be armored with rock.
51. All culverts in fish-bearing streams and in streams where fish have historically been found and may potentially re-occur, shall be designed and constructed consistent with NMFS Southwest Region's Guidelines for Salmonid Passage at Stream Crossings (NMFS 2000) and CDFG's Culvert Criteria for Fish Passage (CDFG 2002).

Limitations on Work in Streams and Permanently Ponded Areas

52. If it is necessary to conduct work in or near a live stream, the work space shall be isolated to avoid project activities in flowing water.
53. Water shall be directed around the work site.
54. Ingress/egress points shall be utilized and work shall be performed from the top of the bank to the maximum extent possible.
55. Use of heavy equipment in a channel shall be avoided or minimized. Please refer to BMPs 57 through 64 for dewatering of live streams. The amount of time construction equipment is stationed, working or traveling within the creek bed shall be minimized.

56. If the substrate of a seasonal pond, creek, stream or water body is altered during work activities, it shall be returned to approximate pre-construction conditions after the work is completed.

Temporary Stream Diversion and Dewatering: All Live Streams

57. For project work in a flowing or pooled stream or creek reach, or where access to the stream bank from the channel bottom is necessary, the work area shall be isolated with the use of temporary cofferdams upstream and downstream of the work site and all flowing water shall be diverted around the work site throughout the project period.
58. Other approved water diversion structures shall be utilized if installation of cofferdams is not feasible.
59. Cofferdam construction using offsite river-run gravel and/or sand bags is preferred. If gravel materials for cofferdams are generated onsite, measures shall be taken to ensure minimal disturbance to the channel, such as careful extraction from elevated terraces. The upstream end of the upstream cofferdam shall also be reinforced with thick plastic sheeting to minimize leakage.
60. Gravity diversions are preferred to pumping as dewatering techniques. If pumping is required to supplement gravity diversions, care shall be taken to minimize noise pollution and prevent the pump or generator-borne pollution to the watercourse.
61. The diversion pipe shall consist of a large plastic HDPE or ADS pipe or similar material, of a sufficient diameter to safely accommodate expected flows at the site during the full project period.
62. The pipe shall be protected from project activities to ensure that bypass flows are not interrupted.
63. Continuous flow downstream of the work site shall be maintained at all times during project work.
64. When project work is complete, the flow diversion structure shall be removed in a manner that allows flow to resume with a minimum of disturbance to the substrate.

Protection of Sensitive Species

65. Sensitive species - Consult with federal, state and local agencies regarding location of rare, threatened or endangered species.
66. Prior to commencing work, designate and mark a no-disturbance buffer to protect sensitive species and communities.
67. All work performed within waters of the state shall be completed in a manner that minimizes impacts to beneficial uses and habitat. Measures shall be employed to minimize land disturbances that shall adversely impact the water quality of waters of the state. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation.

68. All equipment, including but not limited to excavators, graders, barges, etc., that may have come in contact with extremely invasive animals (e.g. zebra mussels or new Zealand mud snails) or plant (e.g., Arundo donax, scotch broom, pampas grass) or the seeds of these plants, shall be carefully cleaned before arriving on site and shall also be carefully cleaned before removal from the site, to prevent spread of these plants.
69. Vegetation shall be established on disturbed areas with an appropriate mix of California native plants and/or seed mix. All initial plantings and seed shall be installed prior to completion of the project work.

III. BMPs for Site Maintenance and Operations (per standard conditions)

The following BMPs are intended to address compliance with the standard conditions. Individual or multiple BMPS may be selected to address compliance with a given standard condition depending on site-specific conditions. BMPs are considered enforceable conditions as applicable to a given site.

A. Site Maintenance, Erosion Control, Drainage Features

70. Drainage of roads, clearings, fill prisms, and terraced areas is critical to ensuring their integrity and to prevent or minimize sediment discharges to watercourses. Proper design and location of roads and other features is critical to ensuring that a road or other feature be adequately drained and is best accomplished through consultation with a qualified professional. If inspection identifies surface rills or ruts, surfacing and drainage likely needs maintenance.
71. Surfacing of exposed/disturbed/bare surfaces can greatly reduce erosion associated with runoff. BMP features such as vegetative ground cover, straw mulch, slash, wood chips, straw wattles, fiber rolls, hay bales, geotextiles, and filter fabric fences may be combined and implemented on exposed/disturbed/bare surfaces as appropriate to prevent or minimize sediment transport and delivery to surface waters. Non-invasive, non-persistent grass species (e.g. barley grass) may be used for their temporary erosion control benefits to stabilize bare slopes and prevent exposure of bare soils to rainfall. If utilized, straw mulch shall be applied at a rate of 2 tons per acre of exposed soils and, if warranted by site conditions, shall be secured to the ground. Consultation with a qualified professional is recommended for successful site-specific selection and implementation of such surface treatments. Guidance literature pertaining to such BMPs is referenced in section IV. of this document.
72. Road surfacing, especially within a segment leading to a watercourse, is critical to prevent and minimize sediment delivery to a watercourse and maintain road integrity for expected uses. Road surfacing can include pavement, chip-seal, lignin, rock, or other material appropriate for timing and nature of use. Steeper sections of road require higher quality rock (e.g. crushed angular versus river-run) to remain in place.

73. Road shaping to optimize drainage includes out-sloping and crowning; shaping can minimize reliance on inside ditches. Drainage structures can include rolling dips and water bars within the road surface and ditch-relief culverts to drain inside ditches. Adequate spacing of drainage structures is critical to reduce erosion associated with runoff. Generally speaking, steep slopes require greater frequency of drainage structures. The drainage structures shall be maintained to ensure capture of and capacity for expected flow. The outlets of the structures shall be placed in such a manner as to avoid discharge onto fill, unstable areas, or areas that can enter a watercourse. If site conditions prohibit drainage structures at an adequate interval to avoid erosion, bioengineering techniques[2] are the preferred solution (e.g. live fascines), but other techniques may also be appropriate including armoring (i.e. rock of adequate size and depth to remain in place under traffic and flow conditions) and velocity dissipaters (e.g. gravel-filled "pillows" in an inside ditch to trap sediment). In the case that inside ditches need maintenance, grade ditches only when and where necessary, since frequent routine mechanical grading can cause erosion of the ditch, undermine banks, and expose the toe of the cutslope to erosion. Do not remove more leaves and vegetation than necessary to keep water moving, as vegetation prevents scour and filters out sediment.
74. Road drainage shall be discharged to a stable location away from a watercourse. Use sediment control devices, such as check dams, sand/gravel bag barriers, and other acceptable techniques, when it is neither practical nor environmentally sound to disperse ditch water immediately before the ditch reaches a stream. Within areas with potential to discharge to a watercourse (i.e. within riparian areas of at least 200 feet of a stream) road surface drainage shall be filtered through vegetation, slash, or other appropriate material or settled into a depression with an outlet with adequate drainage. Caution should always be exercised with catchment basins in the event of failure.
75. Any spoils associated with site maintenance shall be placed in a stable location where it cannot enter a watercourse. Sidecasting shall be minimized and shall be avoided on unstable areas or where it has the potential to enter a watercourse.
76. Do not sidecast when the material can enter the stream directly or indirectly as sediment. Sidecast material can indirectly enter the stream when placed in a position where rain or road runoff can later deliver it to a channel that connects with the stream.
77. Disconnect road drainage from watercourses (drain to hill slopes), install drainage structures at intervals to prevent erosion of the inboard ditch or gull formation at the hill slope outfall, outslope roads.

[2] A Primer on Stream and River Protection for the Regulator and Program Manager: Technical Reference Circulare W.D. 02-#1, San Francisco Bay Region, California Regional Water Quality Control Board (April 2003) http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stream_wetland/streamprotectioncircular.pdf

78. Ditch-relief culverts shall also be inspected regularly, and cleared of debris and sediment. To reduce plugging, 15 to 24-inch diameter pipes shall be the minimum size considered for ditch relief culverts and shall be informed by site-specific conditions.
79. Grade ditches only when and where necessary, since frequent routine mechanical grading can cause erosion of the ditch, undermine banks, and expose the toe of the cutslope to erosion. Do not remove more grass and weeds than necessary to keep water moving, as vegetation prevents scour and filters out sediment.
80. Use sediment control devices, such as check dams, sand/gravel bag barriers, and other acceptable techniques, when it is neither practical nor environmentally sound to disperse ditch water immediately before the ditch reaches a stream.

B. Stream Crossing Maintenance

81. Proper maintenance of stream crossings is critical to ensure support of beneficial uses of water. Regular inspection and maintenance is necessary to identify, in a timely manner, if problems are occurring. Crossings include rock fords[3], armored fills with culverts[3], and bridges[3].
82. Rock fords are appropriate when temporary and minor moisture or over-land flow is expected, not typically when a bed and bank is present; exceptions may be justified if warranted by site specific conditions. Additionally, rock fords are appropriate if aquatic life is not present. An adequate layer of crushed angular rock shall be maintained at rock fords such that soil compaction is minimized under expected traffic levels.
83. Stream crossings consisting of armored fills with culverts and bridges are appropriate for streams with defined bed and bank[2]. They shall be sized to ensure the 100-year streamflow event can pass unimpeded. Additionally, crossings shall allow migration of aquatic life during all life stages potentially supported by that stream reach; water depth and velocity can inhibit migration of adult and juvenile fish species.
84. Stream crossing design and installation is best accomplished with the assistance of a qualified professional. Site conditions can change over time (e.g. channel filling or incision); consultation with a qualified professional is appropriate to evaluate maintenance or replacement needs and opportunities.
85. Regular inspection of the stream crossing is appropriate to identify changed conditions within the stream channel (e.g., bank erosion, headward incision, and channel filling).
    - If large wood is accumulated upstream or within the crossing that could impede or deflect flow and result in erosion or debris capture, the wood

[3] Explanation of term, available within the following document (as of the date of the Order): http://www.pacificwatershed.com/sites/default/files/handbook_chapter_download_page.pdf

should generally be removed. In some cases, it may be appropriate to re-orient debris with the streamflow.

- If sediment or debris is accumulated within a culvert and limits flow capacity, the short term solution should generally be to clean out the culvert and place the debris and sediment in a stable location with no potential to discharge into a stream. In some cases a trash rack, post, or other deflection structure at the culvert inlet can reduce plugging.
- If sediment is accumulated in a culvert without other debris accumulation and limits flow capacity, the long term solution may generally involve changing the culvert's slope, diameter, or embedment in the streambed.

86. The roadway adjacent to and over the crossing is an area of potential discharge. All road surfaces approaching a crossing shall be drained before the crossing, adequately filtered through vegetation or other material, and not discharged to a watercourse. If turbid water is discharged at a stream crossing, additional measures to control erosion at the source(s) or to remove sediment prior to discharge shall be implemented. Road surfaces shall be of rock, pavement, or other material appropriate for type and level of use.
87. If a culvert is used, the approaches and fill slopes shall be properly compacted during installation and shall be stabilized with rock or other appropriate surface protection to minimize surface erosion and slumping to the receiving waters. If possible, the road surface over the culvert shall have a critical-dip to ensure that if the culvert becomes plugged, water can flow over the road surface without washing away the fill prism. If site-specific conditions do not allow for a critical dip, alternatives such as emergency overflow culverts, oversized culvers, flared inlets, and debris racks may be warranted.

C. Riparian and Wetland Protection and Management:

88. Buffer width will be in compliance with Tier category.
89. Trees within riparian areas shall be retained for natural recruitment to streams. Large woody debris (LWD) shall be retained in stream or within riparian areas. The size of wood that can be beneficial to the stream will vary depending on the size of the stream (i.e., larger pieces of wood are necessary to withstand flows in large streams). In the event that LWD or trees are disturbed during excavation, care shall be taken to separate the LWD from soil. The pieces shall be stockpiled separately until they can be replaced in appropriate locations to enhance instream or riparian conditions. Placement of instream wood for habitat enhancement should be done under the consultation of a qualified professional and in conformance with applicable regulatory permits.
90. Avoidance of disturbance in riparian areas (within 200 feet of a watercourse) should result in protection and restoration of the quality/health of the riparian stand so as to promote: 1) shade and microclimate controls; 2) delivery of wood to channels, 3) slope stability and erosion control, 4) ground cover, and 5) removal of excess nutrients. This recognizes the importance of the riparian zone

with respect to temperature protection, sediment delivery, its importance with respect to the potential for recruitment of large wood, and removal of nutrients transported in runoff. In the event that past disturbance has degraded riparian conditions, replanting with native species capable of establishing a multi-storied canopy will ensure these riparian areas can perform these important ecologic functions.

D. Spoils Management

To ensure spoil pile stability and to reduce the potential for spoil pile slope failure or transport to waters of the state, the following measures shall be implemented when placing or disposing of spoils onsite:

91. Rip compacted soils prior to placing spoils to prevent the potential for ponding under the spoils that could result in spoil site failure and subsequent sedimentation;
92. Compact and contour stored spoils to mimic the natural slope contours and drainage patterns to reduce the potential for fill saturation and failure;
93. Ensure that spoil materials are free of woody debris, and not placed on top of brush, logs or trees.
94. Spoils shall not be placed or stored in locations where soils are wet or unstable, or where slope stability could be adversely affected.
95. Do not locate spoil piles in or immediately adjacent to wetlands and watercourses.
96. Store spoil piles in a manner (e.g. cover pile with plastic tarps and surround base of pile with straw wattle) or location that would not result in any runoff from the spoil pile ending up in wetlands and watercourses.
97. Separate organic material (e.g., roots, stumps) from the dirt fill and store separately. Place this material in long-term, upland storage sites, as it cannot be used for fill.
98. Keep temporary disposal sites out of wetlands, adjacent riparian corridors, and ordinary high water areas as well as high risk zones, such as 100-year floodplain and unstable slopes.
99. After placement of the soil layer, track walk the slopes perpendicular to the contour to stabilize the soil until vegetation is established. Track walking creates indentations that trap seed and decrease erosion of the reclaimed surfaces.
100. Revegetate the disposal site with a mix of native plant species. Cover the seeded and planted areas with mulched straw at a rate of 2 tons per acre. Apply jute netting or similar erosion control fabric on slopes greater than 2:1 if site is erosive.

E. Water Storage and Use

WATER USE

101. Conduct operations on a size and scale that considers available water sources and other water use and users in the planning watershed.
102. Implement water conservation measures such as rainwater catchment systems, drip irrigation, mulching, or irrigation water recycling. (Also see BMPs for Irrigation, below)
103. Take measures to minimize water diversion during low flow periods.
104. Options for documentation of water diversions and/or water usage may include the use of water meter devices and date-stamped photographs of water meter readings.
105. Hauled water utilized for irrigation shall be documented via receipt or similar, and show the date, name, and license plate of the water hauler, and the quantity of water purchased.
106. Apply water at agronomic rates (do not overwater plants).

WATER STORAGE

107. If using a water storage tank, do not locate the tank in a flood plain or next to equipment that generates heat. Locate the tank so it is easy to install, access, and maintain.

108. Vertical tanks should be installed according to manufacturer's specifications and placed on firm, compacted soil that is free of rocks/sharp objects and capable of bearing the weight of the tank and its maximum contents. In addition, a sand or pea gravel base with provisions for preventing erosion is highly recommended. Installation sites for tanks 8,000 gallons or more must be on a reinforced concrete pad providing adequate support and enough space to attach a tank restraint system (anchor using the molded-in tie down lugs with moderate tension, being careful not to over-tighten), especially where seismic or large wind forces are present.

109. Horizontal tanks shall be secured with bands and/or hoops to prevent tank movement.
110. Design and construct storage ponds in properly sited locations, off-stream. Plant vegetation along the perimeter of the pond. Construct berms or excess freeboard space around the perimeter of the pond to allow for sheet flow inputs.
111. Provide adequate outlet drainage for overflow of ponds, including low impact designs, to promote dispersal and infiltration of flows.
112. Place proper lining or sealing in ponds to prevent water loss.

113. Storage bladders are not encouraged for long term water storage reliability. If they are utilized, ensure that they are designed to store water, and that they are sited to minimize potential for water to flow into a watercourse in the event of a catastrophic failure. Used bladders (e.g. military surplus bladders) shall be checked for interior residual chemicals and integrity prior to use. Inspect bladder and containment features periodically to ensure integrity.

F. Irrigation Runoff

114. Irrigate at rates to avoid or minimize runoff.
115. Regularly inspect for leaks in mains and laterals, in irrigation connections, or at the ends of drip tape and feeder lines. Repair any found leaks.
116. Design irrigation system to include redundancy (i.e., safety valves) in the event that leaks occur, so that waste of water is prevented and minimized.
117. Recapture and reuse irrigation runoff (tailwater) where possible, through passive (gravity-fed) or active (pumped) means.
118. Construct retention basins for tailwater infiltration; percolation medium may be used to reduce pollutant concentration in infiltrated water. Constructed treatment wetlands may also be effective at reducing nutrient loads in water. Ensure that drainage and/or infiltration areas are located away from unstable or potentially unstable features.
119. Regularly replace worn, outdated or inefficient irrigation system components and equipment.
120. Use mulches (e.g. wood chips or bark) in cultivation areas that do not have ground cover to prevent erosion and minimize evaporative loss.
121. Leave a vegetative barrier along the property boundary and interior watercourses to act as a pollutant filter.
122. Employ rain-triggered shutoff devices to prevent irrigation after precipitation.

G. Fertilizers, Soil Amendments, Pesticides, Petroleum Products, and Other Chemicals

123. Evaluate irrigation water, soils, growth media, and plant tissue to optimize plant growth and avoid over-fertilization.
124. Reference Department of Pesticide Regulations Guidance (see Attachments E-1 and E-2 of Order No. R1-2015-0023)
125. All chemicals shall be stored in a manner, method, and location that ensures that there is no threat of discharge to waters of the state.
126. Products shall be labeled properly and applied according to the label.
127. Use integrated pest management strategies that apply pesticides only to the area of need, only when there is an economic benefit to the grower, and at times when runoff losses are least likely, including losses of organic matter from dead plant material.

128. Periodically calibrate pesticide application equipment.
129. Use anti-backflow devices on water supply hoses, and other mixing/loading practices designed to reduce the risk of runoff and spills.
130. Petroleum products shall be stored with a secondary containment system.
131. Throughout the rainy season, any temporary containment facility shall have a permanent cover and side-wind protection, or be covered during non-working days and prior to and during rain events.
132. Materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition. Damaged or otherwise illegible labels shall be replaced immediately.
133. Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials shall be covered during non-working days and prior to rain events.
134. Have proper storage instructions posted at all times in an open and conspicuous location.
135. Prepare and keep onsite a Spill Prevention, Countermeasures, and Cleanup Plan (SPCC Plan) if applicable[4].
136. Keep ample supply of appropriate spill clean-up material near storage areas.

H. Cultivation-Related Wastes

137. Cultivation-related waste shall be stored in a place where it will not enter a stream. Soil bags and other garbage shall be collected, contained, and disposed of at an appropriate facility, including for recycling where available. Pots shall be collected and stored where they will not enter a waterway or create a nuisance. Plant waste and other compostable materials be stored (or composted, as applicable) at locations where they will not enter or be blown into surface waters, and in a manner that ensures that residues and pollutants within those materials do not migrate or leach into surface water or groundwaters.
138. Imported soil for cultivation purposes shall be minimized. The impacts associated with importation of soil include, but are not limited to increased road maintenance and the increased need for spoils management. Use of compost increases the humic acid content and water retention capacity of soils while reducing the need for fertilizer application. In the event that containers (e.g. grow bags or grow pots) are used for cultivation, reuse of soil shall be maximized to the extent feasible.

[4] SPCC plans are required for over 1,320 gallons of petroleum stored aboveground or 42,000 gallons below ground. Additionally, any type of storage container requires an SPCC if it is larger than 20,000 gallons, or if the cumulative storage capacity on-site exceeds 100,000 gallons (Health and Safety Code section 25270-25270.13) A sample SPCC can be found here: http://www.calcupa.net/civica/filebank/blobdload.asp?BlobID=3186

139. Spent growth medium (i.e. soil and other organic medium) shall be handled to minimize discharge of soil and residual nutrients and chemicals to watercourses. Proper handling of spent soil could include incorporating into garden beds, spreading on a stable surface and revegetation, storage in watertight dumpsters, covering with tarps or plastic sheeting prior to proper disposal, and use of techniques to reduce polluted runoff described under Item F. Irrigation Runoff.
140. Other means of handling cultivation-related waste may be considered on a site-specific basis.

I. Refuse and Human Waste

141. Trash containers of sufficient size and number shall be provided and properly serviced to contain the solid waste generated by the project. Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers. Use lined bins or dumpsters to reduce leaking of liquid waste. Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater. Make sure trash container areas are screened or walled to prevent off-site transport of trash. Consider using refuse containers that are bear-proof and/or secure from wildlife. Refuse shall be removed from the site on a frequency that does not result in nuisance conditions, transported in a manner that they remain contained during transport, and the contents shall be disposed of properly at a proper disposal facility.
142. Ensure that human waste disposal systems do not pose a threat to surface or ground water quality or create a nuisance. Onsite treatment systems should follow applicable County ordinances for human waste disposal requirements, consistent with the applicable tier under the State Water Resources Control Board Onsite Waste Treatment System Policy[5].

[5] Available at: http://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf (as of the date of the Order).

IV. References

Handbook for Forest, Ranch, & Rural Roads: A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads
http://www.pacificwatershed.com/sites/default/files/handbook_chapter_download_page.pdf

A Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds
http://www.5counties.org/roadmanual.htm

Construction Site BMP Fact Sheets
http://www.dot.ca.gov/hq/construc/stormwater/factsheets.htm

EPA Riparian/Forested Buffer
http://water.epa.gov/polwaste/npdes/swbmp/Riparian-Forested-Buffer.cfm

Creating Effective Local Riparian Buffer Ordinances
http://www.rivercenter.uga.edu/publications/pdf/riparian_buffer_guidebook.pdf

How to Install Residential Scale Best Management Practices (BMPs) in the Lake Tahoe Basin
http://www.tahoebmp.org/Documents/Contractors%20BMP%20Manual.pdf

Spoil Pile BMPs
http://michigan.gov/documents/deq/deq-wb-nps-sp_250905_7.pdf

Sanctuary Forest Water Storage Guide
http://agwaterstewards.org/images/uploads/docs/1213661598_Water_Storage_Guide.pdf

Natural Resources Conservation Service-USDA, "Ponds – Planning, Design, Construction", Agriculture Handbook
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_030362.pdf

Division of Safety of Dams size requirements
http://www.water.ca.gov/damsafety/jurischart/

Water Tanks: Guidelines for Installation and Use
http://dnn7.snydernet.com/_pdf/_septic/Septic%20Catalog%202010.pdf

BEST MANAGEMENT PRACTICES (BMP's) University of California Cooperative Extension
http://www.waterboards.ca.gov/sandiego/water_issues/programs/wine_country/docs/updates081910/ucce_bmps.pdf

California Stormwater Quality Association
Section 4: Source Control BMPs
https://www.casqa.org/sites/default/files/BMPHandbooks/sd-12.pdf

CA DOT Solid Waste Management Plan
http://www.dot.ca.gov/hq/construc/stormwater/WM-05.pdf

State Water Resources Control Board Onsite Wastewater Treatment System (OWTS) policy
http://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf

California Stormwater Quality Association
Section 4: Source Control BMPs
https://www.casqa.org/sites/default/files/BMPHandbooks/sd-32.pdf

California Riparian Habitat Restoration Handbook
http://www.conservation.ca.gov/dlrp/watershedportal/InformationResources/Documents/Restoration_Handbook_Final_Dec09.pdf

The Practical Streambank Bioengineering Guide
http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/idpmcpu116.pdf

APPENDIX C: PHOTO DOCUMENTATION OF MONITORING POINTS

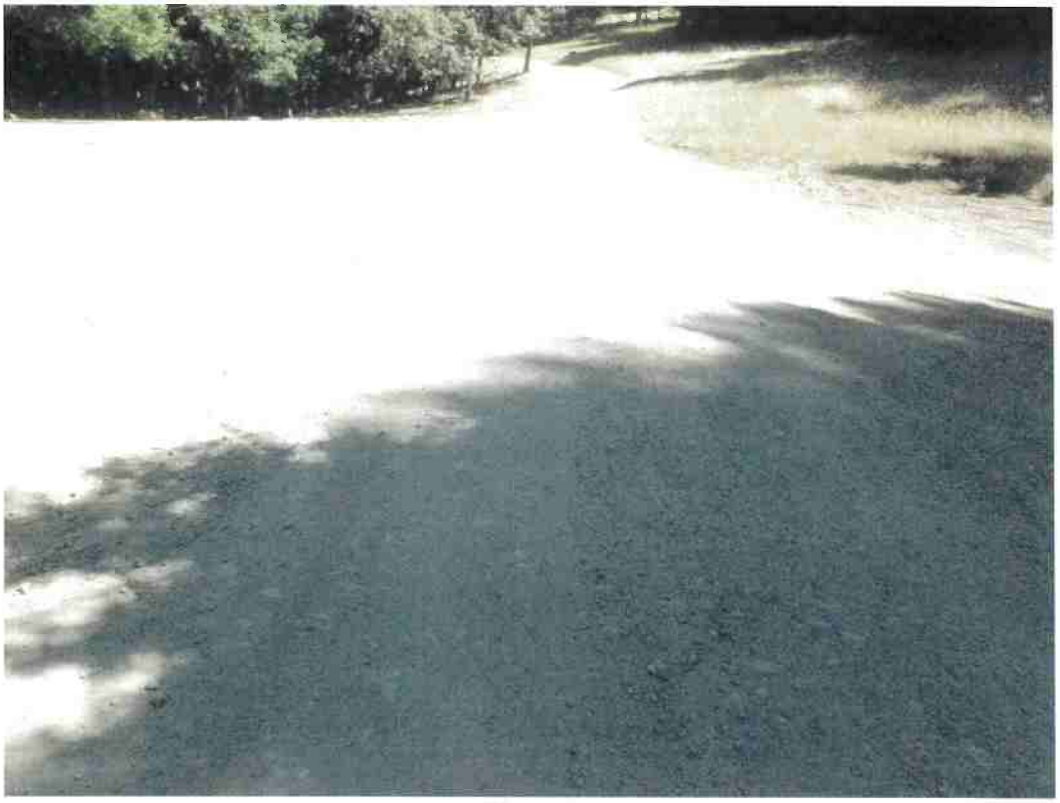

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

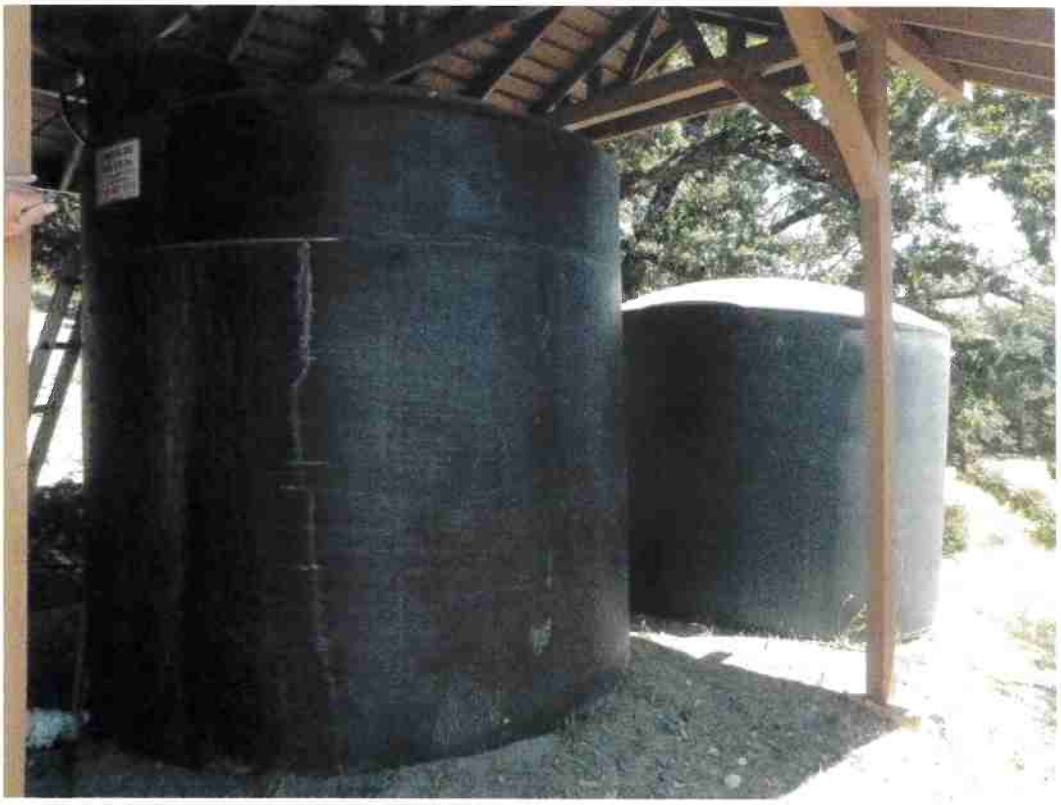

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Photo 19

Photo 20

Fertilizer and Amendment Application Log Sheet

WD ID:	PWA ID:	Watershed:
	Year:	Sheet #: ____ of ____

Product name	Fertilizer or Ammendment (circle one)	Type (circle type)	Nutrient content (N-P-K ratio)	Recommended application amount from product label (e.g. # of ounces per application)	Application units (grams, ounces, liters, gallons, etc.)	Recommended application schedule (daily, weekly, etc.)	Actual amount applied in this application (same units)	Date applied (Mo/Day)	Location (Cultivation area #, Greenhouse #, Hoophouse #, etc.)	Initials	Comments
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
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	Fert./Amend.	liquid/solid									

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Pesticide and Herbicide Application Log Sheet

WD ID:	PWA ID:	Watershed:
Location:	Year:	Sheet #: _____of _____

Product name	Pesticide or Herbicide (circle one)	Product type (circle type)	Recommended application amount from product label (e.g. # of ounces per application)	Application units (grams, ounces, liters, gallons, etc.)	Recommended application schedule (daily, weekly, etc.)	Actual amount (in same units) used per application	Date applied (mo/day)	Initials	Comments
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							

LEGAL PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWERS IN CALIFORNIA

PESTS OF MARIJUANA IN CALIFORNIA

Marijuana pests vary according to cultivar (variety), whether the plants are grown indoors or outdoors, and where the plants are grown geographically. The pests included in this review are based on two sources: a presentation given in 2013 by Whitney Cranshaw, an extension entomologist at Colorado State University, and a review article by John M. McPartland, a professor of family medicine at the University of Vermont.

HOW TO INTERPRET THE TABLES

Table 1 lists active ingredients not illegal to use on marijuana and the pests that these active ingredients target.

These active ingredients are exempt from **residue tolerance requirements**[1] *and* either exempt from **registration requirements**[2] or registered for a use that's broad enough to include use on marijuana. Residue tolerance requirements are set by U.S. EPA for each pesticide on each food crop and is the amount of pesticide residue allowed to remain in or on each treated crop with "reasonable certainty of no harm." Some pesticides are exempted from the tolerance requirement when they're found to be safe. Some of these pesticides are bacterial-based insect pathogens (e.g., *Bacillus thuringiensis*) or biofungicides (e.g., *Bacillus subtilis*, *Gliocladium virens*).

Active ingredients exempt from registration requirements are mostly food-grade essential oils such as peppermint oil or rosemary oil.

Tables 2 and 3 list pests of marijuana grown outdoors and indoors, and **Table 3** shows pests arranged by the portion of the plant they attack. An explanation of the column labels for Tables 2 and 3 follow.

PESTS. The tables show the most likely pests in California based on Cranshaw's presentation and McPartland's list and gleaned from California-based web sites and blogs. Some pests that drew attention on several blogs (e.g., hemp russet mite) may be worse during drought years. Many have cyclic population fluctuations and others are mainstays of general greenhouse cultivation (e.g., whiteflies, thrips, and fungus gnats). We'll add weeds to this compendium when we have more information.

DAMAGE. For damage caused by greenhouse pests, we derived information from Cranshaw's presentation; for that of outdoor pests when there wasn't any overlap, McPartland's list was used and information from UC IPM for various crops. Accounts of damage by rodents is anecdotal.

IPM PRACTICES. Most of these are standard practices for pests on hosts other than marijuana. For more detailed explanations, see information compiled by the University of California Statewide IPM Program (UC IPM) at www.ipm.ucdavis.edu. You can enter a pest name in the search box (e.g., cutworm) and read about IPM practices for the pest on crops other than marijuana. For marijuana grown indoors, go to the UC IPM home page, click on Agricultural Pests and scroll down the alphabetical list until you reach ornamental nurseries.

Some practices were excluded because they apply to nearly all of the pests. For example, when targeting aphids, whiteflies, and thrips, growers can attract predaceous and parasitic arthropods by planting cover crops (e.g., California buckwheat) and insectary plants—especially those in the carrot, mustard, and sunflower families.

LEGAL PESTICIDES. These are covered above in the Table 1 description and are exempt from **residue tolerance requirements** *and* either exempt from **registration requirements** or registered for a use that is broad enough to include use on marijuana.

Table 4 shows marijuana pests by plant part. Not all of these pests are important, but their collective damage may affect the overall health of the plant.

REFERENCES

Cranshaw, Whitney. 2013. Challenges and opportunities for pest management of medical marijuana in Colorado. Presentation.

McPartland, J.M. 1996. *Cannabis* pests. J. Internatl. Hemp Assoc. 3(2): 49, 52–55.

[1] 40 CFR (Code of Federal Regulations)
[2] under FIFRA section 25(b) and 3 CCR section 6147

Table 1. Active ingredients that are exempt from residue tolerance requirements[a] and either exempt from registration requirements[b] or registered for a use broad enough to include use on marijuana.

ACTIVE INGREDIENT	PEST OR DISEASE
azadirachtin[a]	aphids, whiteflies, fungus gnats, leafminers, cutworms
Bacillus subtilis QST[a1]	root diseases, powdery mildew
Bacillus thuringiensis[a2] subsp. *aizawai* or *kurstaki*	moth larvae (e.g., cutworms, budworms, hemp borer)
Bacillus thuringiensis[a2] subsp. *israelensis*	fly larvae (e.g., fungus gnats)
Beauveria bassiana[a3]	whiteflies, aphids, thrips
cinnamon oil[b]	whiteflies
Gliocladium virens[a1]	root diseases
horticultural oils[a] (petroleum oil)	mites, aphids, whiteflies, thrips; powdery mildew
insecticidal soaps[a] (potassium salts of fatty acids)	aphids, whiteflies, cutworms, budworms
iron phosphate[a]; sodium ferric EDTA[a]	slugs and snails
neem oil[a]	mites; powdery mildew
potassium bicarbonate[a]; sodium bicarbonate[a]	powdery mildew
predatory nematodes[a]	fungus gnats
rosemary + peppermint essential oils[b]	whiteflies
sulfur[a]	mites, hemp flea beetles
Trichoderma harzianum[a1]	root diseases

[a] 40 CFR (Code of Federal Regulations)

[b] FIFRA §25(b) and 3 CCR §6147 [FIFRA = the Federal Insecticide, Fungicide, and Rodenticide Act; CCR = California Code of Regulations]

[1] Biofungicides

[2] Bacterial-based insect pathogen

[3] Fungal-based insect pathogen

Table 2. PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWN OUTDOORS

PEST	DAMAGE	IPM PRACTICES (monitoring; cultural, physical, mechanical, biological)	PESTICIDES
MITES & INSECTS			
two-spotted spider mites *Tetranychus urticae*	Suck plant sap; stipple **leaves**	▪ Keep dust down by hosing off plants (if dust is a problem) ▪ Release predatory mites	neem oil, horticultural oil, sulfur
hemp russet mites *Aculops cannabicola*	Suck plant sap; kill **leaves** and **flowers**	▪ Release predatory mites	neem oil, horticultural oil, sulfur
crickets (field & house) *Gryllus desertus, G. chinensis, Acheta domesticus*	Eat **seedlings**	▪ Use floating row covers or cones on individual plants	—
termites	Eat **roots**	▪ Flood nests	—
leafhoppers	Suck plant sap; weaken plants	▪ Encourage natural enemies by planting nectar sources	horticultural oil or insecticidal soaps for nymphs
aphids *Phorodon cannabis, Myzus persicae, Aphis fabae*	Suck plant sap; weaken plants *P. cannabis* (bhang aphid) vectors tobacco mosaic virus	▪ Hang up yellow sticky cards (alates) ▪ Hose off plants	azadirachtin, horticultural oil, insecticidal soaps, *Beauveria bassiana*
whiteflies *Trialeurodes vaporariorum, Bemisia tabaci, B. argentifolii*	Suck plant sap; weaken plants	▪ Hang up yellow sticky cards ▪ Reflective plastic mulch	azadirachtin, horticultural oil, insecticidal soaps, rosemary + peppermint oils, *Beauveria bassiana*
leafminers *Liriomyza* spp.	Bore into **roots** and **leaves**	▪ Remove older infested leaves ▪ Use biocontrol: release *Diglyphus* parasitoids	azadirachtin

PEST		DAMAGE	IPM PRACTICES (monitoring; cultural, physical, mechanical, biological)	PESTICIDES
LEPIDOPTERA	**cutworms** *Agrotis ipsilon, A. segetum, Spodoptera litura, S. exigua, Mamestra brassicae* (Noctuidae)	Eat **seedlings**	▪ Use pheromone traps to detect adults. ▪ Remove weeds, which serve as a reservoir for cutworms and other noctuids	Vegetative stage only: Use *Bacillus thuringiensis kurstaki* if egg-laying adults found, insecticidal soap; azadirachtin
	budworms *Helicoverpa armigera, H. zea* (Noctuidae)	Eat flowering **buds**	▪ Shake plants to dislodge larvae ▪ Remove infested buds ▪ Plant corn as trap crop	Vegetative stage only: Use *Bacillus thuringiensis kurstaki*, insecticidal soap
	hemp borers (= hemp moth) *Grapholita delineana* (Tortricidae)	Bore through **stalks** (caterpillars)	▪ Plow crop under in fall; remove plants still standing; remove nearby hemp and hop plants ▪ Use light traps at night for monitoring ▪ Use biocontrol: *Trichogramma*	*Bacillus thuringiensis kurstaki*
COLEOPTERA	**hemp flea beetles** *Psylliodes attenuata* (Chrysomelidae)	Bore into **stems** (grubs); feed on seedlings and **leaves** of larger plants (beetles)	▪ Use reflective mulches ▪ Plant trap crops (e.g., radish or Chinese mustard)	sulfur
	scarab grubs (possibly other beetles)	Bore into **stems**	▪ Use parasitic nematodes	—
MAMMALS				
mice (e.g., house mice)		Eat **young sprouts** and **seeds**	▪ Double wrap a 3'-tall chicken wire fence around plants ▪ Trap (minus rodenticides) ▪ Mount barn owl boxes	Rodenticides (see footnote below)
roof rats, *Rattus rattus* **wood rats**, *Neotoma* spp.		Strip bark from **stems** to build nests		
pocket gophers, *Thomomys* spp.		Tunnel through planting areas; feed on plants; gnaw on irrigation lines	▪ Install underground fencing (hardware cloth or ¾" mesh poultry wire) ▪ Mount barn owl boxes	
Columbian black-tailed deer, *Odocoileus hemionus columbianus*		Knock over plants; leave dander, droppings, and ticks behind	▪ Install deer fencing	—
black bears, *Ursus americana*		Knock over plants	▪ Install electric fencing	—

Rodenticides that are not DPR-restricted materials or federally restricted use pesticides *and* are registered for a broad enough use to include use in or around marijuana cultivation sites. If using a rodenticide always read and follow the label and check to make sure that the target rodent is listed. Second-generation anticoagulant products are DPR-restricted materials not labeled for field use and as such, should never be used in or around marijuana cultivation sites.

Table 3. PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWN INDOORS
(e.g., greenhouses, sheds, and grow rooms)

PEST	DAMAGE	IPM PRACTICES (monitoring; cultural, physical, mechanical, biological)	PESTICIDES
DISEASES			
powdery mildew *Sphaerotheca macularis*	Grow on **leaves** as white and gray powdery patches	▪ Use fans to improve air circulation	horticultural oil; neem oil; sodium bicarbonate, potassium bicarbonate; *Bacillus subtilis*
pythium root rots *Pythium* spp.	Attack root tips and worsens when plants grow in wet soil	▪ Avoid hydroponic production or wet soil conditions	Incorporate biocontrol agents into root-growing media (e.g., *Gliocladium virens, Trichoderma harzianum, Bacillus subtilis*)
MITES & INSECTS			
two-spotted spider mite *Tetranychus urticae*	Suck plant sap; stipple **leaves**	▪ Disinfest cuttings before introducing to growing area ▪ Release predatory mites	neem oil, horticultural oil, sulfur
leafhoppers	Suck plant sap; weaken plants	▪ Encourage natural enemies by planting nectar sources	horticultural oil or insecticidal soaps for nymphs
whiteflies *Trialeurodes vaporariorum, Bemisia tabaci, B. argentifolii*	Suck plant sap; weaken plants	▪ Hang up yellow sticky cards ▪ Use biocontrol: *Encarsia formosa*	azadirachtin, *Beauveria bassiana*, cinnamon oil, horticultural oil
thrips *Heliothrips haemorrhoidalis, Frankliniella occidentalis, Thrips tabaci*	Stipple **leaves** and vector viruses	▪ Hang up yellow or blue sticky cards	
dark-winged fungus gnats (Diptera: Sciaridae) *Bradysia* spp.	Damage **roots** and stunt plant growth	▪ Avoid overwatering ▪ Use growing media that deters gnat development ▪ Hang up yellow sticky cards ▪ Use biocontrol: soil-dwelling predatory mites	*Bacillus thuringiensis israelensis* (BTI); predatory nematodes; azadirachtin soil drenches

Table 4. PESTS OF MARIJUANA BY PLANT PART

Seedlings	Flower & Leaf (grown outdoors)	Flower & Leaf (grown indoors)	Stalk & Stem	Root
cutworms	**hemp flea beetle**	**spider mites**	**hemp borer**	**hemp flea beetle**
birds	**hemp borer**	**aphids**	**rats**	**white root grubs**
hemp flea beetle	**budworms**	**whiteflies**		root maggots
crickets	**leafminers**	**thrips**		**termites** & ants
slugs		leafhoppers		**fungus gnats**
rodents				wireworms

22383

12166

COUNTY OF HUMBOLDT
STREAM PROTECTION GRANT PROGRAM
GRANT AGREEMENT

This Grant Agreement (the "Agreement") dated 3-8, 2023 ("Effective Date") is made and entered into by and between the County of Humboldt, a political subdivision of the State of California (the "County"), and Nikolai Erickson ("Grantee"). The County and Grantee are hereinafter collectively referred to as the "Parties."

RECITALS

WHEREAS, on January 22, 2022 Humboldt County and the state Department of Cannabis Control entered into an agreement that make Local Assistance Grant Program funds available for projects that assist transitioning cannabis farmers from provisional cultivation licenses to annual licenses and for cannabis farmers with annual licenses, maintaining those annual licenses into the future; and

WHEREAS, up to $12,300,000 was approved to fund a Water Storage/Conservation Grant Program (the "Program"), that assists commercial cannabis licensees to fund transition of water use from surface diversions and hydrologically connected wells during the low-flow periods of the year by increasing rainwater catchment, forbearance, and water conservation; and

WHEREAS, a primary goal of the Program is to increase water storage to achieve 75% of licensee's commercial cannabis cultivation water budget consistent with State Water Resources Control Board requirements; and

WHEREAS, the Grantee has submitted an application that meets the minimum requirements of the Program, and the County wishes to enter into this Agreement with Grantee to provide Program funds to assist Grantee with transitioning from provisional cultivation licenses to annual licenses or maintaining their annual licenses into the future.

NOW, THEREFORE, the parties hereto mutually agree as follows:

1. **Grant.** Subject to the terms and conditions of this Agreement, the County agrees to provide a grant of funds to Grantee in an amount of $35,000.00 (the "Grant").

2. **Scope of Work.** Grantee hereby agrees and understands that the County retains sole and absolute discretion to determine if Grantee has met the requirements for the Grant. The scope of work is that which was included as part of the original application modified by the County to eliminate the ineligible tasks, attached hereto as **Exhibit A**.

3. **Compensation**. Grantee hereby agrees to use Grant Program funds only for expenses as specified in the original application modified by the County to eliminate the

ineligible expenses, attached hereto as **Exhibit A**. The maximum payment amount shall not exceed the approved budget amount of $35,000.00 or $60,000, whichever is less.

4. Time of Performance. The Grant term shall begin on the Effective Date and shall end two full years after the disbursement under this Agreement, unless sooner terminated as provided herein. All work in the Scope of Work attached hereto as Exhibit A must be completed within two full years after the disbursement.

5. Payment. The County is anticipating the grant funds will be disbursed to Grantee's within 45 days of execution of this agreement, however, the timing of the disbursement(s) of grant funds to Grantees shall be solely determined by the County, but shall not be later than January 1, 2024, or any subsequent extension provided by the County.

6. Evaluation, Monitoring and Reporting. Grantee shall be monitored and evaluated by the County in terms of effectiveness and timely compliance with the provisions of this Agreement. Grantee agrees that authorized representatives of the County, may perform on-site and/or fiscal monitoring of Grantee's record-keeping and reporting to assure compliance with this Agreement. Grantee agrees to make its records and facilities available for such review.

7. Compliance with State and Local Standards. Grantee shall be responsible for complying with the terms, conditions, and requirements of all applicable local and state laws and regulations including the Program Grant Agreement between the Department of Cannabis Control and the County of Humboldt attached hereto as Exhibit B.

8. Indemnification. Grantee shall hold harmless, defend and indemnify COUNTY and its agents, officers, officials, employees and volunteers from and against any and all claims, demands, losses, damages, liabilities, expenses and costs of any kind or nature, including, without limitation, attorney's fees and other costs of litigation, arising out of, or in connection with, Grantee's negligent performance of, or failure to comply with, any of the duties and/or obligations contained herein, except such loss or damage which was caused by the sole negligence or willful misconduct of COUNTY. This provision will survive expiration or termination of this Contract.

9. Events of Default and Remedies. The failure to comply with any term of this Agreement shall constitute a default by Grantee. In the event of a default, County may, in its discretion, take any of the following actions, in addition to any other remedies under this Agreement:

a. Terminate this Agreement, in whole or in part;
c. Demand immediate reimbursement of any funds disbursed under this Agreement;
d. Bring an action for equitable relief (1) seeking the specific performance by Grantee of the terms and conditions of the Agreement, and/or (2)

enjoining, abating, or preventing any violation of said terms and conditions, and/or (3) seeking declaratory relief; and/or

e. Pursue any other remedy allowed by law or in equity.

10. Modification to the Agreement

No alteration of or amendment to this Agreement shall be effective unless given in writing and signed by all parties.

11. Representatives of the Parties and Service of Notices

11.1. The representatives of the respective parties authorized to administer this Agreement, and to whom formal notices, demands, and communications will be given are as follows:

11.2. The representative of County will be the Director or his authorized designee:

John H Ford
Director of Planning and Building
3015 H Street
Eureka, CA 95501

The Grantee shall be the Stream Protection Program Individual Applicant:

Name: Nikolai Erickson
Address: 1065 Riverside Dr Rio Dell CA 95562
Phone: 707-672-5141
Email: fullmoonfarmsne@gmail.com

11.3 Formal notices, demands, and communications required hereunder by either party will be made in writing and may be effected by personal delivery or by registered or certified mail, postage prepaid, return receipt requested and will be deemed communicated as of the date of mailing.

11.4 If the name of the person designated to receive the notices, demands, or communications, or the address of such person is changed, written notice will be given within five (5) business days of said change.

12. Jurisdiction and Venue. This Agreement shall be construed in accordance with the laws of the State of California. Any dispute arising hereunder, or relating hereto, shall be litigated in the State of California and venue shall lie in the County of Humboldt unless transferred by court order pursuant to California Code of Civil Procedure Sections 394 or 395.

13. Entire Agreement. This Agreement contains the full and complete Agreement between the parties. No verbal agreement or conversation with any officer or employee of either party will affect or modify any of the terms and conditions of this Agreement. The parties acknowledge that they have read and understood this Agreement and had an opportunity to consult with counsel of their choosing.

14. Counterpart Execution. This Agreement may be executed in one or more counterparts, and by the parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same Agreement. The parties further agree that facsimile signatures or signatures scanned into .pdf (or signatures in another electronic format designated by County) and sent by e-mail shall be deemed original signatures.

[Signatures appear on next page]

COUNTY OF HUMBOLDT, a political subdivision of the State of California

By: _____

Name: John H Ford, or his authorized designee
Title: Director, Department of Planning and Building

Date: 3/16/2023

GRANTEE

By: Nikolai Erickson
Name: N. E.
Title: An Individual

Date: 3-8-23

Send Signed Agreement to:
Humboldt County
Department of Planning and Building
Grant Agreement for N. E. Nikolai Erickson
3015 H Street, Eureka, CA 95501 Full Moon Farm

Exhibit A
Scope of Work

Exhibit A
Scope of Work

Full Moon Farms, Inc. – Water Storage and Conservation Application Scope of Work

APN: 210-051-081

08/23/2022

Summary

Happy Valley Farms, LLC is applying for a Water Storage and Conservation Grant to purchase 6, 5,000-gallon water tanks bringing the parcel up to 192,600-gallons of water storage, which would allow the project to 100% forebear it's cultivation irrigation water during the dry season.

Tasks and Timeline

*All labor will be completed by the Applicant

Timeline for Tanks to Be Purchased if Grant Funding is Received

08/22/2022 – Submit Grant Application to HumCo

Within 90 Days of Receipt of Funding – If funding is received, tanks and plumbing parts will be purchased for tank installation, preferably prior to April 2023, when the dry season begins.

Reduction in Dry Season Diversion

The Applicant sources all water from a hydrologically disconnected groundwater well. Per their State Water Resources Control Board Annual Reporting, during the 2021 cultivation season the Applicant used approximately 192,200-gallons of diverted water. By adding the 30,000-gallons of water storage, the applicant will eliminate the need to use any water from the well during the Dry Season and will have some in reserve in case of fire emergency.

Because of the drought, the applicant has also increased their use of mulch, and has changed their strain selections to specific strains with shorter grow cycles so they use less water. Below is the anticipated water use table with the additional storage included. The water use during the winter months is outlining the water pulled to be stored.

Water Use Chart Prior to Water Storage Installation – 162,600 gallons (2021 water use numbers)

Month	Water Use from Well in Gallons	Water Use from Storage in Gallons	Total Water Use on Cultivation
January	32,520	0	0
February	32,520	0	0
March	32,520	0	0
April	0	21,356	21,356
May	0	24,203	24,203
June	0	28,474	28,474
July	0	32,745	32,745
August	0	34,169	34,169
September	9,668	21,653	31,321
October	19,932	0	19,932
November	32,520	0	0
December	32,520	0	0
Total Water Use During Forbearance Months	29,600	162,600	192,200
Total	29,600	162,200	192,200

Water Use Chart with Additional 30,000-gallons Water Storage Installation (2021 water use numbers)

Month	Water Use from Well in Gallons	Water Use from Storage in Gallons	Total Water Use on Cultivation
January	43,500	0	0
February	43,500	0	0
March	43,500	0	0
April	0	21,356	21,356
May	0	24,203	24,203
June	0	28,474	28,474
July	0	32,745	32,745
August	0	34,169	34,169
September	0	31,321	31,321
October	0	19,932	19,932
November	43,500	0	0
December	43,500	0	0
Total Water Use During Forbearance Months	0	192,200	192,200
Total	192,600	192,200	192,200

*Any additional water will be stored for fire suppression.

12464

COUNTY OF HUMBOLDT
RENEWABLE ENERGY GRANT PROGRAM
GRANT AGREEMENT

This Grant Agreement (the "Agreement") dated 3-8, 2023 ("Effective Date") is made and entered into by and between the County of Humboldt, a political subdivision of the State of California (the "County"), and Nikole Erickson ("Grantee"). The County and Grantee are hereinafter collectively referred to as the "Parties."

RECITALS

WHEREAS, on January 22, 2022 Humboldt County and the state Department of Cannabis Control entered into an agreement that make Local Assistance Grant Program funds available for projects that assist transitioning cannabis farmers from provisional cultivation licenses to annual licenses and for cannabis farmers with annual licenses, maintaining those annual licenses into the future; and

WHEREAS, up to $3,100,000 was approved to fund a Renewable Energy Grant Program (the "Program") to fund eligible projects that replace gas/diesel/propane powered generators used for commercial cannabis cultivation operations with renewable energy systems, or for other expenses if reductions in gas/diesel/propane powered generator use are documented; and

WHEREAS, a primary goal of the Program is purchase and/or installation of renewable energy system infrastructure, and engineering for renewable energy systems or by establishing a cultivation site's connection to the commercial power grid; and

WHEREAS, the Grantee has submitted an application that meets the minimum requirements of the Program, and the County wishes to enter into this Agreement with Grantee to provide Program funds to assist Grantee with transitioning from provisional cultivation licenses to annual licenses or maintaining their annual licenses into the future.

NOW, THEREFORE, the parties hereto mutually agree as follows:

1. **Grant.** Subject to the terms and conditions of this Agreement, the County agrees to provide a grant of funds to Grantee in an amount of $30,000 (the "Grant").

2. **Scope of Work.** Grantee hereby agrees and understands that the County retains sole and absolute discretion to determine if Grantee has met the requirements for the Grant. The scope of work is that which was included as part of the original application modified by the County to eliminate the ineligible tasks, attached hereto as **Exhibit A**.

3. **Compensation**. Grantee hereby agrees to use Grant Program funds only for expenses as specified in the original application modified by the County to eliminate

the ineligible expenses, attached hereto as **Exhibit A**. The maximum payment amount shall not exceed the approved budget amount of $30,000 or $30,000, whichever is less.

4. Time of Performance. The Grant term shall begin on the Effective Date and shall end two full years after the disbursement under this Agreement, unless sooner terminated as provided herein. All work in the Scope of Work attached hereto as Exhibit A must be completed within two full years after the disbursement.

5. Payment. The County is anticipating the grant funds will be disbursed to Grantee's within 45 days of execution of this agreement, however, the timing of the disbursement(s) of grant funds to Grantees shall be solely determined by the County, but shall not be later than January 1, 2024, or any subsequent extension provided by the County.

6. Evaluation, Monitoring and Reporting. Grantee shall be monitored and evaluated by the County in terms of effectiveness and timely compliance with the provisions of this Agreement. Grantee agrees that authorized representatives of the County, may perform on-site and/or fiscal monitoring of Grantee's record-keeping and reporting to assure compliance with this Agreement. Grantee agrees to make its records and facilities available for such review.

7. Compliance with State and Local Standards. Grantee shall be responsible for complying with the terms, conditions, and requirements of all applicable local and state laws and regulations including the Program Grant Agreement between the Department of Cannabis Control and the County of Humboldt attached hereto as Exhibit B.

8. Indemnification. Grantee shall hold harmless, defend and indemnify COUNTY and its agents, officers, officials, employees and volunteers from and against any and all claims, demands, losses, damages, liabilities, expenses and costs of any kind or nature, including, without limitation, attorney's fees and other costs of litigation, arising out of, or in connection with, Grantee's negligent performance of, or failure to comply with, any of the duties and/or obligations contained herein, except such loss or damage which was caused by the sole negligence or willful misconduct of COUNTY. This provision will survive expiration or termination of this Contract.

9. Events of Default and Remedies. The failure to comply with any term of this Agreement shall constitute a default by Grantee. In the event of a default, County may, in its discretion, take any of the following actions in addition to any other remedies under this Agreement:

a. Terminate this Agreement, in whole or in part;
c. Demand immediate reimbursement of any funds disbursed under this Agreement;
d. Bring an action for equitable relief (1) seeking the specific performance by Grantee of the terms and conditions of the

Agreement, and/or (2) enjoining, abating, or preventing any violation of said terms and conditions, and/or (3) seeking declaratory relief; and/or

e. Pursue any other remedy allowed by law or in equity.

10. Modification to the Agreement

No alteration of or amendment to this Agreement shall be effective unless given in writing and signed by all parties.

11. Representatives of the Parties and Service of Notices

11.1. The representatives of the respective parties authorized to administer this Agreement, and to whom formal notices, demands, and communications will be given are as follows:

11.2. The representative of County will be the Director or his authorized designee:

John H Ford
Director of Planning and Building
3015 H Street
Eureka, CA 95501

The Grantee shall be the Stream Protection Program Individual Applicant:

Name: Nikolai Erickson
Address: 1065 Riverside Dr Rio Dell CA 95562
Phone: 707 - 672 - 5141
Email: Fullmoonfarmsnea@gmail.com

11.3 Formal notices, demands, and communications required hereunder by either party will be made in writing and may be affected by personal delivery or by registered or certified mail, postage prepaid, return receipt requested and will be deemed communicated as of the date of mailing.

11.4 If the name of the person designated to receive the notices, demands, or communications, or the address of such person is changed, written notice will be given within five (5) business days of said change.

12. Jurisdiction and Venue. This Agreement shall be construed in accordance with the laws of the State of California. Any dispute arising hereunder, or relating hereto, shall be litigated in the State of California and venue shall lie in the County of Humboldt unless transferred by court order pursuant to California Code of Civil Procedure Sections 394 or 395.

13. Entire Agreement. This Agreement contains the full and complete Agreement between the parties. No verbal agreement or conversation with any officer or employee of either party will affect or modify any of the terms and conditions of this

Agreement. The parties acknowledge that they have read and understood this Agreement and had an opportunity to consult with counsel of their choosing.

14. Counterpart Execution. This Agreement may be executed in one or more counterparts, and by the parties in separate counterparts, each of which when executed shall be deemed to be an original, but all of which taken together shall constitute one and the same Agreement. The parties further agree that facsimile signatures or signatures scanned into .pdf (or signatures in another electronic format designated by County) and sent by e-mail shall be deemed original signatures.

[Signatures appear on next page]

COUNTY OF HUMBOLDT, a political subdivision of the State of California

By: _____

Name: John H Ford, or his authorized designee
Title: Director, Department of Planning and Building

Date: 3/16/2023

GRANTEE

By: Nikolai Erickson
Name: N. Erickson
Title: An Individual

Date: 3-8-23

Send Signed Agreement to:
Humboldt County
Department of Planning and Building
Grant Agreement for N. Erickson
3015 H Street, Eureka, CA 95501

Exhibit A

Scope of Work

Happy Valley Farms, LLC – Humboldt County Renewable Energy Grant Program Scope of Work

APN: 210-051-081

08/25/2022

Summary

Happy Valley Farms, LLC is applying for a Renewable Energy Grant to add 11,500 watts of solar panels and an additional 28.8 kWh of battery storage.

The existing solar system serves two adjoining parcels that are under the same ownership. By expanding on the existing system, the applicant will be able to generate more solar power and overall reduce their land impact than they would by building two separate systems. This grant would cover this parcel's share of the estimate.

Tasks and Timeline

Timeline for Tanks to Be Purchased if Grant Funding is Received

08/22/2022 – Submit Grant Application to HumCo

Within 90 Days of Receipt of Funding – If funding is received, contract with Greenwired for installation of the system.

Estimated Reduction of Annual Fuel Use

Currently, the parcel receives its power from a mix of solar panels and diesel generators.

The project currently utilizes 30-gallons of diesel a day during the cultivation season, which is estimated to be 241 days of the year. This results in an annual fuel use of 7,230-gallons. The installation of this solar system and the batteries would reduce the fuel use during the cultivation season down to 5-gallons per day, or 1,205 gallons annually.