COUNTY OF HUMBOLDT
PLANNING AND BUILDING DEPARTMENT
CURRENT PLANNING DIVISION

3015 H Street, Eureka CA 95501
Phone: (707)445-7541 Fax: (707) 268-3792

Hearing Date: October 7, 2021

To: Humboldt County Zoning Administrator

From: Cliff Johnson, Supervising Planner

Subject: **Miller Creek Farms Zoning Clearance Certificate and Special Permits**
Record Number: PLN-12221-ZCC
Assessor's Parcel Number (APN): 220-271-008
1600 Miller Creek Road, Whitethorn area

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Please contact Megan Marruffo, Assigned Planner, at 707-443-5054 or by email at marruffom@lacoassociates.com, if you have any questions about the scheduled public hearing item.

AGENDA ITEM TRANSMITTAL

Hearing Date	Subject	Contact
October 7, 2021	Zoning Clearance Certificate and Special Permits	Megan Marruffo

Project Description: A Zoning Clearance Certificate for an existing 4,350-square-foot full-sun outdoor cannabis cultivation. There is no separate propagation area. Irrigation water is sourced from spring and creek diversions. Existing available water storage is 26,500 gallons in eight (8) HDPE tanks, with a 2,500-gallon tank dedicated to fire suppression. Estimated annual water usage is 14,000 gallons. Drying and curing occurs onsite with all other processing currently occurring offsite at a licensed processing or manufacturing facility, although onsite processing is anticipated at a future date. A maximum of two (2) people will be on-site during peak operations. Power is provided by solar and two (2) generators, with plans to add more solar onsite in the future or connect to PG&E, if available. Special Permits are also requested for development in the Streamside Management Area (SMA) related to continued use of the point of diversions and fish passage upgrades.

Project Location: The project is located in the Whitethorn area, on the west side of Briceland Thorn Road, approximately 1.7 miles from the intersection of Briceland Thorn Road and Miller Creek Road, on the property known as 1600 Miller Creek Road.

Present Plan Land Use Designations: Residential Agriculture (RA40) Density: forty acres per dwelling unit, Slope Stability: Moderate instability (2).

Present Zoning: Forestry Recreation with Special Building Site Combining Zone (FR-B-5(40))

Record Number: PLN-12221-ZCC

Assessor's Parcel Number: 220-271-008

Applicant	Owner	Agent
Miller Creek Farms C/O Elizabeth Worley P.O. Box 426 Briceland, CA 95889	Elizabeth Worley and Andrew Miller P.O. Box 364 Calistoga, CA 94515	1 Degree Consulting Greg Gibbs 1391 G Street Arcata, CA 95521

Environmental Review: An Addendum to a previously adopted Mitigated Negative Declaration has been prepared for consideration per §15164 of the State CEQA Guidelines.

State Appeal Status: Project is NOT appealable to the California Coastal Commission.

Major Issues: None.

Miller Creek Farms
Record Number: PLN-12221-ZCC
Assessor's Parcel Number: 220-271-008

Recommended Zoning Administrator Action:
1. Describe the application as part of the Consent Agenda.
2. Survey the audience for any person who would like to discuss the application.
3. If no one requests discussion, make the following motion to approve the application as a part of the consent agenda:

Find that the Zoning Administrator has considered the Addendum to the adopted Mitigated Negative Declaration for the Commercial Medical Land Use Ordinance (CCMLUO) as described by Section §15164 of the State CEQA Guidelines, make all of the required findings for approval of the Zoning Clearance Certificate and Special Permits and adopt the Resolution approving the Miller Creek Farms project as recommended by staff subject to the recommended conditions.

Executive Summary: Miller Creek Farms seeks a Zoning Clearance Certificate to allow the continued cultivation of 4,350 square feet (SF) of outdoor cannabis in accordance with Humboldt County Code Section 314-55.4 of Chapter 4 of Division I of Title III, Commercial Medical Marijuana Land Use Ordinance (CMMLUO). The site is designated as Residential Agriculture (RA40) in the Humboldt County 2017 General Plan Update and zoned Forestry Recreation with Special Building Site combining Zone (FR-B-5(40)). Outdoor cultivation occurs in two (2) separate full-sun outdoor areas: Cultivation Area #1 occurs within the southern portion of the subject property and comprises 3,560 SF; and Cultivation Area #2 occurs within the central portion of the site and includes 790 SF of cultivation. There is no separate propagation area. Purchased clones or seeds are planted directly in the ground where the plants will continue to grow and mature. One (1) harvest is anticipated annually for a growing season that extends from May through October.

Drying and curing occurs onsite in a 216 SF (121'x18') drying shed located southwest of Cultivation Area #1. All other processing currently occurs offsite at a licensed processing or manufacturing facility; however, onsite processing is anticipated at a future date. All cultivation activities are performed by members of Miller Creek Farms; no additional employees are utilized onsite. A maximum of two (2) people will be onsite during peak operations. Power is provided by solar power and two (2) generators, and there are plans to add more solar onsite in the future or connect to PG&E, if available. The Honda EU2000 generator is used to power the drying fans, with a portable generator utilized when additional power is needed, and to power the water pump that pumps water to the storage tanks until the forbearance period begin. The Red Cabin (labeled as "BLDG 2" on the Site Plan) is powered by solar panels and is utilized as a lounge and break area, and contains drinking water and a hand washing sink. During drying, the solar panels also power small fans. The operation is secured behind a gated access, fenced cultivation areas, and utilizes security cameras.

Prior Onsite Relocation and Remediation
As described in the Cultivation and Operations Plan (Attachment 3), originally prepared by Green Road Consulting and updated by 1 Degree Consulting in April 2020, the Water Resource Protection Plan (WRPP) (which was prepared by Compliant Farms in March 2017 in compliance with the North Coast Regional Water Quality Control Board's (NCRWCB) Waiver of Discharge Requirements Order No. R1-2015-0023 for a Tier 2 enrollment) identified existing features located within the required Streamside Management Area (SMA) buffers and recommended "immediate relocation of cultivation site, associated facilities and other sites of similar effect to beyond the required minimum riparian setbacks." As stated in the Cultivation and Operations Plan, the existing structures included an 814 SF hoop house and a second structure, located within the SMA for Buck Gulch. The hoop house and associated cultivation materials were removed from the site, and relocated to an existing outdoor cultivation area (labeled as "CA1" on the Site Plan), which is located on an existing open flat. No grading had occurred, as the structures were placed on a historic logging flat. No revegetation treatment was applied. During

the January 2020 site visit by 1 Degree Consulting, there was no evidence of the prior footprint and the flat has since revegetated to 95% cover of volunteer grasses.

Proposed Fish Passage Improvements Project
As previously discussed, the project also involves a Special Permit for development in the Streamside Management Area (SMA) related to fish passage upgrades. Per the *Basis of Design Report for Buck Gulch Fish Passage Project (Worley Project)*, prepared by Stillwater Sciences in March 2018 (Attachment 3), improvements are proposed to an existing 72-inch-diameter metal corrugated culvert with a two-foot jump at the outlet. The culvert is estimated to be about 30 years old and contains rust holes in the bottom of the culvert. As noted in the Report, the current culvert "does not provide full fish passage due to the jump at the outlet as well as high velocities within the culvert barrel (discussed in more detail in Section 8 below). Additionally, partial and/or catastrophic failure of the crossing is becoming more likely due to ongoing decay in the culvert bottom and logs in the fill slopes." Additionally, Buck Gulch provides some of the most consistent dry season flows within the Redwood Creek watershed and provides critical summer refuge habitat for salmonids. The project involves replacing the existing 30-foot-long, 72-inch-diameter culvert with an 18-foot-wide with 11-foot 4-inch rise arch culvert that is 54 feet in length. Removal of the existing culvert and fill prism will involve excavation of approximately 500 cubic yards of material which will be reused to rebuild the road prism following installation of the new arch culvert. Project implementation was expected to take place in August 2019.

The fish passage project was included in the Final Streambed Alteration Agreement (Final SAA) issued by the California Department of Fish and Wildlife (CDFW) in May 2018 (Notification No. 1600-2016-0577-R1; Attachment 3), discussed further below. Based on the information provided, Planning staff supports the proposed improvements, as it would increase fish passage and stream function, and recommends approval of the Special Permit. Conditions of approval require the applicant to obtain all necessary permits, including but not limited to a 404 Certification from the U.S. Army Corps of Engineers (USACE) and 401 Certification from the North Coastal Regional Water Quality Control Board (NCRWQCB), as necessary, and implement all erosion control measures identified in the Report to minimize erosion and adverse impacts on the instream habitat.

Water Resources
Estimated annual water usage is 14,000 gallons (3.22 gal/SF). Water management strategies, such as hand watering and mulch and hay over garden beds, are implemented to conserve water. Water for irrigation is provided by two (2) permitted diversions – a spring diversion and a stream diversion from Miller Creek. As noted in the Cultivation and Operations Plan (Attachment 3), "it is anticipated that all irrigation needs will be met entirely by the spring diversion for the foreseeable future." A *Right to Divert and Use Water*, issued by the State Water Resources Control Board (SWRCB) in April 2018 (Registration No. H500861, Certificate No. H100036; Attachment 3), includes both the spring and stream diversion. As noted, the spring diversion is from an unnamed spring that is a tributary to Miller Creek, and the stream diversion is from Miller Creek, which is a tributary to Redwood Creek. Per the water right, the water appropriated shall not exceed 0.460334 acre-feet (or 150,000 gallons) per year and the total storage capacity shall not exceed 0.47 acre-feet (153,150 gallons). The total estimated annual water usage (14,000 gallons) is approximately 9.33% of the appropriated amount allowed under the water right. Additionally, existing available water storage is 26,500 gallons in eight (8) HDPE tanks ranging in size between 2,500 and 5,000 gallons (with one (1) 2,500-gallon tank dedicated to fire suppression use), which is under the maximum allowed under the water right. Per additional information provided by the applicant, additional water storage is planned. Conditions of approval require the applicant to continue to comply with the requirements of the Right to Divert and Use Water.

In addition, the two (2) diversions are included under a Final Streambed Alteration Agreement (Final SAA) issued by the California Department of Fish and Wildlife (CDFW) in May 2018 (Notification No. 1600-2016-0577-R1; Attachment 3), in addition to upgrading culverts that are undersized and to allow for fish passage. Per the Final SAA, the amount of water diverted is required to be reduced to a maximum of 150 gallons per day during the low flow season of April 15 to November 30. Based on the amount of water storage available onsite, Planning staff concludes there is sufficient water storage available to

meet this requirement. Conditions of approval require the applicant to comply with the requirements established under the Final SAA and to monitor water use from the two diversions and storage tanks and pool annually to demonstrate there is sufficient water available to meet operational needs.

Per review of the County's GIS and as depicted on the Site Plan with respective SMA buffers, Miller Creek and Buck Creek traverse the western, southern, and eastern portions of the subject parcel. As shown on the Site Plan, the cultivation areas are shown to be located outside of the SMA buffers; however, a 300-gallon and 1,000-gallon transfer tank and a gasoline-powered water pump, utilized for the project, , are located within the Miller Creek and Buck Gulch buffers. While Building #4, an existing 192 SF cabin used for domestic storage, developed prior to 2005, is also located within the SMA buffer, it is not utilized for cannabis and is not considered part of the project. Conditions of approval require relocation of the above-listed cannabis-related features outside of the SMA and to a previously disturbed area without the use of heavy machinery.

A Site Management Plan (SMP; WDID 1_12CC417788) was prepared for the site by 1 Degree Consulting in January 2020 (Attachment 3), which details existing site conditions, how the property is or will meet the provisions and requirements of the Cannabis General Order, how the applicant is implementing the best practicable treatment or control (BPTC) measures listed in the Cannabis General Order, and remediation efforts needed to bring the operation into compliance. As noted in the SMP, "the potential for erosion or transport of sediment or farm products from the cultivation areas to the waterways on the property is essentially zero. The riparian buffers are met and the natural vegetation between the cultivation areas and the waterways is lush and undisturbed. No additional erosion prevention or sediment capture measures are necessary to protect water quality from the cultivation areas." However, the SMP identifies twenty-six (26) treatment recommendations to further protect water quality, including but not limited to: upgrading diversion intake to Final SAA specifications, upgrading water meter to Cannabis General Order specifications, install shut-off float valves, clear brush, install impermeable floors and shelves, move existing tanks and water pump outside of riparian setback, provide appropriate secondary containment, upgrade undersized culverts and armor outlets, upgrade stream crossings to specifications in the SAA, regrading and armor off-road drain and rolling dips, removal all unnatural materials, and plant cover crops. The project is conditioned to implement all remaining corrective actions detailed in the WRPP and SMP to minimize any potential impacts associated with the project and minimize runoff into nearby SMAs.

Biological Resources

Per review of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) in September 2021, there are no mapped sensitive species onsite, and the nearest Northern Spotted Owl (NSO) positive sighting and activity center are located approximately 0.83 and 0.86 miles from the nearest cultivation area, respectively. Power to the site is provided by two (2) generators (used to power drying fans and water pump) and solar power. There is no use of artificial lighting authorized by this permit; there is no on-site propagation. The conditions of approval require the applicant to implement noise and light attenuation measures, refrain from using synthetic netting, ensure refuse is contained in wildlife proof storage, and refrain from using anticoagulant rodenticides to further protect wildlife. As proposed and conditioned, the project is consistent with CMMLUO performance standards and CDFW guidance and will not negatively impact NSO or other sensitive species.

Access

Access to the site is via a driveway off Miller Creek Road (a private road) via Briceland Thorn Road. Briceland Thorn Road is a County-maintained road that has been approved by the Department of Public Works for use by commercial cannabis operations. A Road Evaluation Report for the 1.65-mile segment of Miller Creek Road from Briceland Thorn Road to the property entrance was prepared by the property owner and applicant in August 2019 (Attachment 3), which indicates that the roadway meets a Category 4 road equivalent standard and is adequate for the proposed use. Per referral comments received from the Department of Public Works, Land Use Division, dated September 2019, any existing or proposed non-County maintained road to serve as access for the proposed project that connects to a County-maintained road shall be improved to current standards for a commercial driveway, and, as

a result, the access road (Miller Creek Road) shall be paved for a minimum width of 20 feet and a length of 50 feet where it intersects the County road (Briceland Thorn Road). Additionally, all driveways and private road intersections onto the County road shall be maintained in accordance with County Code Section 341-1 (Sight Visibility Ordinance). Conditions of approval require the applicant to make the required roadway improvements in accordance with Public Works' comments.

Environmental review for this project was conducted and based on the results of that analysis, staff finds that all aspects of the project have been considered in a previously adopted Mitigated Negative Declaration that was adopted for the Commercial Medical Marijuana Land Use Ordinance and has prepared an addendum to this document for consideration by the Zoning Administrator (See Attachment 2 for more information).

Staff recommends that the Zoning Administrator describe the application as a part of the consent agenda, survey the audience to see if any person would like to discuss the application and, if no one requests discussion, make all the required findings based on the evidence in the record and approve the application subject to the recommended conditions.

Alternatives: Several alternatives may be considered: 1) The Zoning Administrator could elect not to hear this item and put the decision making in front of the Planning Commission. Any decision to place this matter before the Planning Commission must be done before opening the public hearing on this project; 2) The Zoning Administrator could elect to add or delete conditions of approval; 3) The Zoning Administrator could deny approval of the requested permits if you are unable to make all of the required findings. Planning Division staff is confident that the required findings can be made based on the submitted evidence and subject to the recommended conditions of approval. Consequently, planning staff does not recommend further consideration of these alternatives.

RESOLUTION OF THE ZONING ADMINISTRATOR
OF THE COUNTY OF HUMBOLDT
Resolution Number: 21-
Record Number: PLN-12221-ZCC
Assessor's Parcel Number: 220-271-008

Resolution by the Zoning Administrator of the County of Humboldt certifying compliance with the California Environmental Quality Act and conditionally approves the Miller Creek Farms Zoning Clearance Certificate and Special Permits request.

WHEREAS, Miller Creek Farms submitted an application and evidence in support of approving a Zoning Clearance Certificate for an existing 4,350 square foot (SF) full-sun outdoor cannabis cultivation, with no separate propagation area. Irrigation water is sourced from spring and creek diversions. Existing available water storage is 26,500 gallons in eight (8) HDPE tanks, with a 2,500-gallon tank dedicated to fire suppression. Estimated annual water usage is 14,000 gallons. Drying and curing occurs onsite with all other processing occurring offsite at a licensed processing or manufacturing facility, although onsite processing is anticipated at a future date. A maximum of two (2) people will be on-site during peak operations. Power is provided by solar and two (2) generators, with plans to add more solar onsite in the future or connect to PGE&E, if available. Special Permits are also requested for development in the Streamside Management Area (SMA) related to continued use of the point of diversions and fish passage upgrades; and

WHEREAS, the County Planning Division, the lead agency, prepared an Addendum to the Final Mitigated Negative Declaration (MND) prepared for the Commercial Medical Land Use Ordinance (CMMLUO) adopted by the Humboldt County Board of Supervisors on January 26, 2016. The proposed project does not present substantial changes that would require major revisions to the previous Mitigated Negative Declaration. No new information of substantial importance that was not known and could not be known at the time was presented as described by §15162(c) of CEQA Guidelines; and

WHEREAS, the Humboldt County Zoning Administrator held a duly-noticed public hearing on October 7, 2021, and reviewed, considered, and discussed the application for the Zoning Clearance Certificate and Special Permits, and reviewed and considered all evidence and testimony presented at the hearing.

Now, THEREFORE BE IT RESOLVED, that the Zoning Administrator makes all the following findings:

1. **FINDING:** **Project Description:** The application is a Zoning Clearance Certificate for an existing 4,350 square foot (SF) full-sun outdoor cannabis cultivation, with no separate propagation area. Irrigation water is sourced from spring and creek diversions. Existing available water storage is 26,500 gallons in eight (8) HDPE tanks, with a 2,500-gallon tank dedicated to fire suppression. Estimated annual water usage is 14,000 gallons. Drying and curing occurs onsite with all other processing occurring offsite at a licensed processing or manufacturing facility, although onsite processing is anticipated at a future date. A maximum of two (2) people will be on-site during peak operations. Power is provided by solar and two (2) generators, and there are plans to add more solar onsite in the future or connect to PG&E, if available. Special Permits are also requested for development in the Streamside Management Area (SMA) related to continued use of the point of diversions and fish passage upgrades.

   EVIDENCE: a) Project File: PLN-12221-ZCC

2. **FINDING:** **CEQA.** The requirements of the California Environmental Quality Act have been complied with. The Humboldt County Zoning Administrator has

considered the Addendum to and the Mitigated Negative Declaration (MND) prepared for the Commercial Medical Marijuana Land Use Ordinance (CMMLUO) adopted by the Humboldt County Board of Supervisors on January 26, 2016.

EVIDENCE:

a) Addendum prepared for the proposed project.

b) The proposed project does not present substantial changes that would require major revisions to the previous MND. No new information of substantial importance that was not known and could not be known at the time was presented as described by §15162(c) of CEQA Guidelines.

c) A Site Management Plan (WDID 1_12CC417788) was prepared for the site by 1 Degree Consulting in January 2020 and a Notice of Application has been provided by the applicant to show compliance with the State Water Board Cannabis General Order for Waste Discharge. Conditions of approval require the applicant to adhere to and implement the recommendations in the Site Management Plan and maintain enrollment in the State Cannabis Cultivation Policy for the life of the project.

d) California Department of Fish and Wildlife Resource Maps indicate no Special Status species are known to occur within the project area. A review of the California Natural Diversity Database (CNDDB) Spotted Owl Observation Database showed that Northern Spotted Owl habitat exists in the vicinity and the nearest positive sighting and activity center are located approximately 0.83 and 0.86 miles from the nearest cultivation area, respectively. There is no use of artificial lighting authorized by this permit. Conditions of approval will require noise to be at below 50 decibels at 100 feet which is below the guidance established by the California Department of Fish and Wildlife for protection of the species.

e) Based on review of historic aerial imagery dating back to 2004, there are several open areas located throughout the site. It does not appear that timber conversion has occurred onsite in order to accommodate the existing project.

f) A Cultural Resources Investigation was prepared by Archaeological Research and Supply Company in September 2018 and covers the subject property, in addition to 4 additional properties. The 5 total properties cover approximately 158.8 acres and, per the Report, no archaeological resources were discovered during the survey. Inadvertent discovery protocol is recommended and is included as an ongoing condition of approval.

g) A Road Evaluation Report for the 1.65-mile segment of Miller Creek Road from Briceland Thorn Road to the property entrance was prepared by the property owner and applicant in August 2019, which indicates that the roadway meets a Category 4 road equivalent standard and is suitable for safe access to and from the site. Conditions of approval require the applicant to obtain an encroachment permit from the Department of Public Works and improve the intersection of Miller Creek Road and Briceland Thorn Road to commercial driveway standards, as well as maintain all driveways and private road intersections onto the County road in accordance with County Code Section 341-1 (Sight Visibility Ordinance).

FINDINGS FOR ZONING CLEARNCE CERTIFICATE AND SPECIAL PERMITS

3. FINDING The proposed development is in conformance with the County General Plan, Open Space Plan, and the Open Space Action Program.

EVIDENCE

a) General agriculture is a use type permitted in the Residential Agriculture (RA) land use designation. The proposed cannabis cultivation, an agricultural product, is within land planned and zoned for agricultural purposes, consistent with the use of Open Space land for managed production of resources. The use of an agricultural parcel for commercial agriculture is consistent with the Open Space Plan and Open Space Action Program. Therefore, the project is consistent with and complimentary to the Open Space Plan and its Open Space Action Program.

4. FINDING The proposed development is consistent with the purposes of the existing FR zone in which the site is located.

EVIDENCE

a) The Forestry Recreation or FR Zone is intended to be applied to forested areas of the County in which timber production and recreation are the desirable predominant uses and agriculture is the secondary use, and in which protection of the timber and recreational lands is essential to the general welfare.

b) All general agricultural uses are principally permitted in the FR zone.

c) Humboldt County Code section 314-55.4.8.2.2 allows cultivation of up to 5,000 square feet of existing outdoor cannabis and up to 5,000 square feet of existing mixed-light cannabis on a parcel over 1 acre subject to approval of a Zoning Clearance Certificate and a determination that the cultivation was in existence prior to January 1, 2016. The application for 4,350 square feet of outdoor cultivation on a 44-acre parcel is consistent with this and with the cultivation area verification prepared by the County.

5. FINDING The proposed development is consistent with the requirements of the CMMLUO Provisions of the Zoning Ordinance.

EVIDENCE

a) The CMMLUO allows existing cannabis cultivation to be permitted in areas zoned FR (HCC 314-55.4.8.2.2).

b) The parcel was created in compliance with all applicable state and local subdivision regulations, as it was created in its current configuration by deed recorded July 28, 1971, before the establishment of county and state subdivision regulations that would have applied to the creation of the parcel.

c) Water for irrigation is provided by two (2) permitted diversions – a spring diversion and a stream diversion from Miller Creek. A Right to Divert and Use Water, issued by the State Water Resources Control Board (SWRCB) in April 2018 (Registration No. H500861, Certificate No. H100036), includes both the spring and stream diversion. As noted, the spring diversion is from an unnamed spring that is a tributary to Miller Creek, and the stream diversion is from Miller Creek, which is a tributary to Redwood Creek. Per the water right, the water appropriated shall not exceed 0.460334 acre-feet (or 150,000 gallons) per year and the total storage capacity shall not exceed 0.47 acre-feet (153,150 gallons). The total estimated annual water usage (14,000 gallons) is approximately 9.33% of the appropriated amount allowed under the water right. Additionally, existing available water storage is 26,500 gallons in eight (8) HDPE tanks ranging in size between 2,500 and 5,000 gallons (with one (1) 2,500-gallon tank dedicated to fire suppression use), which is under

the maximum allowed under the water right. Per additional information provided by the applicant, additional water storage is planned. Conditions of approval require the applicant to continue to comply with the requirements of the Right to Divert and Use Water.

d) A Road Evaluation Report was completed by the applicant and property owner in August 2019. The Evaluation addressed a 1.65-mile segment of Miller Creek Road (private road), from the property entrance to Briceland Thorn Road, which is a County-maintained road and approved for use by commercial cannabis operations by the Department of Public Works. All road segments evaluated were found to be functionally appropriate for the expected traffic. Conditions of approval require the applicant to obtain an encroachment permit from the Department of Public Works and improve the intersection of Miller Creek Road and Briceland Thorn Road to commercial driveway standards, as well as maintain all driveways and private road intersections onto the County road in accordance with County Code Section 341-1 (Sight Visibility Ordinance).

e) The slope of the land where cannabis will be cultivated is less than 25% as described by the Site Management Plan prepared by 1 Degree Consulting dated January 23, 2020.

f) Based on review of historic aerial imagery dating back to 2004, there are several open areas located throughout the site. It does not appear that timber conversion has occurred onsite in order to accommodate the existing project.

g) The location of the cultivation complies with all setbacks required in Section 314-55.4.11.d. It is more than 30 from any property line and more than 600 feet from any school, church, public park or Tribal Cultural Resource.

6. FINDING The cultivation of 4,350 square feet of cannabis cultivation and the conditions under which it may be operated or maintained will not be detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity.

EVIDENCE

a) The site is located on road that has been certified to safely accommodate the amount of traffic generated by the proposed cannabis cultivation.

b) The site is in a rural part of the County where the typical parcel size is over 40 acres and many of the land holdings are very large. The proposed cannabis will not be in a location where there is an established neighborhood or other sensitive receptor such as a school, church, park or other use which may be sensitive to cannabis cultivation. Approving cultivation on this site and the other sites which have been approved or are in the application process will not change the character of the area due to the large parcel sized in the area.

c) Irrigation water will come from a spring diversion and a stream diversion from Miller Creek, which are both included under a Right to Divert and Use Water, issued by the State Water Resources Control Board (SWRCB) in April 2018 (Registration No. H500861, Certificate No. H100036).

d) Provisions have been made in the applicant's proposal to protect water quality and thus runoff to adjacent property and infiltration of water to groundwater resources will not be affected.

7. FINDING The proposed development does not reduce the residential density for any parcel below that utilized by the Department of Housing and Community Development in determining compliance with housing element law.

EVIDENCE a) The parcel was not included in the housing inventory of Humboldt County's 2019 Housing Element and does not currently contain any residential units. The approval of cannabis cultivation on this parcel will not conflict with the ability for a residence to be constructed on this parcel.

8. FINDING To provide minimum standards pertaining to the use and development of land located within Streamside Management Areas (SMAs) and other wet areas (OWA) to implement the County's Open Space Element of the General Plan.

EVIDENCE a) Staff is supportive of continued use of the spring and creek diversions for irrigation use and the fish passage project, as proposed, since measures are in place to protect resources and minimize potential impacts. Conditions of approval require the applicant to adhere to and implement the projects and recommendations contained in the Final SAA and provide evidence to the Planning Department that the projects included in the Final SAA are completed to the satisfaction of CDFW. Conditions of approval also require the applicant to adhere to the terms and conditions of the Right to Use and Divert Water issued by the State Water Resources Control Board (SWRCB). Furthermore, the applicant shall obtain all necessary permits associated with the fish passage improvements, including but not limited to a 404 Certification from the U.S. Army Corps of Engineers (USACE) and 401 Certification from the North Coastal Regional Water Quality Control Board (NCRWQCB), as necessary, and implement all erosion control measures identified in the *Basis of Design Report for Buck Gulch Fish Passage Project (Worley Project)*, prepared by Stillwater Sciences in March 2018, to minimize erosion and adverse impacts on the instream habitat. By implementing permit conditions from the SWRCB, CDFW, and USACE and NCRWQCB, as required, impacts to the SMA are minimized.

DECISION

NOW, THEREFORE, based on the above findings and evidence, the Humboldt County Zoning Administrator does hereby:

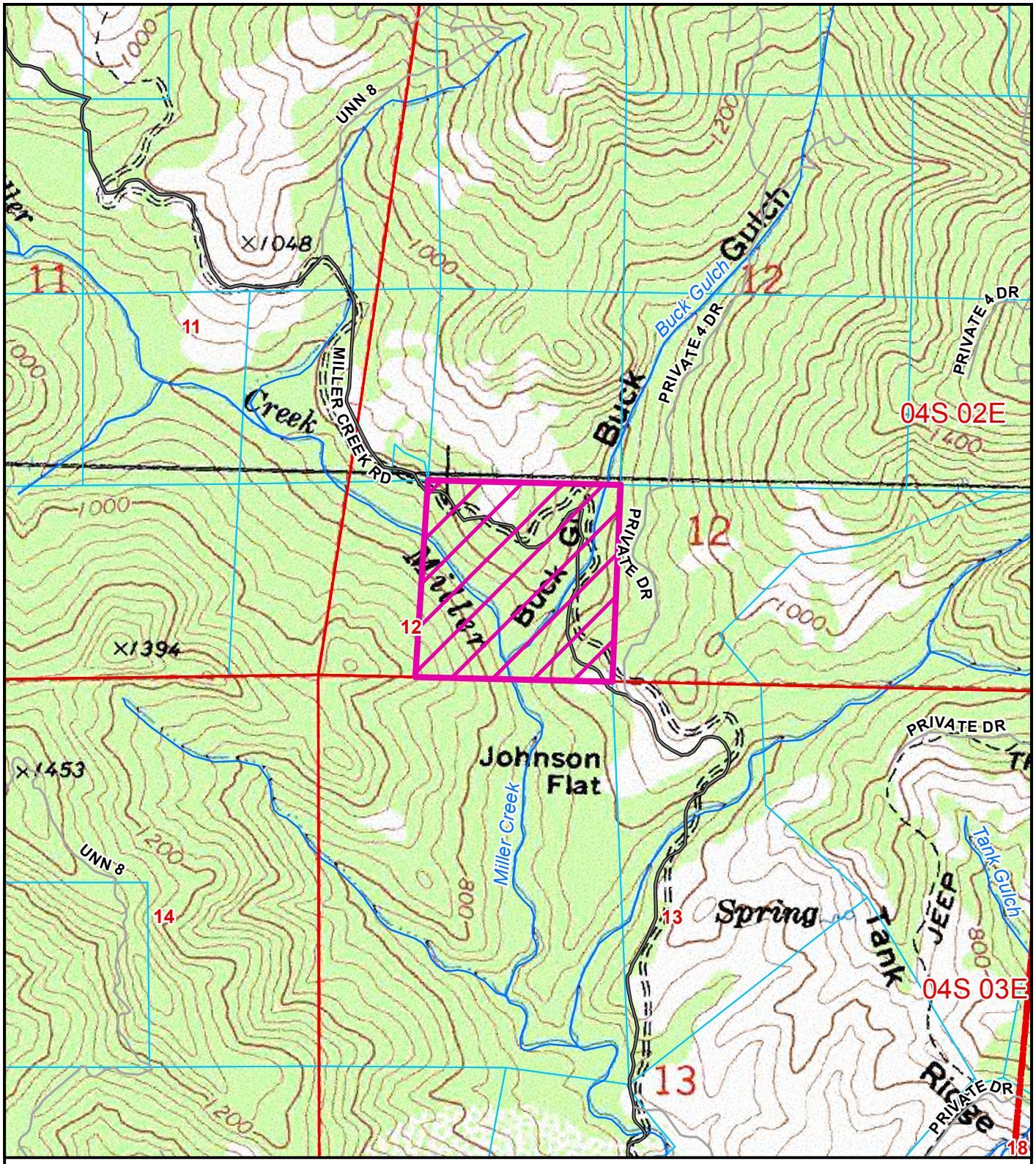
- Adopt the findings set forth in this resolution; and
- Conditionally approves the Zoning Clearance Certificate and Special Permits for Miller Creek Farms, based upon the Findings and Evidence and subject to the conditions of approval attached hereto as Attachment 1 and incorporated herein by reference; and

Adopted after review and consideration of all the evidence on October 7, 2021.

I, John Ford, Zoning Administrator of the County of Humboldt, do hereby certify the foregoing to be a true and correct record of the action taken on the above entitled matter by said Zoning Administrator at a meeting held on the date noted above.

_____

John H. Ford, Zoning Administrator,
Planning and Building Department



TOPO MAP
PROPOSED MILLER CREEK FARMS
WHITETHORN AREA
SP-16-449
APN: 220-271-008-000
T04S R02E S12 HB&M (BRICELAND)

Project Area =

N

This map is intended for display purposes and should not be used for precise measurement or navigation. Data has not been completely checked for accuracy.

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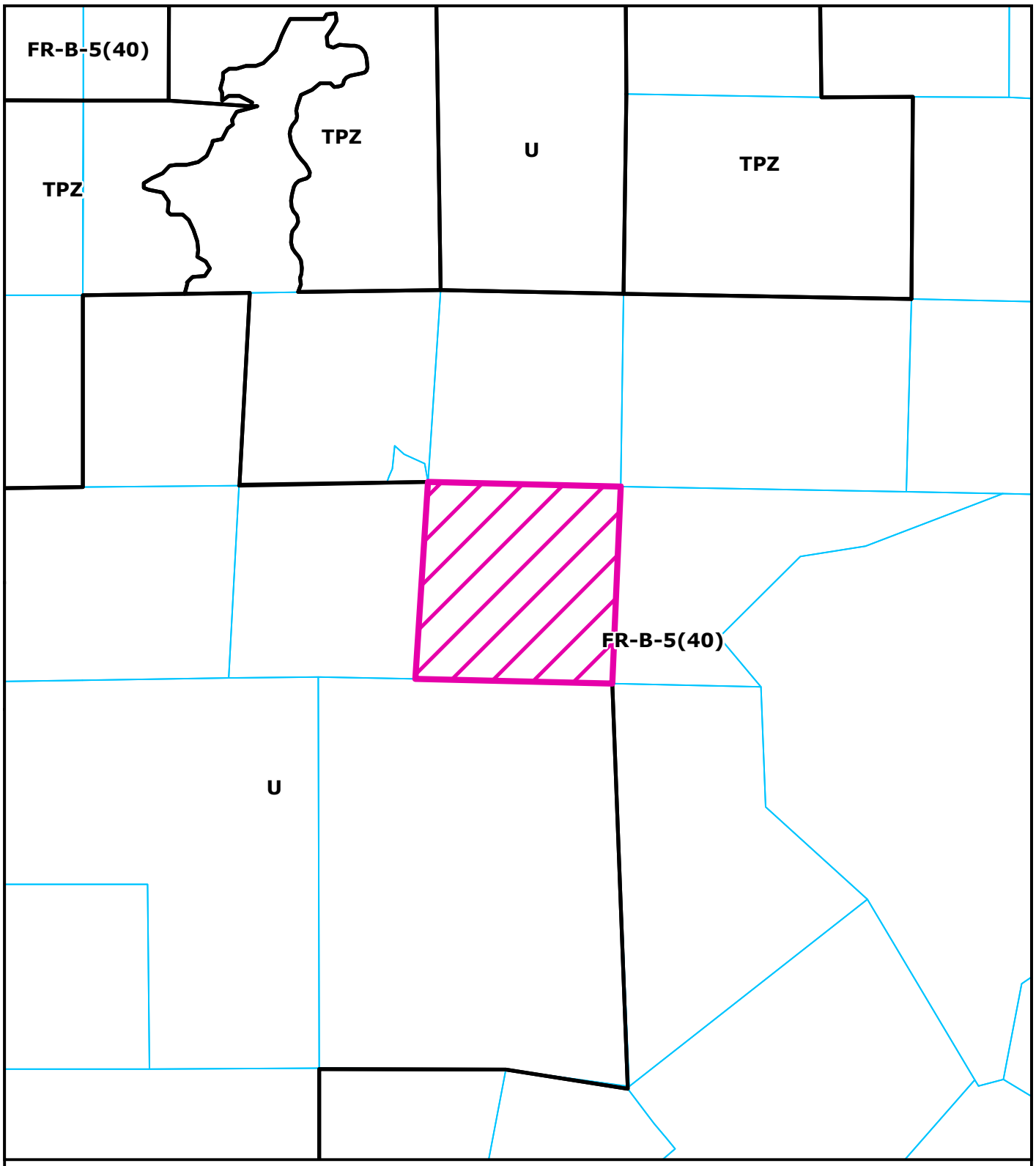

ZONING MAP
PROPOSED MILLER CREEK FARMS
WHITETHORN AREA
SP-16-449
APN: 220-271-008-000
T04S R02E S12 HB&M (BRICELAND)

Project Area =

N

This map is intended for display purposes and should not be used for precise measurement or navigation. Data has not been completely checked for accuracy.

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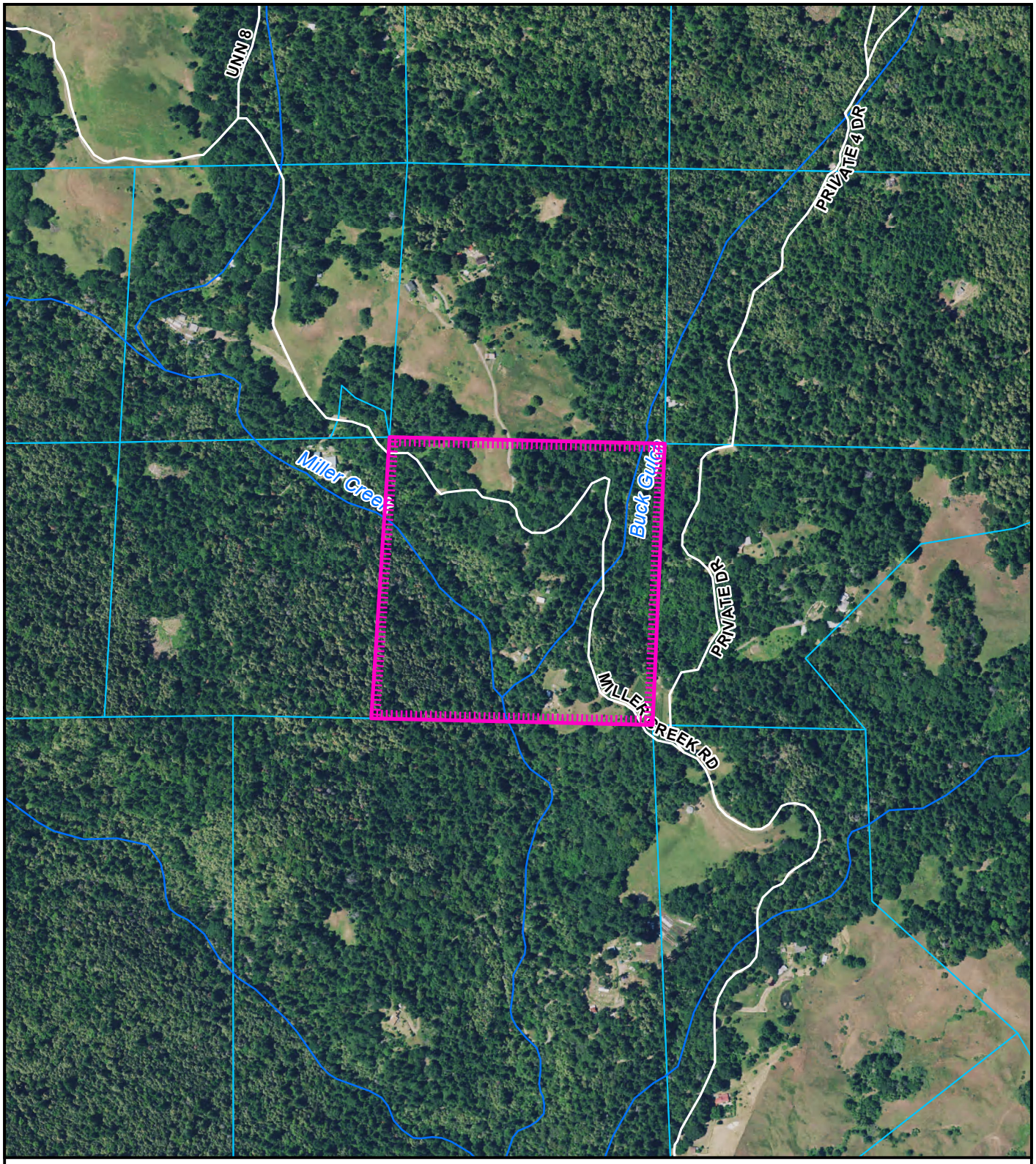


AERIAL MAP
PROPOSED MILLER CREEK FARMS
WHITETHORN AREA
SP-16-449
APN: 220-271-008-000
T04S R02E S12 HB&M (BRICELAND)

Project Area =

N

This map is intended for display purposes and should not be used for precise measurement or navigation. Data has not been completely checked for accuracy.

0 875 1,750 Feet

APN 221-271-008
OWNER: ANDREW MILLER / ELIZABETH WORLEY
APPLICANT: MILLER CREEK FARMS

LEGEND

- Parcel Boundary
- Water Source (SIUR)
- Class II Stream
- Class III Stream
- 100-foot Stream Buffer
- Dirt Road
- Removed Greenhouses
- 600 ft Cultivation Buffer
- Cultivation Setback Distance
- Buildings
- Gate
- Water Storage (gallons) TT= Transfer Tank <P>= Proposed Tank
- Spring
- Water Bibb
- Stream Crossing
- Cultivation Area
- Propane Tank
- Nutrient Storage
- Gasoline Water Pump
- Restroom
- Parking

BUILDINGS
-BLDG 1- Office. (pre-2005) 8x12-foot
-BLDG 2- Red Cabin. (pre-2005) 30x40-foot with break room and kitchen. Building also has attached solid waste (garbage) containment
-BLDG 3- Nutrient Shed. (post-2014) 6x8-foot Free-standing, pre-fabricated garden shed - Contains composting toilet.
-BLDG 4- Creekside Cabin. (pre-2005) NOT CANNABIS. 12x16-foot Cabin is domestic storage
-BLDG 5- (pre-2005) NOT CANNABIS. 8x12-foot legacy shed is not used
-BLDG 6- Dry Shed / Nutrient Storage. (2009)12x18-foot garage on pier and post foundation.
-BLDG 7- (pre-2005) NOT CANNABIS. 8x12-foot legacy shed is not used

CULTIVATION
-CA 1- is 3,560 sq. ft. contiguous on legacy logging deck (3,896 sq. ft.)
-CA 2- is 790 sq. ft. contiguous on legacy logging deck (1,485 sq. ft.)

~NO SCHOOL, BUS STOPS, PLACES OF WORSHIP, PUBLIC PARKS OR CULTURAL RESOURCES WITHIN 600 FT OF CULTIVATION ON APN 221-271-008.

~THERE ARE NO RESIDENCES WITHIN 300 FT OF CULTIVATION ON APN 221-271-008.

MILLER CREEK ROAD SEES THROUGH TRAFFIC

**ALL WATER STORAGE IS HDPE HARD-SIDED TANKS INSTALLED APPROXIMATELY 2009
-<P> IS PROPOSED ADDITIONAL HDPE TANKS**

1° DEGREE Consulting
1391 G St.
ARCATA, CA 95521
(707) 890-6600

APRIL, 2020

ATTACHMENT 1

RECOMMENDED CONDITIONS OF APPROVAL

APPROVAL OF THE CONDITIONAL USE PERMIT IS CONDITIONED ON THE FOLLOWING TERMS AND REQUIREMENTS WHICH MUST BE SATISFIED BEFORE THE PROVISIONAL CANNABIS CULTIVATION PERMIT CAN BE FINALIZED.

A. General Conditions

1. The applicant is responsible for obtaining all necessary County and State permits and licenses, and for meeting all requirements set forth by other regulatory agencies.

2. The applicant is required to pay for permit processing on a time and material basis as set forth in the schedule of fees and charges as adopted by ordinance of the Humboldt County Board of Supervisors. The Planning and Building Department will provide a bill to the applicant after the decision. Any and all outstanding planning fees to cover the processing of the application to decision by the Hearing Officer shall be paid to the Humboldt County Planning Division, 3015 "H" Street, Eureka.

3. The applicant is responsible for costs for post-approval review for determining project conformance with conditions. A deposit is collected to cover this staff review. Permit conformance with conditions must be demonstrated prior to release of building permit or initiation of use and at time of annual inspection. A conformance review deposit as set forth in the schedule of fees and charges as adopted by ordinance of the Humboldt County Board of Supervisors (currently $750) shall be paid within sixty (60) days of the effective date of the permit or upon filing of the Compliance Agreement (where applicable), whichever occurs first. Payment shall be made to the Humboldt County Planning Division, 3015 "H" Street, Eureka.

4. A Notice of Determination (NOD) will be prepared and filed with the County Clerk for this project in accordance with the State CEQA Guidelines. The Department will file the NOD and will charge this cost to the project.

5. Within 90 days of the effective date of permit approval, the applicant shall submit a revised plot plan showing the following, in addition to what is shown:
    a. Revised location of the 300-gallon and 1,000-gallon transfer tanks, gasoline-powered water pump, and Building #4 (an existing 192 SF cabin used for domestic storage, developed prior to 2005), currently located within the Streamside Management Area (SMA) buffers of Miller Creek and Buck Gulch buffers, outside of the required SMA buffers.

6. Within 60 days of the effective date of permit approval, the applicant shall execute a Compliance Agreement with the Humboldt County Planning and Building Department detailing all necessary permits and infrastructure improvements described under Conditions of Approval #7 through #23. The agreement shall provide a timeline for completing all outstanding items. All activities detailed under the agreement must be completed to the satisfaction of the Planning and Building Department before the permit may be finalized and no longer considered provisional.

7. The applicant shall secure building permits for all structures and grading related to the cannabis cultivation and other commercial cannabis activity, including but not limited to, greenhouses, water tanks over 5,000 gallons, structures associated with drying, storage, processing, or any activity with a nexus to cannabis, graded flats, and any noise containment structures as necessary. The plans submitted for building permit approval shall be consistent with the project description and the approved project site plan. A letter or similar communication from the Building Division verifying that all structures related to the cannabis cultivation are permitted will satisfy this condition.

8. The applicant must demonstrate that a properly functioning onsite wastewater treatment system serves the operation or shall secure permits and install an onsite wastewater treatment system and restroom facilities prior to processing onsite. The applicant may secure permits and install a new on-site sewage disposal system, or provide the Department of Environmental Health (DEH) with an assessment of the existing system performed by a qualified professional engineer, geologist, soil scientist, or registered environmental health specialist (REHS) that certifies the existing system complies with the SWRCB definition of a Tier 0 system – not impairing groundwater or surface water resources. Board (SWRCB) definition of a Tier 0 system (not impairing groundwater or surface water resources). Portable toilet and handwashing facilities may be utilized during the construction of these improvements for cultivation staff only. The applicant shall furnish receipts or other documentation to the DEH for the continual use of portable toilets for employees until a permanent septic system is installed to their satisfaction. A letter or similar communication from DEH verifying that all their requirements have been met will satisfy this condition.

9. Per comments received from DEH in August 2021, DEH has no record of the existing waterless toilet located in Building 3 as shown on the Site Pan. The applicant shall discontinue the use of and decommission the composting toilet. Disposal of the end product must be in accordance with HCC §615-10 – bury remaining night soil below 18 inches of compacted soil, above ground water, no closer than 50 feet to any ephemeral stream and no closer than 100 feet to any perennial stream. Alternatively, the applicant may obtain a Waterless Toilet System Permit from DEH prior to operating the waterless toilet. A letter or similar communication from DEH verifying that all their requirements have been met will satisfy this condition.

10. All driveways and private road intersections onto the County road shall be maintained in accordance with County Code Section 341-1 (Sight Visibility Ordinance). This condition shall be completed to the satisfaction of the Department of Public Works prior to commencing operations, final sign-off for a building permit, or Public Works approval for a business license. A letter or similar communication from the Department of Public Works will satisfy this condition.

11. The applicant shall improve the intersection of Miller Creek Road (a private road) and Briceland Thorn Road to commercial driveway standards. Specifically, the access road (Miller Creek Road) shall be paved for a minimum width of 20 feet and a length of 50 feet where it intersects the County road (Briceland Thorn Road). The applicant shall obtain an encroachment permit from the Department of Public Works prior to commencing any work. This condition shall be completed to the satisfaction of the Department of Public Works prior to commencing operations, final sign-off for a building permit, or Public Works approval for a business license. A letter or similar communication from the Department of Public Works will satisfy this condition.

12. The applicant shall relocate the existing 300-gallon and 1,000-gallon transfer tanks and gasoline-powered water pump, currently located within the required Miller Creek and Buck Gulch Streamside Management Area (SMA) buffers, outside of the SMA and to a previously disturbed area without the use of heavy machinery.

13. The applicant shall adhere to and implement the Final Streambed Alteration Agreement issued by CDFW in May 2018. Reporting requirements shall be submitted to the Planning Department and the California Department of Fish and Wildlife at 619 Second Street, Eureka, CA 95501, no later than December 31 of each year.

14. The applicant shall obtain all necessary permits, including but not limited to a 404 Certification from the U.S. Army Corps of Engineers (USACE) and 401 Certification from the North Coastal Regional Water Quality Control Board (NCRWQCB), as necessary, for the proposed fish passage project, and provide copies of all permit approvals to the Planning Department. A sign-off from the Planning Department will satisfy this condition.

15. The applicant shall implement all erosion control measures identified in the *Basis of Design Report for*

Buck Gulch Fish Passage Project (Worley Property) prepared by Stillwater Sciences in March 2018 in order to minimize erosion and adverse impacts on the instream habitat during construction and implementation of the proposed fish passage improvements. A sign-off from the Planning Department will satisfy this condition.

16. The applicant shall continue to adhere to the Right to Divert and Use Water, issued by the State Water Resources Control Board (SWRCB) in April 2018 (Registration No. H500861, Certificate No. H100036) for the spring and stream diversions. A sign-off from the Planning Department will satisfy this condition.

17. The project is conditioned to implement all remaining corrective actions detailed in the following reports to minimize any potential impacts associated with the project and minimize runoff into nearby SMAs:
    a. Water Resource Protection Plan (WRPP), prepared by Compliant Farms in March 2017.
    b. Site Management Plan (SMP; WDID 1_12CC417788), prepared by 1 Degree Consulting in January 2020.

    The applicant shall submit a letter or similar communication from a qualified professional stating the recommendations are completed as described by each plan. Alternatively, the applicant may schedule a site inspection with the Planning Department to verify the improvements are completed as described. A sign-off from the Planning Department will satisfy this condition.

18. The applicant shall submit copies of all documents filed with the State Water Resources Control Board. The applicant is required to adhere to and implement the requirements contained in the SWRCB's Cannabis Cultivation Policy, the General Order, the Site Management Plan, and the Notice of Applicability. A copy of the reporting form portion of the Mitigation and Reporting Program (MRP) shall be submitted annually to the Planning and Building Department concurrent with the submittal to the SWRCB.

19. The applicant shall construct noise containment structures for all generators used on the parcel. The applicant shall obtain all required building permits for such structures. The applicant shall maintain generator, fan, and dehumidifier noise at or below 50 decibels at the edge of the clearing or 100 feet, whichever distance is closer. This will satisfy the auditory disturbance guidance prepared by the U.S. Fish and Wildlife (USFS), California Fish and Wildlife (CDFW) and Department Policy Statement No. 16-005 to minimize impacts to the Northern Spotted Owl and Marbled murrelet. All generators must be located on stable surfaces with a minimum 200–foot buffer from Class I and Class II streams, per the requirements of CDFW. <u>No generator use is authorized by this permit until the applicant can demonstrate to compliance with this standard.</u>

20. The applicant shall install and utilize a water meter to demonstrate that there is sufficient water supply to meet the demands of the project.

21. The applicant shall cause to be recorded an "ACKNOWLEDGMENT OF NO AVAILABLE EMERGENCY RESPONSE AND FIRE SUPPRESSION SERVICES" for the parcel(s) on a form provided by the Humboldt County Planning Division. Document review fees as set forth in the schedule of fees and charges as adopted by ordinance of the Humboldt County Board of Supervisors will be required.

22. The applicant shall be compliant with the County of Humboldt's Certified Unified Program Agency (CUPA) requirements regarding hazardous materials. A written verification of compliance shall be required before any provisional permits may be finalized. Ongoing proof of compliance with this condition shall be required at each annual inspection in order to keep the permit valid.

23. The applicant shall execute and file with the Planning Division the statement titled, "Notice and Acknowledgment regarding Agricultural Activities in Humboldt County," ("Right to Farm" ordinance) as required by the HCC and available at the Planning Division.

B. Ongoing Requirements/Development Restrictions Which Must be Satisfied for the Life of the Project:

1. The combination of background, generator, fan or other operational equipment created noise must not result in the harassment of Northern Spotted Owl species as required to meet the performance standards for noise set by Department Policy Statement No. 16-005 clarifying CMMLUO Section 55.4.11 (o) requirements. The combined noise levels measured at 100 feet or the edge of habitat, whichever is closer, shall be at or below 50 decibels. Conformance will be evaluated using current auditory disturbance guidance prepared by the United State Fish and Wildlife Service, and further consultation where necessary. A building permit shall be obtained should any structures be necessary for noise attenuation.

2. Security lighting shall be motion activated and comply with the International Dark-Sky Association standards and Fixture Seal of Approval Program; see: https://www.darksky.org/our-work/lighting/lighting-for-citizens/lighting-basics/. Standards include but are not limited to the following, 1) light shall be shielded and downward facing, 2) shall consist of Low Pressure Sodium (LPS) light or low spectrum Light Emitting Diodes (LED) with a color temperature of 3000 kelvins or less and 3) only placed where needed.

3. Should the Humboldt County Planning Division receive complaints that the lighting or noise is not complying with the standards listed above in items B.1. and B.2., within ten (10) working days of receiving written notification that a complaint has been filed, the applicant shall submit written verification that the lights' shielding and alignment, and noise levels have been repaired, inspected, and corrected as necessary.

4. The use of monofilament netting for all uses, including but not limited for erosion control, shall be prohibited. Geotextiles, fiber rolls, and other erosion control measure materials shall be made of loose-weave mesh, such as jute, hemp, coconut (coir) fiber, or other products without welded weaves to minimize the risk of ensnaring and strangling wildlife.

5. All refuse shall be contained in wildlife proof storage containers, at all times, and disposed of at an authorized waste management facility.

6. Should any wildlife be encountered during work activities, the wildlife shall not be disturbed and be allowed to leave the work site unharmed.

7. The use of anticoagulant rodenticide is prohibited.

8. The water use for cultivation is limited to the use of the amount of water available in storage tanks and water metering records shall be provided the County annually prior to or during the annual inspection.

9. The operator shall provide information to all employees about the potential health impacts of cannabis use on children. Information shall be provided by posting the brochures from the Department of Health and Human Services titled "Cannabis Palm Card" and "Cannabis Rack Card." This information shall also be provided to all employees as part of the employee orientation.

10. All components of project shall be developed, operated, and maintained in conformance with the Project Description, the approved Site Plan, the Plan of Operations, and these conditions of approval. Changes shall require modification of this permit except where consistent with Humboldt County Code Section 312-11.1, Minor Deviations to Approved Plot Plan. If offsite processing is chosen to be the preferred method of processing, this permit shall be modified to identify the offsite licensed facility.

11. Cannabis cultivation and other commercial cannabis activity shall be conducted in compliance with all laws and regulations as set forth in the CMMLUO and MAUCRSA, as applicable to the permit type.

12. If operating pursuant to a written approved compliance agreement, permittee shall abate or cure violations at the earliest feasible date, but in no event no more than two (2) years from the date of issuance of a provisional clearance or permit. Permittee shall provide plans for curing such violations to the Planning and Building Department within one (1) year of issuance of the provisional clearance or permit. If good faith effort toward compliance can be shown within the two years following the issuance of the provisional clearance or permit, the Department may, at the discretion of the Director, provide for extensions of the provisional permit to allow additional time to meet the outstanding requirements.

13. Possession of a current, valid required license, or licenses, issued by any agency of the State of California in accordance with the MAUCRSA, and regulations promulgated thereunder, as soon as such licenses become available.

14. Compliance with all statutes, regulations, and requirements of the California State Water Resources Control Board and the Division of Water Rights, at a minimum to include a statement of diversion of surface water from a stream, river, underground stream, or other watercourse required by Water Code Section 5101, or other applicable permit, license, or registration, as applicable.

15. Confinement of the area of cannabis cultivation, processing, manufacture, or distribution to the locations depicted on the approved site plan. The commercial cannabis activity shall be set back at least 30 feet from any property line, and 600 feet from any school, school bus stop, church or other place of religious worship, or tribal cultural resources, except where a reduction to this setback has been approved pursuant to Section 55.4.11(d).

16. Maintain enrollment in Tier 1, 2, or 3, certification with North Coast Regional Water Quality Control Board (RWQCB) Order No. R1-2015-0023, if applicable, or any substantially equivalent rule that may be subsequently adopted by the County of Humboldt or other responsible agency.

17. Comply with the terms of the Final Lake and Streambed Alteration Agreement (EPIMS-HUM-09230-R1), as well as any subsequent amendments, obtained from the California Department of Fish and Wildlife (CDFW).

18. Comply with the terms of a less-than-3-acre conversion exemption or timberland conversion permit, approved by the California Department of Forestry and Fire Protection (Cal Fire), if applicable.

19. Consent to an annual on-site compliance inspection, with at least 24 hours prior notice, to be conducted by appropriate County officials during regular business hours (Monday through Friday, 9:00 a.m. to 5:00 p.m., excluding holidays).

20. Refrain from the improper storage or use of any fuels, fertilizer, pesticide, fungicide, rodenticide, or herbicide.

21. Pay all applicable application, review for conformance with conditions and annual inspection fees.

22. Fuel shall be stored and handled in compliance with applicable state and local laws and regulations, including the County of Humboldt's Certified Unified Program Agency (CUPA) program, and in such a way that no spillage occurs.

23. The master log books maintained by the applicant to track production and sales shall be maintained for inspection by the County.

24. Pay all applicable taxes as required by the Humboldt County Commercial Marijuana Cultivation Tax Ordinance (Humboldt County Code Section 719-1 et seq.).

Performance Standards for Cultivation and Processing Operations

25. Pursuant to Business and Professions Code section 26051.5(a)(8), an applicant seeking a cultivation license shall "provide a statement declaring the applicant is an 'agricultural employer,' as defined in the Alatorre-Zenovich-Dunlap-Berman Agricultural Labor Relations Act of 1975 (Part 3.5 commencing with Section 1140) of Division 2 of the Labor Code), to the extent not prohibited by law."

26. Cultivators shall comply with all applicable federal, state, and local laws and regulations governing California Agricultural Employers, which may include federal and state wage and hour laws, Cal/OSHA, OSHA, the California Agricultural Labor Relations Act, and the Humboldt County Code (including the Building Code).

27. Cultivators engaged in processing shall comply with the following Processing Practices:
    a. Processing operations must be maintained in a clean and sanitary condition including all work surfaces and equipment.
    b. Processing operations must implement protocols which prevent processing contamination and mold and mildew growth on cannabis.
    c. Employees handling cannabis in processing operations must have access to facemasks and gloves in good operable condition as applicable to their job function.
    d. Employees must wash hands sufficiently when handling cannabis or use gloves.

28. All persons hiring employees to engage in commercial cannabis cultivation and processing shall comply with the following Employee Safety Practices:
    a. Cultivation operations and processing operations must implement safety protocols and provide all employees with adequate safety training relevant to their specific job functions, which may include:
        (1) Emergency action response planning as necessary;
        (2) Employee accident reporting and investigation policies;
        (3) Fire prevention;
        (4) Hazard communication policies, including maintenance of material safety data sheets (MSDS);
        (5) Materials handling policies;
        (6) Job hazard analyses; and
        (7) Personal protective equipment policies, including respiratory protection.
    b. Cultivation operations and processing operations must visibly post and maintain an emergency contact list which includes at a minimum:
        (1) Operation manager contacts;
        (2) Emergency responder contacts; and
        (3) Poison control contacts.
    c. At all times, employees shall have access to safe drinking water and toilets and handwashing facilities that comply with applicable federal, state, and local laws and regulations. Plumbing facilities and water source must be capable of handling increased usage without adverse consequences to neighboring properties or the environment.
    d. On site-housing provided to employees shall comply with all applicable federal, state, and local laws and regulations.

29. All cultivators shall comply with the approved processing plan as to the following:
    a. Processing practices
    b. Location where processing will occur

c. Number of employees, if any
d. Employee Safety Practices
e. Toilet and handwashing facilities
f. Plumbing and/or septic system and whether or not the system is capable of handling increased usage
g. Drinking water for employees
h. Plan to minimize impact from increased road use resulting from processing
i. On-site housing, if any

30. Term of Commercial Cannabis Activity Zoning Clearance Certificate. Any Commercial Cannabis Cultivation ZCC issued pursuant to the CMMLUO shall expire one (1) year after date of issuance, and on the anniversary date of such issuance each year thereafter, unless an annual compliance inspection has been conducted and the permittees and the permitted site have been found to comply with all conditions of approval.

31. If the inspector or other County official determines that the permittees or site do not comply with the conditions of approval, the inspector shall serve the permit holder with a written statement identifying the items not in compliance, and the action that the permit holder may take to cure the noncompliance, or file an appeal within ten (10) days of the date that the written statement is delivered to the permit holder. Personal delivery or mailing the written statement to the mailing address listed on the application by regular mail, plus three (3) days after date of mailing, shall constitute delivery. The permit holder may request a reinspection to determine whether or not the permit holder has cured all issues of noncompliance. Failure to request reinspection or to cure any items of noncompliance shall terminate the Zoning Clearance Certificate, immediately upon the expiration of any appeal period, or final determination of the appeal if an appeal has been timely filed pursuant to Section 55.4.13.

32. Permit Renewals to Comply with Updated Laws and Regulations. Permit renewal is subject to the laws and regulations effective at the time of renewal, which may be substantially different than the regulations currently in place and may require the submittal of additional information to ensure that new standards are met.

33. Acknowledgements to Remain in Full Force and Effect. Permittee acknowledges 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 in which the cultivation area is located, will not support diversions for irrigation.

34. Transfers. Transfer of any leases or permits approved by this project is subject to the review and approval of the Planning Director for conformance with CMMLUO eligibility requirements and agreement to permit terms and acknowledgments. The fee for required permit transfer review shall accompany the request. The request shall include the following information:
    a. Identifying information for the new owner(s) and management as required in an initial permit application;
    b. A written acknowledgment by the new owner in accordance as required for the initial permit application;
    c. The specific date on which the transfer is to occur;
    d. Acknowledgement of full responsibility for complying with the existing permit; and
    e. Execution of an Affidavit of Non-diversion of Medical Cannabis.

35. Inspections. The permit holder and subject property owner are to permit the County or representative(s) or designee(s) to make inspections at any reasonable time deemed necessary to assure that the activities being performed under the authority of this permit are in accordance with the terms and conditions prescribed herein.

Informational Notes:

1. Pursuant to Section 314-55.4.11(a) of the CMMLUO, if upon inspection for the initial application, violations of any building or other health, safety, or other state or county statute, ordinance, or regulation are discovered, the Planning and Building Department may issue a provisional clearance or permit with a written approved Compliance Agreement. By signing the agreement, the permittee agrees to abate or cure the violations at the earliest opportunity but in no event more than two (2) years after the date of issuance of the provisional clearance or permit. Plans for curing the violations shall be submitted to the Planning and Building Department by the permittee within one (1) year of the issuance of the provisional certificate or permit. The terms of the compliance agreement may be appealed pursuant to Section 314-55.4.13 of the CMMLUO.

2. This provisional permit approval shall expire and become null and void at the expiration of one (1) year after all appeal periods have lapsed (see "Effective Date"), except where the Compliance Agreement per Condition of Approval #6 has been executed and the corrective actions pursuant to the agreement are being undertaken. Once building permits have been secured and/or the use initiated pursuant to the terms of the agreement, the use is subject to the Permit Duration and Renewal provisions set forth in the Ongoing Requirements/Development Restrictions, above.

3. If cultural resources are encountered during construction activities, the contractor on-site shall cease all work in the immediate area and within a 50-foot buffer of the discovery location. A qualified archaeologist and the appropriate Tribal Historic Preservation Officer(s) are to be contacted to evaluate the discovery and, in consultation with the applicant and the lead agency, develop a treatment plan in any instance where significant impacts cannot be avoided.

   Prehistoric materials may include obsidian or chert flakes, tools, locally darkened midden soils, groundstone artifacts, shellfish or faunal remains, and human burials. If human remains are found, California Health and Safety Code 7050.5 requires that the County Coroner be contacted immediately at 707-445-7242. If the Coroner determines the remains to be Native American, the Native American Heritage Commission will then be contacted by the Coroner to determine appropriate treatment of the remains pursuant to Public Resources Code (PRC) Section 5097.98. Violators shall be prosecuted in accordance with PRC Section 5097.99.

ATTACHMENT 2

CEQA ADDENDUM TO THE MITIGATED NEGATIVE DECLARATION FOR THE COMMERCIAL MEDICIAL MARIJUANA LAND USE ORDINANCE

Commercial Medical Marijuana Land Use Ordinance Mitigated Negative Declaration (MND) (State Clearinghouse # 2015102005), January 2016

APN 220-271-008; 1600 Miller Creek Road, Whitethorn
County of Humboldt

Prepared By
Humboldt County Planning and Building Department
3015 H Street, Eureka, CA 95501

September 2021

Background

Modified Project Description and Project History – The Commercial Medical Marijuana Land Use Ordinance (CMMLUO) established specific regulations for commercial cannabis operations in Humboldt County. These regulations were developed in concert with the Mitigated Negative Declaration (MND) that was adopted for the ordinance in order to implement the mitigation measures of the MND. The MND addressed the broad environmental impacts that could be expected to occur from the adoption and implementation of the ordinance. The MND specified that the regulations established in the CMMLUO would mitigate the impacts of existing cannabis operations by establishing regulations for an existing unregulated land use to help prevent and reduce environmental impacts that are known to result from unpermitted baseline cultivation operations. Commercial cannabis cultivation in existence as of December 31, 2015 was included in the environmental baseline for the MND and the MND states that "Bringing existing operations into compliance will help to attenuate potential environmental effects from existing cultivation activities, including aesthetic impacts resulting from improper operation or poor siting." The current project was contemplated by the MND and compliance with the provisions of the CMMLUO will fully mitigate all environmental impacts of the project to a less than significant level.

The modified project involves a Zoning Clearance Certificate for an existing 4,350 square foot (SF) full-sun outdoor cannabis cultivation. There is no separate propagation area. Irrigation water is sourced from spring and creek diversions. Existing available water storage is 26,500 gallons in eight (8) HDPE tanks, with a 2,500-gallon tank dedicated to fire suppression. Estimated annual water usage is 14,000 gallons. Drying and curing occurs onsite with all other processing occurring offsite at a licensed processing or manufacturing facility; however, onsite processing is anticipated at a future date. A maximum of two (2) people will be on-site during peak operations. Power is provided by solar and two (2) generators, with plans to add more solar onsite in the future or connect to PG&E, if available. Special Permits are also requested for development in the Streamside Management Area (SMA) related to continued use of the point of diversions and fish passage upgrades.

Miller Creek and Buck Creek traverse the western, southern, and eastern portions of the subject parcel. As shown on the Site Plan, the cultivation areas are shown to be located outside of the SMA buffers; however, a 300-gallon and 1,000-gallon transfer tank and a gasoline-powered water pump are located within the Miller Creek and Buck Gulch buffers. While Building #4, an existing 192 SF cabin used for domestic storage, developed prior to 2005, is also located within the SMA buffer, it is not utilized for cannabis and is not considered part of the project. Conditions of approval require relocation of the above-listed cannabis-related features outside of the SMA and to a previously disturbed area without the use of heavy machinery. All approved cannabis cultivation activities would occur on slopes less than 25%. The Nearest Northern Spotted Owl (NSO) positive sighting and activity center are located approximately 0.83 and 0.86 miles from the nearest cultivation area, respectively. Power to the site is provided by two (2) generators (used to power drying fans and water pump) and solar power. There is no use of artificial lighting authorized by this permit. Conditions of approval require the applicant use noise and light attenuation to ensure the project has a Less the Significant Impact on NSO. The applicant has enrolled with the State Water Resources Control Board Cannabis Cultivation Policy. A condition of project approval is inadvertent discovery protocols for cultural resources consistent with the recommendation of the Cultural Resources Investigation, prepared by Archaeological Research and Supply Company in September 2018, and the Bear River Band of the Rohnerville Rancheria in September 2019.

The modified project is consistent with the adopted MND for the CMMLUO because it complies with all standards of the CMMLUO which were intended to mitigate impacts of existing cultivation. These include ensuring security lighting adheres to Dark Sky Association standards and ensuring project related noise does not harass nearby wildlife which will limit impacts to biological resources as a result of light and noise.

Purpose - Section 15164 of the California Environmental Quality Act (CEQA) provides that the lead agency shall prepare an addendum to a previously certified Mitigated Negative Declaration (MND) if

some changes or additions are necessary but none of the conditions described in Section 15162 calling for a subsequent EIR or Negative Declaration have occurred. Section 15162 states that when an EIR has been certified for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

1. Substantial changes are proposed in the project which require major revisions of the previous MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous MND was certified as complete, shows any of the following: A) the project will have one or more significant effects not discussed in the previous MND; B) significant effect previously examined will be substantially more severe than shown in the previous MND; C) mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or D) mitigation measures or alternatives which are considerably different from those analyzed in the previous MND would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Summary of Significant Project Effects and Mitigation Recommended

No changes are proposed for the original MND recommended mitigations. The proposal to authorize the continued operation of an existing cannabis cultivation site consisting of 4,350 square feet of cultivation with ancillary propagation, drying, and curing activities and future onsite processing is fully consistent with the impacts identified and adequately mitigated in the original MND. The project as conditioned to implement responsible agency recommendations, results in no significantly adverse environmental effects beyond those identified in the MND. Compliance with the CMMLUO ensures consistency with the adopted MND and provides for mitigation of all project related impacts to a less than significant level.

In reviewing the application for consistency with the adopted MND, the County considered the following information and studies, among other documents (see Attachment 3 for a complete listing of document):

1. Site Plan, prepared by 1 Degree Consulting, dated April 2020.
2. Cultivation and Operations Plan, originally prepared by Green Road Consulting and updated by 1 Degree Consulting in April 2020.
3. Site Management Plan (WDID-1_12CC417788), prepared by 1 Degree Consulting, dated 1/23/20, for the State Water Resource Control Board (State Water Board) Cannabis Cultivation Policy (Cannabis Policy) and Order WQ 2017-0023-DWQ General Waste Discharge Requirements for Dischargers of Waste Associated with Cannabis Cultivation Activities (General Order).
4. Water Resource Protection Plan, prepared by Compliant Farms, dated 3/2/17.
5. Road Evaluation Report for Miller Creek Road, prepared by the applicant, dated 8/3/19.
6. Cultural Resources Investigation of the Briceland Karachobanov, Worley and Ettersburg Valdivia Properties Final Report, Briceland and Ettersburg, Humboldt County, California, Briceland and Ettersburg 7.5' USGS Quadrangle, Mutlipe APNs, prepared by Nick Angeloff, MA, and Abby

Barrios, BA, with contributions by Jerry Rohde, MA, and Lily Camara, BA, Archaeological Research and Supply Company, Rio Dell, CA, dated September 2018.
7. Final Streambed Alteration Agreement (Notification No. 1600-2016-0577-R1), issued by the California Department of Fish and Wildlife (CDFW), dated 5/24/18.
8. Right to Divert and Use Water (Registration No. H500861, Certificate No. H100036, issued by the State Water Resources Control Board (SWRCB), dated 4/30/18.
9. Notice of Applicability (WDID: 1_12CC417788), issued by the SWRCB, dated 9/24/19.
10. Basis of Design Report for Buck Gulch Fish Passage Project (Worley Property), prepared by Stillwater Sciences, dated March 2018.
11. Buck Gulch Fish Passage Implementation – 65% Design Plan, prepared by Stillwater Sciences, dated 3/20/18.
12. Rock Sizing Calculations, not dated.
13. Stream Crossing Upgrades and Water Diversions on PAN 220-*271-008 (Worley Property), prepared by Stillwater Sciences, dated 5/9/18.

Other CEQA Considerations

Staff suggests no changes for the revised project.

EXPLANATION OF DECISION NOT TO PREPARE A SUPPLEMENTAL MITIGATED NEGATIVE DECLARATION OR ENVIRONMENTAL IMPACT REPORT

See **Purpose** statement above.

In every impact category analyzed in this review, the projected consequences of the current project proposal are either the same or less than significantly increased than the initial project for which the MND was adopted. Based upon this review, the following findings are supported:

FINDINGS

1. The proposed project will permit an existing cannabis operation and bring the operation into compliance with county and state requirements intended to adequately mitigate environmental impacts.

2. The circumstances under which the project was approved have not changed substantially. There are no new significant environmental effects and no substantial increases in the severity of previously identified effects.

3. For the current proposed project, there has been no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous MND was adopted as complete.

CONCLUSION

Based on these findings it is concluded that an Addendum to the certified MND is appropriate to address the requirements under CEQA for the current project proposal. All of the findings, mitigation requirements, and mitigation and monitoring program of the MND, remain in full force and effect on the original project.

ATTACHMENT 3

Applicant's Evidence in Support of the Required Findings

Attachment 3 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** - Site Plan, prepared by 1 Degree Consulting, dated April 2020)

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. (Cultivation and Operations Plan, originally prepared by Green Road Consulting and updated by 1 Degree Consulting in April 2020) (**Attached**)

5. Copy of the statement of water diversion, or other permit, license or registration filed with the State Water Resources Control Board, Division of Water Rights, if applicable. (Right to Divert and Use Water (Registration No. H500861, Certificate No. H100036, issued by the State Water Resources Control Board (SWRCB), dated 4/30/18) (**Attached**)

6. Description of water source, storage, irrigation plan, and projected water usage. (Included in Cultivation Operations Plan (item 4. above) and Site Management Plan prepared for State Water Board Cannabis General Order (item 7. below)

7. 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. (Water Resource Protection Plan, prepared by Compliant Farms, dated 3/2/17; Site Management Plan (WDID-1_12CC417788), prepared by 1 Degree Consulting, dated 1/23/20; and Notice of Applicability (WDID: 1_12CC417788), issued by the SWRCB, dated 9/24/19) (**Attached**)

8. 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 Streambed Alteration Permit obtained from the California Department of Fish and Wildlife. (Final Streambed Alteration Agreement (Notification No. 1600-2016-0577-R1), issued by the California Department of Fish and Wildlife (CDFW), dated 5/24/18) (**Attached**)

9. If the source of water is a well, a copy of the County well permit, if available. (Not applicable)

10. If the parcel is zoned FR, U or TPZ, or involves the conversion of timberland as defined under Section 4526 of the Public Resources Code, a copy of a less-than-3-acre conversion exemption or timberland conversion permit, approved by the California Department of Forestry and Fire Protection (Cal Fire). Alternately, for existing operations occupying sites created through prior unauthorized conversion of timberland, evidence may be provided showing that the landowner has completed a civil or criminal process and/or entered into a negotiated settlement with Cal Fire. (Not applicable)

11. 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)

12. For indoor cultivation facilities, identify the source of electrical power and how it will meet with the energy requirements in Section 55.4.8.2.3, and plan for compliance with applicable building codes. (Not applicable)

13. 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)

14. 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)

15. Road Evaluation Report for Miller Creek Road, prepared by the applicant, dated 8/3/19. (**Attached**)

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

17. Cultural Resources Investigation of the Briceland Karachobanov, Worley and Ettersburg Valdivia Properties Final Report, Briceland and Ettersburg, Humboldt County, California, Briceland and Ettersburg 7.5' USGS Quadrangle, Mutlipe APNs, prepared by Nick Angeloff, MA, and Abby Barrios, BA, with contributions by Jerry Rohde, MA, and Lily Camara, BA, Archaeological Research and Supply Company, Rio Dell, CA, dated September 2018. (On file and confidential)

18. Basis of Design Report for Buck Gulch Fish Passage Project (Worley Property), prepared by Stillwater Sciences, dated March 2018. (**Attached**)

19. Buck Gulch Fish Passage Implementation – 65% Design Plan, prepared by Stillwater Sciences, dated 3/20/18. (**Attached**)

20. Rock Sizing Calculations, not dated. (**Attached**)

21. Stream Crossing Upgrades and Water Diversions on APN 220-271-008 (Worley Property), prepared by Stillwater Sciences, dated 5/9/18. (**Attached**)

Cultivation & Operations Plan

UPDATE 4/2020

(Updates in bold)

Applicant:

Miller Creek Farms

App# 12221

APN: 220-271-008
Mailing Address:
PO Box 225
Garberville, CA 95542

Agent:

1 Degree Consulting a division of Humboldt Green

Greg Gibbs: Greg@gohumboldtgreen.com

1391 G St.
Arcata, CA 95521

April 2020 update summary

The original application was prepared and submitted by Green Road Consulting (GRC) and included a Cultivation and Operations Plan. In December of 2018, Miller Creek Farms contracted 1-Degree Consulting (1DC) to update the Operations Plan and Site Plan; represent them through the permitting process with Humboldt County; and prepare and submit materials for the CDFA licensing process. Subsequently, 1DC conducted a site visit; acted as agent for Waterboard enrollment and compliance; and prepared a Site Management Plan (SMP) for Miller Creek Farms.

In August 2019 an addendum to the original application was submitted to the County in response to. This packet included an updated Operations Plan – "(updated July 2019 for accuracy.)" – prepared by Megan Acevedo. This document – "UPDATE 4/2020 (Updates in bold)" – is prepared from the Acevedo version with edits by Greg Gibbs at 1DC in response to a deficiency letter dated November 14, 2019.

Key Changes:

- **A discussion of the decommissioned cultivation area within the SMA**
- **Clarification of power source for the operations**
- **Fuel handling and storage**
- **Generator and equipment noise**
- **Water storage and use**
- **Photographs added**
- **"BLDG#" is reference to Site Plan**

Applicant & Parcel Information:

Miller Creek Farms is now applying for a Zoning Clearance Certificate in order to permit the approved 4,350 ft^2 of existing outdoor commercial cannabis cultivation, on APN: 220-271-008. The previously submitted operations plan **(January 2019)** and site plan did not have accurate information for this project, and this updated Application Packet is to supersede the previously submitted items. The parcel is owned 50% by Elizabeth Worley and 50% by Andrew Miller, and Elizabeth Worley and Elena Worley are co-owners of Miller Creek Farms. A copy of the most current Statement of Information filed with the Secretary of State, is included in this updated application packet. The farm is 100% owner operated, and no employees are used for cannabis activities on-site.

The property is 44 acres, located near Briceland California, and is zoned FR. The project is accessed through Miller Creek Road, which is a private road, connected to Briceland-Thorn Road, which is a county-maintained road. Miller Creek Road is in good condition, and meets up to category 4 road standards. A copy of a Road Evaluation Report for Miller Creek Road is included

in this application packet. Since the farm is 100% owner operated, and Elena Worley lives on the northern adjacent parcel, no increased use of Miller Creek Road is anticipated with this project. A copy of the grant deed showing Elena as owner of the adjacent parcel APN: 220-271-009 is included in this updated application packet.

There are no known schools, school bus stops, places of public worship, cultural resources, or State parks within 600 feet of cultivation on-site. As well, there are no neighboring residences within 300 feet of cultivation on-site. There is a small grape vineyard in the southeast corner of the property, which is owned and operated by the Applicant's neighbor on APN: 220-271-006. This area is not related to cannabis activities on-site, and is designated on the updated Site Plan included in this application packet.

Project Summary:

~ Water Source, Storage, Irrigation Plan, and Projected Water Usage

The Applicant has an approved Right to Divert and Use Water from the division of Water Rights, Registration H500861. This Water Right approves the diversion of water from a Spring located on the property, as well as a diversion from Miller Creek, to be used for the irrigation of cannabis crops. A copy of the Water Right is included in this Application Packet. The Applicant currently has a total of 24,000 gallons of water storage on-site. There are two (2) 5,000-gallon water tanks, three (3) 3,000-gallon water tanks, and two (2) 2,500-gallon water storage tanks designated for cannabis irrigation. There is also one additional 2,500-gallon tank is designated for fire water, shown on the updated Site Plan. **Water is transferred up hill to storage tanks via a gasoline powered pump. The pump is a 4-stroke engine that registered 50 decibels at the property line; measured using the Decibel Meter App.**

The Applicant waters by hand at an agronomic rate, and uses a hand meter to monitor the water used for cannabis irrigation. As well, the Applicant uses mulch and hay over garden beds for water retention. With a total cultivation space of 4,350 ft^2 of outdoor cannabis crops, it **was** anticipated that the Applicant **would** utilize approximately 44,000 gallons of water per year**: this was based on an earlier estimate of 90,000 gallons for 10,000 ft^2. The previous water use estimates however were for either a larger square footage and/or different cultivation methods (light-dep). The farmer has good water use numbers from the 2019 season based on counting tank volume used: it took 14,000 gallons to irrigate 4,350 ft^2 of outdoor cannabis crops.** The Applicant is no longer proposing to install a pond on-site **and no** additional **storage** tanks **will be necessary** in the future. **Recognizing that natural conditions vary from year to year,** the **existing** total water storage of **24,000 gallons** for cannabis irrigation **is expected to be more than** enough to **accommodate** the forbearance period**. Moreover, the Applicant was able to fill the existing storage without diverting from Miller Creek. While the owner will maintain the right to divert from the stream, it is anticipated that all irrigation needs will be met entirely by the Spring diversion for the foreseeable future.**

~ Site Drainage, Runoff and Erosion Control Measures

The parcel has slope**s** of moderate instability, with drainages flowing **southeast**. The Applicant utilizes hay/mulch over garden beds which lowers the **potential for** erosion and runoff associated with cannabis irrigation. The roads on-site are in fairly good condition, and the Applicant utilizes hay and mulch for any erosion control needed during the wet season. **Road drainage recommendations are included in the Site Management Plan**. A final Lake & Streambed Alteration Agreement has issued by Fish & Wildlife to address all stream crossings on the parcel, and a copy is included in this updated application packet.

~ Protection of Watershed and Nearby Habitat

The Site Management Plan (included in this 2020 submittal) details specific road, landuse, and operational BPTC measures to mitigate potential water quality threats on the project. Likewise, the adherence to the conditions and terms of the CDFW 1600 shall protect habitat and wildlife with regard to project operations and necessary mitigation/improvements.

The parcel contains two Class II streams, Miller Creek and Bulk Gulch, **Buck Gulch is tributary to Miller Creek, which is tributary** to Redwood Creek. Miller Creek Farms enrolled in the North Coast Regional Water Quality Control Board **(NCRWQCB)** Waiver of Waste Discharge Program in 2016, and had a Water Resource Protection Plan developed by Compliant Farms **(SMP supersedes)**. The Applicant has since transferred their enrollment to the State Water Board General Order, and **a Site Management Plan was prepared by 1-Degree Consulting** in accordance with the Order to replace the outdated WRPP. **Copies** of the **NOA and the SMP** for **SWRCB ORDER** enrollment are included in this updated application packet. All cultivation areas and **affiliated** buildings on-site are located outside of the buffer zones and streamside management areas associated with these streams.

There is one **small gas-powered pump used to transfer the water to storage tanks**. The existing water pump is located just within the stream buffers, within an open enclosure, shown on the updated Site Plan. The Applicant plans to place the **pump within a new** secondary containment **structure upslope** in the near future: **all storage tanks are full for the 2020 season.** All solid waste **(refuse)** is collected on-site and stored in 50-gallon trash cans with lids **at** the Red Cabin, shown on the updated Site Plan. The Applicant has also received a final Lake & Streambed Alteration Agreement with **CA Dept. of** Fish & Wildlife for **all** instream work needed on-site.

The Applicant **shall follow all requirements and regulations to prevent** disturbance to wildlife and wildlife habitat. As well, the applicant will not use any erosion control measures that utilize synthetic (e.g. plastic or nylon) monofilament netting, including photo or biodegradable plastic netting. Geotextiles, fiber rolls, and other erosion control measures will be made of loose-weave mesh, such as jute, hemp, coconut fiber, or other products without welded weaves. This is in accordance with Fish & Wildlife's prohibition on use of monofilament netting.

~ Restoration of Legacy Cultivation

There was one 814 ft^2 pre-existing hoop house (**documented by in the WRPP)** located within the streamside management area **(SMA)** for Buck Gulch, **near the Creekside Cabin (BLDG 4).** Per the Water Resource Protection Plan developed by **Compliant Farms**, the applicant removed the greenhouse **to comply** with the Regional Water Board setback requirements. The cultivation space was relocated to the existing outdoor CA1 **(**shown on the updated Site Plan**)**, which was already deemed as a viable location for cultivation area by Stillwater Sciences.

From WRPP. Hoop-house, BLDG4 (background), and shed structure (left edge of photo), looking southeast.

From 2020 site visit. Same flat, looking northwest. BLDG4 at right edge of photo.

From 2020 site visit. Same flat, close-up of vegetation. Notebook (6x8-inch) for scale.

All hoop house construction and cultivation associated materials were removed from the site. No grading had occurred for the cultivation on this historic logging flat. No revegetation treatment was applied after removal, but the flat now has greater than 95% cover of volunteer grasses. In fact, during a site visit by 1DC in January 2020, no evidence of the prior greenhouse footprint was apparent. It should be noted that the WRPP photos show the hoop house and a second structure, which has also been removed (see photos above). Both structures are identified as greenhouses on the updated (2020) Site Plan. No construction **or grading** was required for the relocation of this cultivation space, **and no legacy impacts are apparent** at this time.

*~ Storage and use of Fertilizers, Pesticides**, and Petroleum***

All nutrients, fertilizers and pesticides are used according to their labeled instructions. **Nutrients and Fertilizers are applied with irrigation at agronomic rates** to avoid runoff. As well, the nutrients are stored within the 8' x 7' Nutrients Shed **(BLDG 3 & BLDG 6)** labeled on the updated Site Plan, within tote containers **to provide secondary containment and** avoid spills. Pesticides, if necessary, shall be applied by a certified handler and never within 7 days of forecast precipitation.

All fuels, lubricants, and hazardous materials are stored in a contained storage off-site at the owner's adjacent parcel. Gasoline is used for the water pump, and seasonally, for a generator. Gasoline is only used in small quantities and thus delivered and stored in 1-gallon (legal) containers as needed. Incidental oils and lubricants are stored off-site. All fueling happens at the equipment location, outside of the riparian buffers. The water pump is regularly inspected for leaks. In the event of a leak, drip or spill, clean-up will be done

immediately and the pump will be removed and repaired if necessary, to correct the leak/drip.

Spill prevention is achieved by secondary containment of all nutrients and petroleum-based products. A Spill clean-up kit (kitty Litter, Absorbent pads, etc.) will be stored at each containment location. If a clean-up is required, contaminated materials will be disposed of through Humboldt Waste Management Authority or similar authorized receiver. The cultivator will immediately notify the California Office of Emergency Services at 1-800-852-7550 and immediately initiate cleanup activities for all spills that could degrade groundwater.

~ Cultivation Activities & Processing Plan

There are two existing garden areas, with a total of 4,350 ft^2 of outdoor cannabis cultivation located on the property. All cultivation activities are done by members of Miller Creek Farms, and no employees are used for commercial cannabis activities on-site. Cultivation is started from **purchased** clones or seeds **directly where the plants will mature;** there is no **separate** propagation area used for cultivation activities. Outdoor cultivation typically begins in May, when seeds or clones are planted straight in the ground, and harvested sometime in October. Harvested product is taken to the 12' x 18' Dry Shed **(BLDG 6)**, where it is dried, cured, and then stored for testing and distribution. **A Honda EU2000 gasoline-powered generator is used to power fans for the drying process. Both the generator and the gasoline are stored off-site, at the owner's adjacent home parcel, and brought to the project as necessary. The Honda EU2000 is rated at 59 decibels at maximum load and 53 decibels at quarter load. It is presumed to be less than 50 decibels at 100-feet distance.**

There is an 8' x 12' Office **(BLDG 1)**, where all records are kept, Wi-Fi and solar power are available here and at the nearby Red Cabin **(BLDG 2)**. All final trimmed cannabis will be stored in the Red Cabin, to be collected by a licensed distributor. Any required building permits will be acquired at a later date. A building inspection by the County is scheduled for April 15, 2020.

There are two cabins located on the property, both of which are used for personal storage, and are not utilized as living spaces. One cabin labeled the Red Cabin **(BLDG 2)**, is powered by solar panels, is utilized as a lounge and break area, and contains drinking water and a sink for hand washing. The second cabin labeled Creekside Cabin **(BLDG 4)**, is strictly used for personal storage space, and is not used for cannabis activities on-site. There is currently no septic system on the property, but a septic system is available on the northern adjacent property owned by Elena Worley. We are proposing to use the septic system available on the adjacent property, for the use of Miller Creek Farm members.

~ Planned Schedule of Activities

Jan	Winterization implemented on the site. Divert and store water from the spring in tanks.
Feb	Winterization implemented on the site. Divert and store water from the spring in tanks.
Mar	Winterization implemented on the site. Divert and store water from the spring in tanks.
Apr	Buy clones in late April if clones are used.
May	Start outdoor cultivation gardens either from clones or seeds.
June	Outdoor cultivation gardens in vegetative state.
July	Outdoor cultivation gardens flowering.
Aug	Outdoor cultivation gardens flowering.
Sept	Outdoor cultivation gardens flowering.
Oct	Harvest full outdoor plants.
Nov	Clean up site, and prepare site for winterization.
Dec	Winterization implemented on the site. Divert and store water from the spring in tanks.

~ Security Plan

Miller Creek Road is a shared **right-of-way** road, and there are three locked gates that lead to separate areas of the **Miller Creek Farms** property. As well, Elena Worley lives on the northern adjacent parcel, and has access to a game camera located near Garden 1. Garden 1 is also fenced and locked when unattended, and all storage areas are locked when unattended. The parcel gets cell service, and emergency personnel will be contacted in the case of emergency.

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

RIGHT TO DIVERT AND USE WATER

REGISTRATION *H500861* CERTIFICATE *H100036*

Right Holder: *Elizabeth Worley*
1600 Miller Creek Rd
Briceland, CA 95542

The State Water Resources Control Board (State Water Board) authorizes the diversion and use of water by the right holder in accordance with the limitations and conditions herein SUBJECT TO PRIOR RIGHTS. The priority of this right dates from *04/05/2018*. This right is issued in accordance with the State Water Board delegation of authority to the Deputy Director for Water Rights (Resolution 2012-0029) and the Deputy Director for Water Rights redelegation of authority dated October 19, 2017.

The Deputy Director for Water Rights finds that this registration meets the requirements for registration of small irrigation use appropriation. (Wat. Code, § 1228 et seq.)

Right holder is hereby granted a right to divert and use water as follows:

1. Location of point*(s)* of diversion **(Coordinates in WGS 84)**

Name of Diversion	Source	Tributary To:	Thence	Latitude	Longitude	County	Assessor's Parcel Numbers (APN)
Spring POD	Unnamed Spring	Miller Creek	-----	40.1223	-123.9177	Humboldt	220-271-008
Miller Creek POD	Miller Creek	Redwood Creek	-----	40.1223	-123.9166	Humboldt	220-271-008

2. Purpose of Use and 3. Place of Use

2. Purpose of Use	3. Place of Use		
	County	Assessor's Parcel Numbers (APN)	Acres
Irrigation	Humboldt	220-271-008	0.2295

Note: Assessor's Parcel Numbers provided are based on the user's entries in this portal on *04/30/2018*.
The place of use is shown on the map filed on *04/30/2018* with the State Water Board.

4. Quantity and Season:

The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 0.460334 **acre-feet per year** to be collected from 01/01 to 12/31 and as permitted in the diversion season specified in the current version of the State Water Board's Cannabis Policy. The total storage capacity shall not exceed 0.47 acre-feet. The rate of diversion to storage shall not exceed **42,000 gallons per day (gpd) or the diversion rate specified in the current version of the State Water Board's Cannabis Policy, whichever is more restrictive.**

5. No water shall be diverted or used under this right unless the water right holder is in compliance with all applicable conditions, including the numeric and narrative instream flow requirements, of the current version of the State Water Board's Cannabis Policy, which is available online at: http://www.waterboards.ca.gov/water_issues/programs/cannabis/docs/policy.pdf

6. No water shall be diverted or used under this right, and no construction related to such diversion shall commence, unless right holder has obtained and is in compliance with all necessary permits or other approvals required by other agencies.

7. Diversion works shall be constructed and water applied to beneficial use with due diligence.

8. No water shall be diverted under this right unless right holder complies with all lawful conditions required by the California Department of Fish and Wildlife. (Wat. Code, § 1228.6, subd. (a)(2).)

9. No water shall be diverted under this right unless it is diverted in accordance with the information set forth in the completed registration form as to source, location of point of diversion, purpose of use, place of use, quantity, and season of diversion. This information is reproduced as conditions 1 through 4 of this certificate.

10. No water shall be diverted under this right unless right holder complies with all applicable state, city, county, and local laws, regulations, ordinances, permits, and license requirements including, but not limited to those for cannabis cultivation, grading, construction, and building.

11. Pursuant to Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this right, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

12. The State Water Board reserves jurisdiction over this registration to change the season of diversion and rate of diversion based on later findings of the State Water Board concerning availability of water and the protection of beneficial uses. Any action to change the authorized season of diversion and rate of diversion will be taken only after notice to interested parties and opportunity for hearing.

13. Right holder shall grant, or secure authorization through right holder's right of access to property owned by another party, the staff of the State Water Board, and any other authorized representatives of the State Water Board the following:

    a. Entry upon property where water is being diverted, stored, or used under a right issued by the State Water Board or where monitoring, samples and/or records must be collected under the conditions of this right;

    b. Access to copy any records at reasonable times that are kept under the terms and conditions of a right or other order issued by the State Water Board;

    c. Access to inspect at reasonable times any project covered by a right issued by the State Water Board, equipment (including monitoring and control equipment), practices, or operations regulated by or required under this right; and,

    d. Access to photograph, sample, measure, and monitor at reasonable times for the purpose of ensuring compliance with a right or other order issued by the State Water Board, or as otherwise authorized by the Water Code.

14. Diversion of water under this right is subject to prior rights. Right holder may be required to curtail diversion or release water stored during the most recent collection season should diversion under this right result in injury to holders of legal downstream senior rights. If a reservoir is involved, right holder may be required to bypass or release water through, over, or around the dam. If release of stored water would not effectively satisfy downstream prior storage rights, right holder may be required to otherwise compensate the holders of such rights for injury caused.

15. This right shall not be construed as conferring right of access to any lands or facilities not owned by right holder.

16. All rights are issued subject to available flows. Inasmuch as the source contains treated wastewater, imported water from another stream system, or return flow from other projects, there is no guarantee that such supply will continue.

17. If storage or diversion of water under this right is by means of a dam, right holder shall allow sufficient water at all times to pass through a fishway or, in the absence of a fishway, allow sufficient water to pass over, around, or through the dam to keep in good condition any fish that may be planted or exist below the dam; provided that, during a period of low flow in the stream, upon approval of the California Department of Fish and Wildlife, this requirement will be satisfied if sufficient water is passed through a culvert, waste gate, or over or around the dam to keep in good condition any fish that may be planted or exist below the dam if it is impracticable or detrimental to pass the water through a fishway. In the case of a reservoir, this provision shall not require the passage or release of water at a greater rate than the unimpaired natural inflow into the reservoir. (Fish & G. Code, § 5937.)

18. The facilities for diversion under this right shall include satisfactory means of measuring and bypassing sufficient water to satisfy downstream prior rights and any requirements of the California Department of Fish and Wildlife Policy and the State Water Boards Cannabis Cultivation Policy.

19. This right does not authorize any act which results in the taking of a threatened, endangered, or candidate species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish

and Game Code section 2050 et seq.) or the federal Endangered Species Act (16 U.S.C.A. section 1531 et seq.). If a "take" will result from any act authorized under this water right, the right holder shall obtain authorization for an incidental take prior to construction or operation of the project. Right holder shall be responsible for meeting all requirements of the state and Federal Endangered Species Acts for the project authorized under this right.

20. This right is subject to the submittal of an annual report of water use and satisfactory renewal, on forms to be furnished by the State Water Board, including payment of the then-current annual renewal fees. (Wat. Code, § 1228.5.)

21. This right shall be totally or partially forfeited for nonuse if the diversion is abandoned or if all or any part of the diversion is not beneficially used for a continuous period of five years.

22. This right is subject to enforcement, including but not limited to revocation, by the State Water Board if 1) the State Water Board finds that the right holder knowingly made any false statement, or knowingly concealed any material fact, in the right; 2) the right is not renewed as required by the conditions of this certificate; or 3) the State Water Board finds that the right holder is in violation of the conditions of this right. (Wat. Code, § 1228.4 et seq.)

23. The State Water Board intends to develop and implement a basin-wide program for real-time electronic monitoring and reporting of diversions, withdrawals, releases, and streamflow in a standardized format if and when resources become available. Such real-time reporting will be required upon a showing by the State Water Board that the program and the infrastructure are in place to accept real-time electronic reports. Implementation of the reporting requirements shall not necessitate amendment to this right.

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS

This certificate was issued automatically as a result of the registrant self-certifying submittal of a water right registration filing in substantial compliance with Water Code §1228.3.

Dated: 04/30/2018 15:10:38

September 24, 2019 WDID:1_12CC417788

ELENA WORLEY-VAN DER MEER
1102 J STREET
EUREKA, CA 95501

Subject: Notice of Applicability - Waste Discharge Requirements Water Quality Order WQ 2019-0001-DWQ

The attached Notice of Applicability provides notice that the requirements of the State Water Board *Cannabis Cultivation Policy- Principles and Guidelines for Cannabis Cultivation* (Policy), and the *General Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities,* Order WQ 2019-0001-DWQ (General Order – previously WQ 2017-0023-DWQ, with updates and revisions effective April 16, 2019) are applicable to the site as described below. Based on the information provided, the Discharger self-certifies the cannabis cultivation activities are consistent with the requirements of the State Water Board Policy and General Order.

Please direct all submittals, discharge notifications, and questions regarding compliance and enforcement to the North Coast Regional Water Quality Control Board Cannabis Program at (707) 576-2676 or northcoast.cannabis@waterboards.ca.gov.

Sincerely,

2019.09.25 10:16:21 PDT

Kason Grady

On Behalf Of

Water Boards

Matthias St. John
Executive Officer
North Coast Regional Water Quality Control Board

190924_1L_1_12CC417788_1B161607CHUM_Miller_Creek_Farms_NOA_TW

NOTICE OF APPLICABILITY – WASTE DISCHARGE REQUIREMENTS, WATER QUALITY ORDER WQ 2019-0001-DWQ, ELENA WORLEY-VAN DER MEER, HUMBOLDT COUNTY APN(s) 220-271-008

Elena Worley-Van Der Meer (hereafter "Discharger") submitted information through the State Water Resources Control Board's (State Water Board's) online portal on June 24, 2019, for discharges of waste associated with cannabis cultivation related activities. Based on the information provided, the Discharger self-certifies the cannabis cultivation activities are consistent with the requirements of the Policy and General Order. This letter provides notice that the Policy and General Order are applicable to the site as described below. You are hereby assigned waste discharge identification (WDID) number **1_12CC417788**. The original WDID assigned by the North Coast Regional Water Quality Control Board was 1B161607CHUM.

The Discharger is responsible for all the applicable requirements in the Policy, General Order, and this Notice of Applicability (NOA). This includes making any necessary changes to the enrollment, and the Discharger is the sole person or entity with legal authority to make those changes. The Discharger will be held liable for any noncompliance with the Policy, General Order, and the NOA.

1. FACILITY AND DISCHARGE DESCRIPTION

All dischargers enrolled under the North Coast Regional Water Board's Order (R1-2015-0023) or the Central Valley Regional Water Board's Order (R5-2015-0113) as of October 17, 2017, (the adoption date of the General Order) may retain the reduced setbacks applicable under the appropriate Regional Water Board order unless the Executive Officer for the appropriate Regional Board determines that the reduced setbacks applicable under their regional order are not protective of water quality. However, sites that expand their cannabis cultivation area or other cannabis related activities must comply with the riparian setbacks in the General Order.

The information submitted by the Discharger states the disturbed area is equal to or greater than 2,000 square feet and less than 1 acre (43,560 square feet) no portion of the disturbed area is within the setback requirements, no portion of the disturbed area is located on a slope greater than 30 percent, and the cannabis cultivation area is less than or equal to 1 acre.

Based on the information submitted by the Discharger, the cannabis cultivation activities are classified as Tier 1 Low Risk.

2. SITE-SPECIFIC REQUIREMENTS

The Policy and General Order are available on the Internet at:
https://www.waterboards.ca.gov/water_issues/programs/cannabis/cannabis_water_quality.html

The Discharger shall ensure that all site operating personnel know, understand, and comply with the requirements contained in the Policy, General Order, this NOA, and the Monitoring and Reporting Program (MRP, Attachment B of the General Order). Note that the General Order contains standard provisions, general requirements, and prohibitions that apply to all cannabis cultivation activities.

The application requires the Discharger to self-certify that all applicable Best Practicable Treatment or Control (BPTC) measures are being implemented, or will be implemented by the onset of the winter period (November 15 - April 1), following the enrollment date. Landowners of the cultivation site in the North Coast Region are required to submit and implement Site Management Plans that describes how BPTC measures are implemented property-wide, including BPTC measures implemented to address discharges from legacy activities (e.g. former timber harvest, road building, mining, etc.) at the site per Provision C.1.a. of the General Order. Dischargers that cannot implement all applicable BPTC measures by the onset of the winter period, following their enrollment date, shall submit to the appropriate Regional Water Board a *Site Management Plan* that includes a time schedule and scope of work for use by the Regional Water Board in developing a compliance schedule as described in Attachment A of the General Order.

The Policy and General Order require that, prior to conducting any work in streams or wetlands, the Discharger obtain water quality certification from the Water Boards and other required permits from other agencies (e.g. a Clean Water Act section 404 permit from the United States Army Corps of Engineers, a Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife, and other local permits). Enrollment in the General Order requires that the Discharger obtain water quality certification for any such work, but this NOA does not provide the necessary certification. If the Discharger proposes or requires work in streams or wetlands, they must apply for water quality certification separately by filling out and submitting a separate application for that work. The application is available for download at the following Regional Water Board website:
https://www.waterboards.ca.gov/northcoast/water_issues/programs/cannabis/

Currently, the direct link to that application is as follows:
https://www.waterboards.ca.gov/northcoast/water_issues/programs/cannabis/pdf/190403/180731_031616_401_WQ2017-0023-Application.pdf

Note: Water Quality Certifications require separate application and monitoring fees. A fee calculator and additional information are available at:
https://www.waterboards.ca.gov/northcoast/water_issues/programs/water_quality_certification/#401_calc

During reasonable hours, the Discharger shall allow the State Water Board or Regional Water Board (collectively Water Boards), California Department of Fish and Wildlife, CAL FIRE, and any other authorized representatives of the Water Boards upon presentation of a badge, employee identification card, or similar credentials, to:

i. enter premises and facilities where cannabis is cultivated; where water is diverted, stored, or used; where wastes are treated, stored, or disposed; or in which any records are kept;
i. access and copy, any records required to be kept under the terms and conditions of the Policy and General Order;
ii. inspect, photograph, and record audio and video, any cannabis cultivation sites, and associated premises, facilities, monitoring equipment or device, practices, or operations regulated or required by the Policy and General Order; and
iii. sample, monitor, photograph, and record audio and video of site conditions, any discharge, waste material substances, or water quality parameters at any location for the purpose of assuring compliance with the Policy and General Order.

3. TECHNICAL REPORT REQUIREMENTS

The following technical report(s) shall be submitted by the Discharger as described below:

A Site Management Plan, by September 21, 2019, consistent with the requirements of General Order Provision C.1.a., and Attachment A, Section 5. Attachment D of the General Order provides guidance on the contents of the Site Management Plan.

A Site Closure Report must be submitted 90 days prior to permanently ending cannabis cultivation activities and seeking to rescind coverage under the General Order. The *Site Closure Report* must be consistent with the requirements of General Order Provision C.1.e., and Attachment A, Section 5. Attachment D of the General Order provides guidance on the contents of the *Site Closure Report*.

4. MONITORING AND REPORTING PROGRAM

The Discharger shall comply with all provisions of the Monitoring and Reporting Program (MRP), which appears as Attachment B to the General Order. The Discharger shall also comply with all provisions of the *North Coast Regional Supplement to Annual Monitoring and Reporting Requirements for Statewide Cannabis General Order WQ 2017-0023-DWQ* (Regional Supplement), which independently appears as Investigative Order No. R1-2019-0023, issued by the Regional Water Board Executive Officer on March 22, 2019. Annual reports for both sets of requirements shall be submitted to the Regional Water Board in a combined report by March 1 following the year being monitored through the online portal (https://public2.waterboards.ca.gov/cgo). The Discharger shall not implement any changes to the MRP or to the Regional Supplement unless and until a revised MRP or Regional Supplement is issued by the Regional Water Board Executive Officer or the State Water Board Division of Water Quality Deputy Director, or the State Water Board Chief Deputy Director.

A copy of Attachment B to the General Order can be obtained online at the following location, or by contacting staff at the phone number and email address listed below. https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2019/wqo2019_0001_dwq.pdf#page=32.

A copy of the Regional Supplement can be obtained online at the following location, or by contacting staff at the phone number and email address listed below. https://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2019/19_0023_Regional%20Supplement%2013267%20Order.pdf.

5. ANNUAL FEE

According to the information submitted, the discharge is classified as Tier 1 Low Risk. The 2018-2019 annual fee for that tier and risk level was set at $600, but please note that the Fee Schedule is updated annually and future fees may be invoiced at different rates. Invoices are sent by the State Water Board at the beginning of each calendar year (generally in February). Do not submit payments without receiving an invoice. If you have questions or concerns about your fees please contact the Fee Branch at FeeBranch@waterboards.ca.gov or (916) 341-5247. The fee is due and payable on an annual basis until coverage under this General Order is formally rescinded. To rescind coverage, the Discharger must submit a Request for Termination in writing through the online portal (available at: https://public2.waterboards.ca.gov/cgo), including a Site Closure Report at least 90 days prior to termination of activities and include a final MRP report.

6. TERMINATION OF COVERAGE UNDER THE GENERAL ORDER & REGIONAL WATER BOARD CONTACT INFORMATION

Enrollees that propose to terminate coverage under the General Order must submit a Request for Termination in writing through the online portal (https://public2.waterboards.ca.gov/cgo). The Request for Termination consists of a formal statement regarding the reason for requesting termination (i.e. cultivation is no longer occurring, the property is being sold, etc.), documentation that the site is in compliance with the General Order, including dated photographs and a written discussion. If the site is not meeting the requirements of the General Order, then the enrollment cannot be terminated. Regional Water Board staff will review the Request for Termination for completeness before determining if a property inspection, enrollment termination, or a request for additional information is appropriate.

If the Discharger cannot comply with the General Order, or will be unable to implement an applicable BPTC measure contained in Attachment A by the onset of the winter period each year, the Discharger shall notify the North Coast Regional Cannabis Unit staff at (707) 576-2676 or northcoast.cannabis@waterboards.ca.gov so that a site-specific compliance schedule can be developed.

Cc: Kevin Porzio, State Water Resources Control Board,
dwq.cannabis@waterboards.ca.gov
Cheri Sanville, California Department of Fish and Wildlife,
cheri.sanville@wildlife.ca.gov
Cliff Johnson, Humboldt County Planning and Building,
cjohnson@co.humboldt.ca.us

HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS
ROAD EVALUATION REPORT

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

Applicant Name: Miller Creek Farms APN: 220-271-008

Planning & Building Department Case/File No.: AppNo.12221

Road Name: Miller Creek Road *(complete a separate form for each road)*

From Road (Cross street): Briceland-Thorn Road

To Road (Cross street): Miller Creek Farms Driveway

Length of road segment: 1.65 miles Date Inspected: 6/12/2019

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.

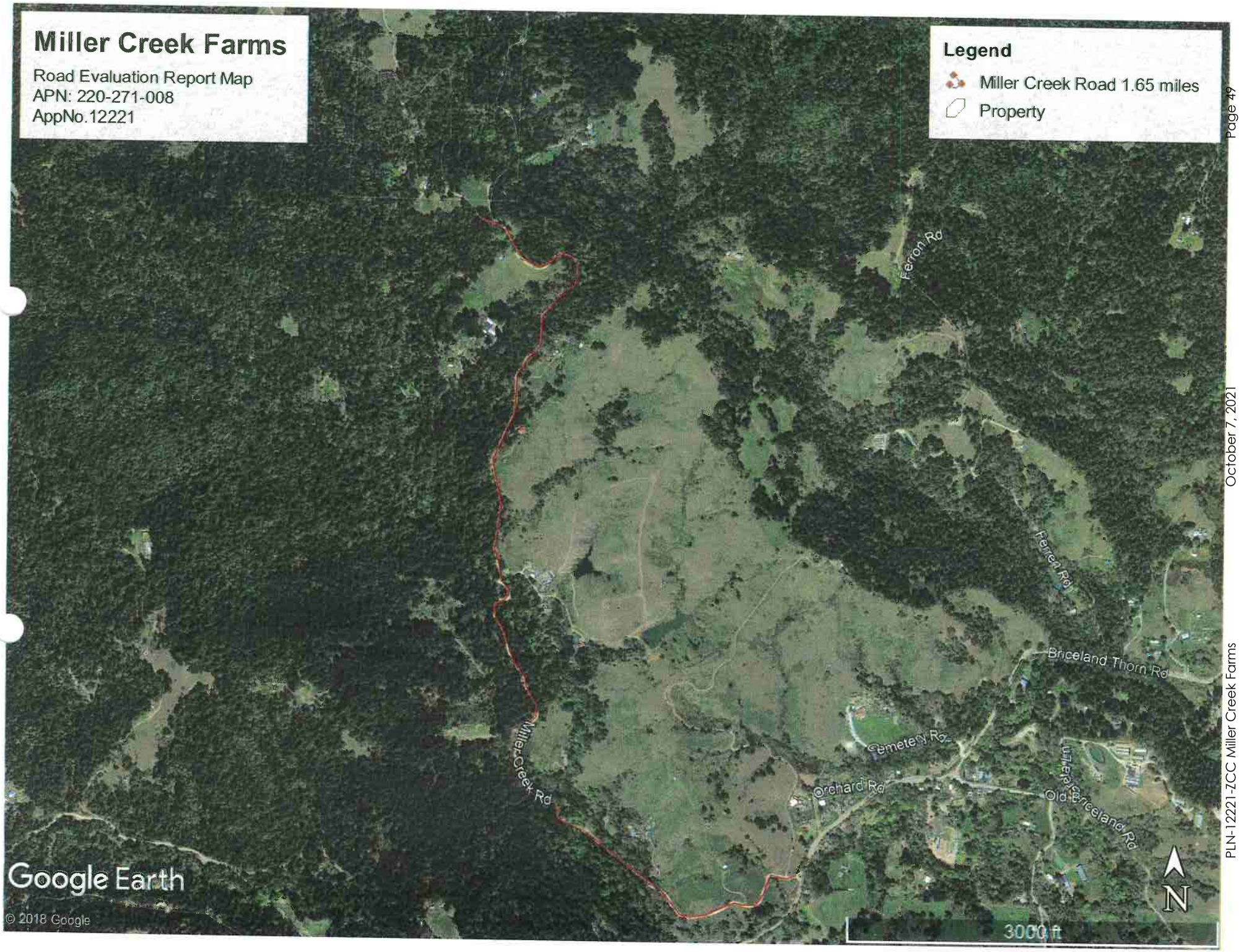
Box 3 ☐ The entire road segment is not developed to the equivalent of road category 4 or better. The road may or may not be able to accommodate the proposed use and further evaluation is necessary. Part B is to be completed by a Civil Engineer licensed by the State of California.

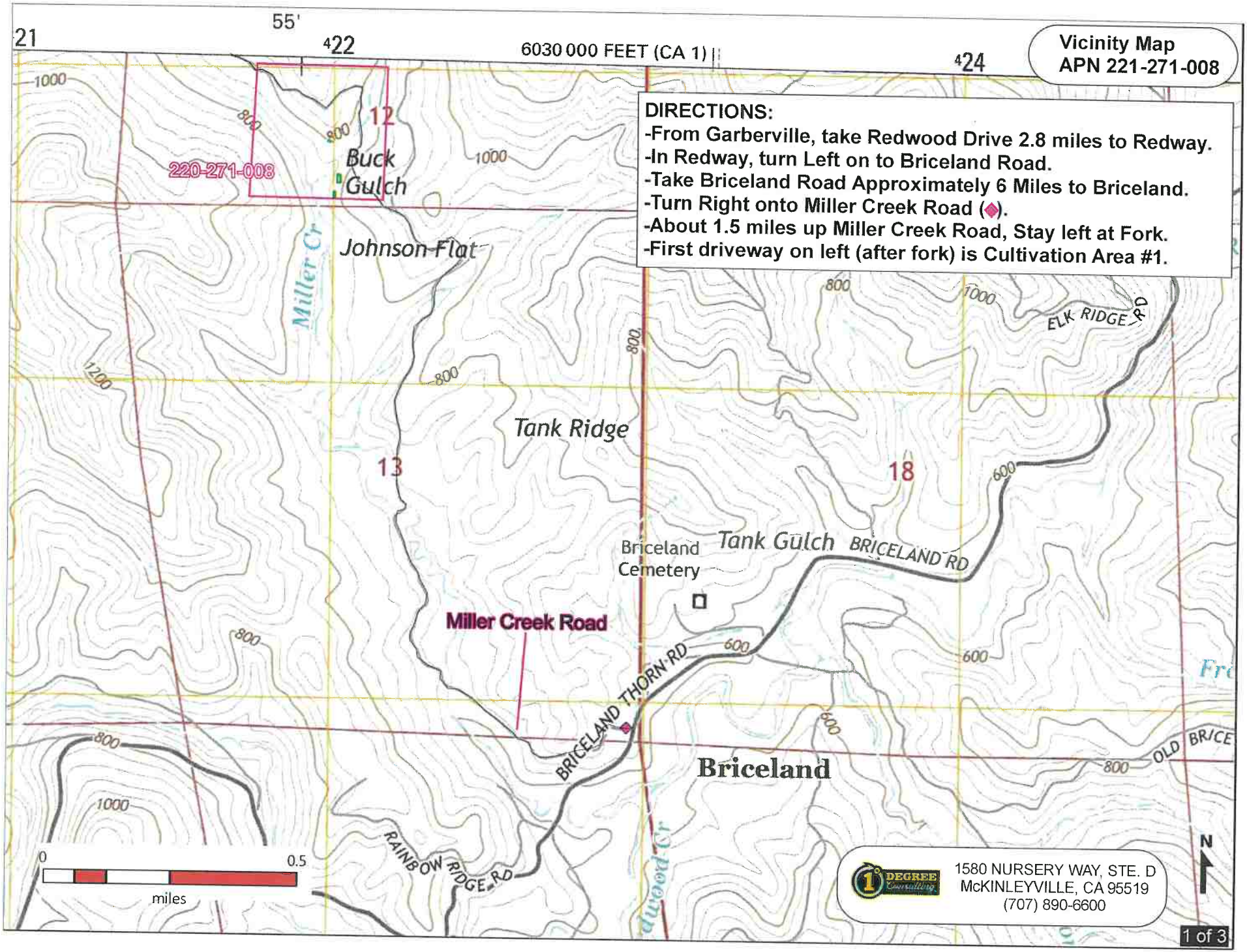
The statements in PART A are true and correct and have been made by me after personally inspecting and measuring the road.

Signature Elizabeth Worley Date Aug. 3, 2019

Name Printed ELizabeth Worley

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.


Miller Creek Farms
Road Evaluation Report Map
APN: 220-271-008
AppNo.12221
Legend
Miller Creek Road 1.65 miles
Property
Ferron Rd
Ferren Rd
Briceland Thorn Rd
Cemetery Rd
Orchard Rd
Old Briceland Rd
Miller Creek Rd
N
3000 ft
Google Earth
© 2018 Google


Vicinity Map
APN 221-271-008
DIRECTIONS:
-From Garberville, take Redwood Drive 2.8 miles to Redway.
-In Redway, turn Left on to Briceland Road.
-Take Briceland Road Approximately 6 Miles to Briceland.
-Turn Right onto Miller Creek Road (◆).
-About 1.5 miles up Miller Creek Road, Stay left at Fork.
-First driveway on left (after fork) is Cultivation Area #1.
220-271-008
Buck Gulch
Johnson Flat
Miller Cr
Tank Ridge
Tank Gulch
Briceland Cemetery
Miller Creek Road
BRICELAND RD
BRICELAND THORN RD
ELK RIDGE RD
RAINBOW RIDGE RD
Briceland
6030 000 FEET (CA 1)
0
0.5
miles
1580 NURSERY WAY, STE. D
McKINLEYVILLE, CA 95519
(707) 890-6600
1 of 3

MARCH 2018

Basis of Design Report for Buck Gulch Fish Passage Project (Worley Property)

PREPARED FOR

Elizabeth Worley
1102 J St.
Eureka, CA 95501

PREPARED BY

Stillwater Sciences
850 G Street, Suite K
Arcata, CA 95521

Suggested citation:
Stillwater Sciences. 2018. Buck Gulch Fish Passage Project—Basis of Design Report. Prepared by Stillwater Sciences, Arcata, California for Elizabeth Worley, Eureka, California.

Cover photo: Existing Culvert over Buck Gulch.

Table of Contents

Tables

Figures

Appendices

1 INTRODUCTION

Elizabeth Worley, the owner of APN 220-271-008, contracted Stillwater Sciences to prepare fish passage upgrade designs for a culvert located on Buck Gulch, tributary to Redwood Creek. This Basis of Design (BOD) Report provides justification for the fish passage upgrade design which is included in Appendix A.

2 SITE DESCRIPTION

The project is located to the north of the small town of Briceland, along Buck Gulch which flows into Miller Creek, then Redwood Creek. Redwood Creek enters the South Fork Eel River from the west near the town of Redway in southern Humboldt County. The current crossing structure is estimated to be at least 30 years old. As shown on figure 1, it is a 6-foot diameter corrugated metal culvert with a ~2-foot jump at the outlet. Additionally, rust holes have developed in the bottom of the culvert, and decaying logs are holding up the near-vertical fill slopes around the culvert inlet. The project drains an area of approximately 0.9 square miles and the location is shown on Figure 2.

Figure 1. Project site overview photo.

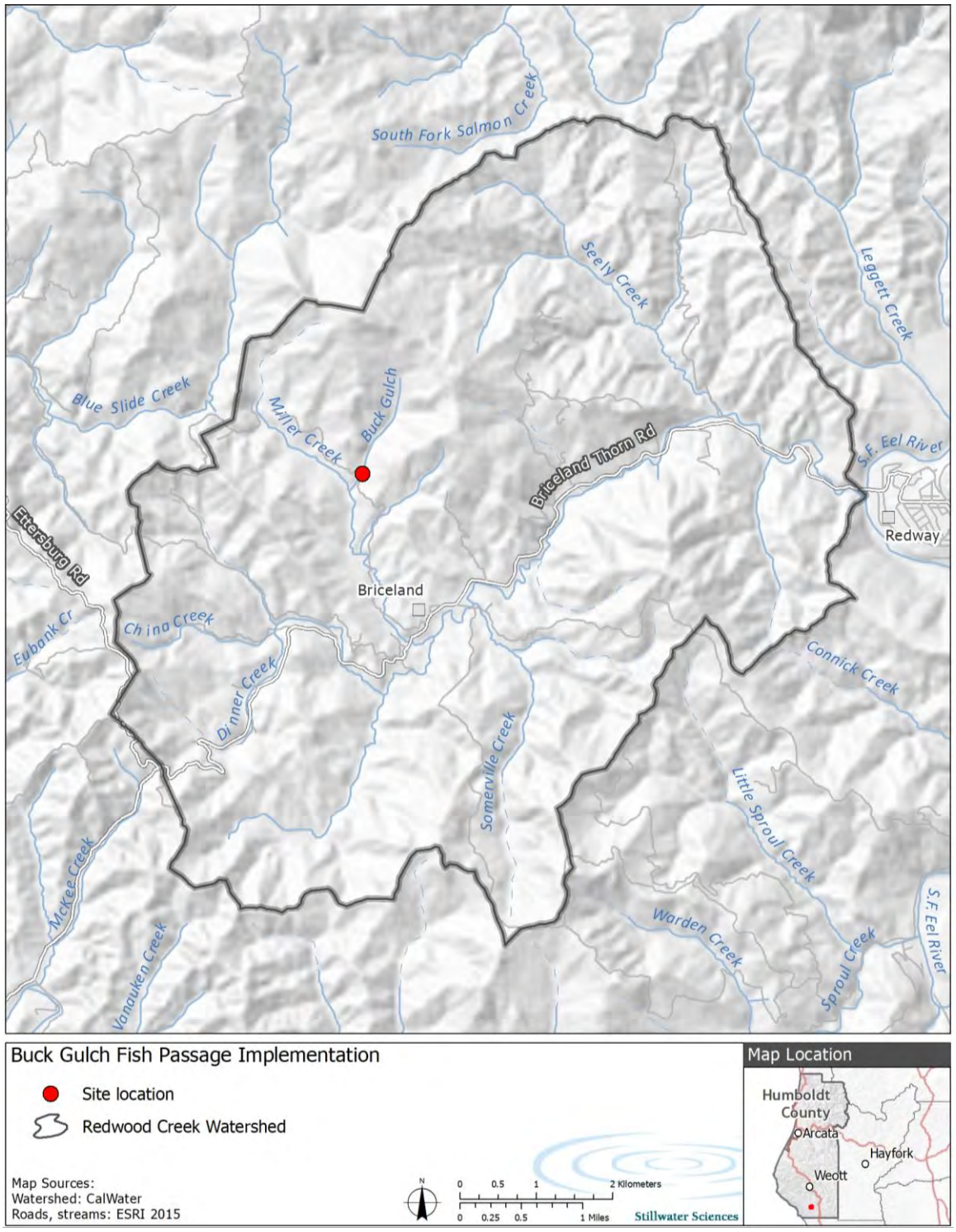


Figure 2. Vicinity map.

3 PROBLEM STATEMENT

As shown in Figure 1 and described above, the current crossing structure does not provide full fish passage due to the jump at the outlet as well as high velocities within the culvert barrel (discussed in more detail in Section 8 below). Additionally, partial and/or catastrophic failure of the crossing is becoming more likely due to ongoing decay in the culvert bottom and logs in the fill slopes. In the summer of 2017, CDFW staff conducted an instream survey of the project vicinity and documented 38 steelhead within the channel reach spanning approximately 2,760 linear feet upstream from the culvert. Based on these findings, CDFW recommended upgrade treatments that provide full fish passage to adult and juvenile salmonids (Scott Monday email communication September 12, 2017).

Buck Gulch provides some of the most consistent dry season flows within the Redwood Creek watershed (Stillwater Sciences 2017). During severe drought years, Buck Gulch typically has the highest dry-season unit discharge of any of the fourteen monitoring stations maintained by Salmonid Restoration Federation within Redwood Creek (Stillwater Sciences 2017). Therefore, it provides critical summer refuge habitat for salmonids – primarily Steelhead. Considering these factors, this site is a strong candidate for a full fish passage upgrade.

4 GEOLOGY AND TECTONICS

The Redwood Creek watershed is in a tectonically active plate-boundary deformation zone, defined by right-lateral movement along the San Andreas Fault Zone that separates the Pacific plate to the west from the North American plate to the east (Kelsey and Carver 1988). Northward progression of the San Andreas Fault Zone is characterized by lateral shearing and vertical compression due to the major westward turn in the fault zone upon reaching the Mendocino Triple Junction near Cape Mendocino. These primary deformation styles are what create the dominant NNW-SSE trending topographic and structural grain in the region (Kelsey and Carver 1988). The evolution of this regional topographic and structural grain has developed pervasive shearing, fracturing, and faulting throughout the north coast of California.

The Garberville-Briceland fault zone trends NNW-SSE across the watershed (Figure 3) (McLaughlin et al. 2000). The zone consists of multiple named and unnamed fault traces with varying orientations of displacement. Although recent displacement along the fault zone is undifferentiated, it is considered Quaternary in age. The Briceland Fault trace is approximately 3000 feet northeast of the project reaches and the Garberville Fault trace is approximately 3 miles to the northeast (Figure 2).

The Redwood Creek watershed is primarily underlain by the diverse Coastal and Central belts of the Franciscan Complex, the younger marine and non-marine Wildcat Group, and minor amounts of serpentinized peridotite of the Coast Range Ophiolite (Figure 3).

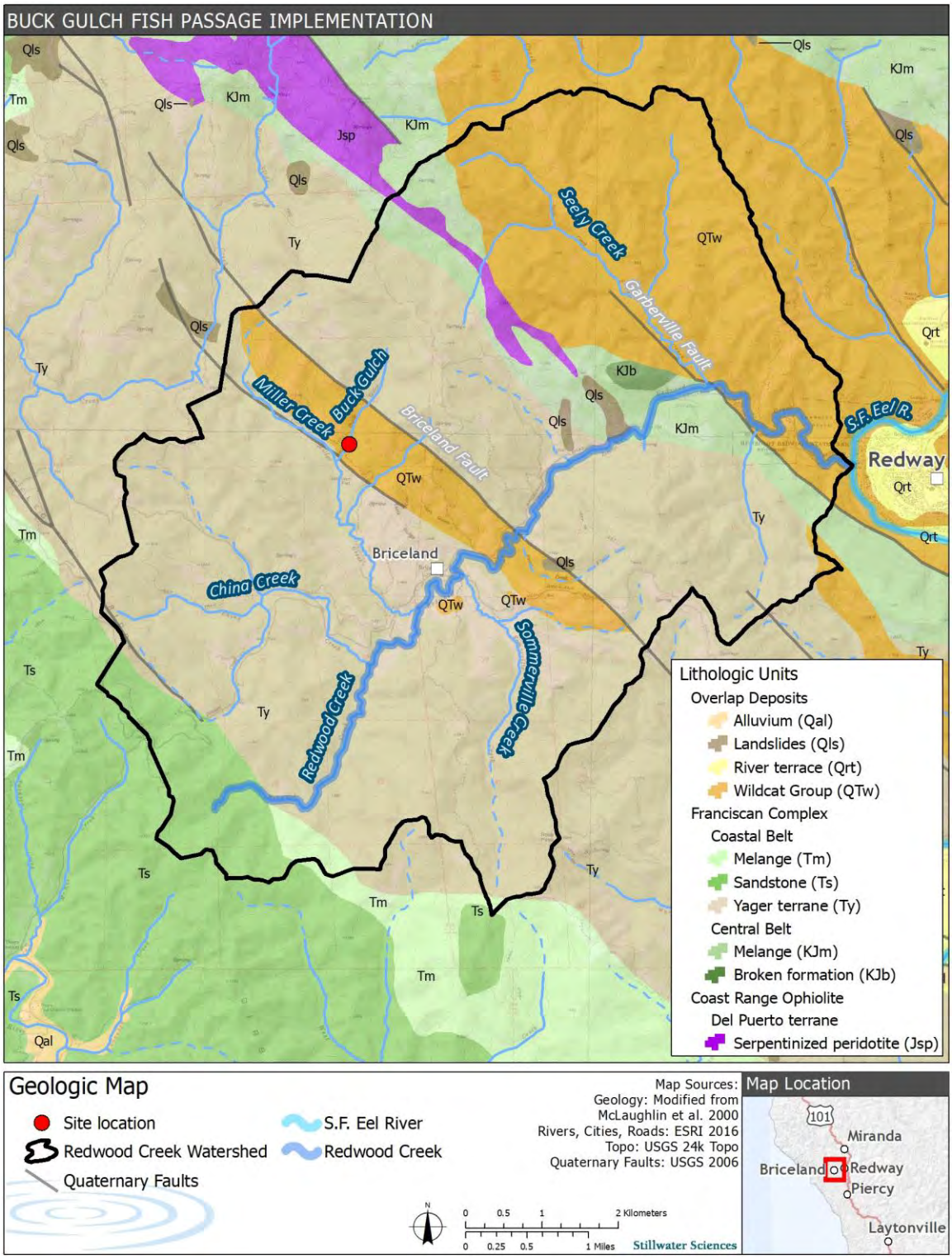


Figure 3. Generalized geologic map of the Redwood Creek watershed and project vicinity.

5 GEOMORPHOLOGY

Hillslope and stream channel morphologies in the Redwood Creek watershed are similar to those found throughout the western side of the South Fork Eel River basin, due to the prevalence of the underlying Franciscan Coastal Belt terranes. Although there is variability among the terranes, the rock strength in Coastal Belt rocks typically leads to steeper, ridge-and-valley topography with organized drainage networks. Small to large-scale landslides are still common in the basins that drain the Coastal Belt terranes, particularly where sedimentary rocks are less competent and in mélange units.

The channel reach where the Buck Gulch site is located is characterized by narrow, steep-walled canyon slopes that are covered by relatively thin soils and dense conifer and hardwood stands and drained by perennial and intermittent streams. At mid-elevations, the steep canyons transition into gently rounded upland ridges supporting grass meadows and shrub and oak woodland vegetation. Channel incision in Redwood Creek is likely due to ongoing tectonic uplift related to the nearby Mendocino Triple Junction, extensive anthropogenic land-use practices, and climate change altering hydrologic patterns.

The existing 6-foot diameter culvert is undersized which has caused deposition of approximately 2-feet of coarse sediment upstream from the crossing and created a large scour pool downstream as shown on the longitudinal profile on Sheet 2 of the Design Plans in Appendix A. The goal of the project is to install a new structure that is properly sized to convey 100-year flows, allow for fish passage at all life stages, and restore a natural sediment transport regime.

6 TOPOGRAPHIC DATA

Stillwater Sciences conducted a detailed topographic survey of the project site with a total station in January 2018. The survey captured channel thalweg, bottom and top of stream banks, the existing culvert and fill prism, and all trees. The survey extended approximately 300 feet upstream and 180 feet downstream from the crossing. It appears that there is an underground telephone line buried through the project site. Underground Service Alert (USA) should be contacted prior to construction. The Stillwater survey was used to generate a topographic based map with 1-foot contour intervals. Survey grade GPS was not used to set control points, so all elevations and horizontal positions shown in the plans are in a "local coordinate system" based on the control points shown in the Design Plans.

7 PRIMARY PROJECT DESIGN CONSIDERATIONS

The proposed project design was constrained by the factors described below.

1. Directly adjacent to the north of crossing, a driveway intersects the main road which makes installation of a bridge infeasible. Thus, an arch culvert is the proposed upgrade structure.
2. A full oval arch culvert buried into the channel has been chosen as the proposed upgrade structure to address several potential design and construction issues:
    a. Eliminates the need for in-depth geotechnical analyses – the proposed structure will have a bearing area of 972 square feet (54' width by 18' width) and will sit on a minimum 1' thick bed of backing rock (per Design Plans). This will give the

structure sufficient bearing strength irrespective of potential variation in subsurface native soil strength.

b. Eliminates the need for pouring concrete below grade in rural setting – considering that there is no electrical power at the site, it will be difficult to maintain 24 hours-per-day dewatering for concrete curing process to ensure that downstream habitat is not adversely affected by increased acidity.

3. Due to the relatively confined valley, the only option for channel design is a roughened channel constructed with 4% slopes to match overall project reach gradient and for general consistency with the "stream simulation design process".
4. Due to relatively narrow upstream and downstream valley width, an arch with 18-foot width was the widest structure that could practicably maintain smooth transitions to the adjacent landforms.

Based on these constraints, there was only one clear project alternative which is the 18-foot width full oval arch culvert described in the Plans in Appendix A. The new channel constructed inside the proposed crossing structure will be a rock ramp, two grade control/step pools are proposed upstream and downstream of the proposed arch to provide complexity.

8 HYDROLOGIC AND HYDRAULIC ANALYSIS

8.1 Overview

To understand the flow dynamics at the project site, flow hydraulics were modeled using the U.S. Army Corps of Engineers' (USACE) *Hydrologic Engineering Center's River Analysis System (*HEC-RAS). HEC-RAS is a one-dimensional hydraulic model that is widely used for floodplain mapping and estimating general flow characteristics. This one-dimensional model assumes uniform flow direction and constant velocity distribution within the channel and floodplain portion of each cross section. Flow is modeled based on topography at a channel cross section without considering the effects of channel topography between cross sections. Therefore, it is important that these limitations are closely considered during hydraulic model setup, calibration, and application.

8.2 Hydrologic Data Overview

The first step in this hydraulic modeling process is to determine the hydrologic data that will be the principal input to HEC-RAS. The primary hydrologic data sets analyzed for this project were flood frequency flows (also known as recurrence interval flows) which represent higher flows that are expected to occur at a specific frequency (i.e., a 100-year flow would be expected to occur every 100 years on average). Specifically, for this project, it is important to ensure that the new crossing structure can pass 100-year flows. For this analysis, 1.5-year recurrence interval flows are synonymous with "bankfull" flows.

Flood frequency discharges for the site were determined based on (1) US Geological Survey (USGS) gage data, and (2) USGS Streamstats data. Each of these data sources are discussed below.

8.2.1 USGS gage data

USGS gage #11476500 has recorded annual peak flows in SF Eel River near Miranda for approximately 75 years. For this analysis, peak flow records from October 1939 to September 2016 were used. With these records, Log-Pearson Type III distributions can be used to predict the magnitude of peak flows for specific storm events. Considering the timeframe during which peak flows have been measured, this gage data is particularly accurate in predicting flows for storm events with recurrence intervals of 10 years and less.

Considering that the project reach is not located at the same location as the USGS gages, flows were estimated at each project site using the USGS formula for calculating magnitude and frequency of floods in California:

$Q_u = Q_g(A_u/A_g)^b$

Where: b = 0.9 for 2 year event and b = 0.87 for 100 year event
Q_u = Ungauged discharge
Q_g = Gauged discharge
A_u = Ungauged drainage area
A_g = Gauged drainage area.

Results from these calculations are shown in the first row of Table 1.

8.2.2 USGS Streamstats data

The USGS operates the interactive Streamstats website which can be found at: (http://water.usgs.gov/osw/streamstats/california.html)

This website uses a geographic information system (GIS) and flow regression equations to calculate storm discharges at any point along watercourses. Streamstats provides discharge data for 2-, 5-, 10-, 50- and 100-year storms. Streamstats results at the project site are shown in the third row of Table 1.

Table 1. Flood frequency discharge estimates for the Buck Gulch Project Site.

Discharge location and description:	100-yr discharge (CFS)	10-yr discharge (CFS)	2-yr discharge (CFS)
Log-Pearson Analysis based on USGS Gage at Miranda (537 sq mi) adjusted for project site drainage area (0.9 sq mi) based on USGS Formula	640	370	150
Results from USGS Streamstats for project site (0.9 sq mi)	440	230	90
Average at Project Site	**540**	**300**	**120**

8.3 Additional Discharges

Discharges used in the Buck Gulch hydraulic model are listed in the bottom row of Table 1. These flows have been calculated by averaging the discharges listed in the top two rows of the

table. These values have been rounded to two significant digits to reflect the uncertainty of these estimates.

In addition to the flood frequency flows, additional low and moderate flows have also been modeled in HEC-RAS which correspond to exceedance flows. Exceedance flows represent the percent of time per year where flow thresholds are equaled or exceeded. Specifically, for this project, 2% exceedance flows were identified as the highest flows when fish passage is likely to occur and 30% exceedance flows was used for the low-end of adult fish migration representing winter base flow. Additionally, one CFS was modeled to represent a low flow where juvenile passage would be occurring. Again, these flows were calculated based on proration of records from the USGS gage #11476500 (SF Eel near Miranda).

Table 2. Additional discharge estimates used for the Buck Gulch hydraulic model.

	2% Exceedance Flows (CFS)	30% Exceedance Flows (CFS)	Typical late spring/early summer discharge (CFS)
Buck Gulch	48	4	1

8.4 Hydraulic Modeling

8.4.1 Existing conditions hydraulic modeling

Existing conditions topography used for the HEC-RAS model was based on the field-based topographic survey as previously described. The model including eight cross sections as shown in Appendix B. Typically, cross sections are cut perpendicular to the channel thalweg. However, in cases where there is significant channel sinuosity, which is the case for this project, some skewing of the sections is required to properly model the channel and floodplain curvature. Based on sensitivity analyses conducted in HEC-RAS with different cross section placements, it has been determined that the slight skewing of the cross sections away from perpendicular does not lead to significant differences in modeled outputs of velocities or flood elevations.

Cross-sections of the channel were cut from the Triangular Irregular Network (TIN) surface in AutoCAD and exported directly to HEC-RAS in order to create the hydraulic model. Initially, the Manning's n roughness values used in HEC-RAS were .06 for the channel, based on the HEC-RAS Reference Manual conservative recommendations for a "clean and winding natural stream with some pools, shoals, weeds and more stones," and 0.06 for all banks and floodplains based on a conservative value for "light brush and trees in winter." Flow was modeled in a mixed flow regime with a normal depth downstream boundary condition at a slope of 0.04 held constant for all flow stages.

8.4.2 Hydraulic model calibration

The existing conditions HEC-RAS model was calibrated using field-based evidence of 2017 high flow downstream from the culvert. Based on a review of Water Year 2017 peak flows on Bull Creek, the highest flow event which occurred on January 10, 2017 was approximately a 2-year recurrence interval flood. This estimated 2017 peak discharge of approximately 120 CFS resulted in flow depths of 2 to 3 feet throughout the project reach.

8.4.3 Existing conditions hydraulic model results

As shown on Figure 4, the existing culvert does not have capacity to pass 100-year flows and has a ~2-foot jump into the outlet at most flows. Additionally, the 2% exceedance average flow velocity through the culvert is 7.8 feet per second which combined with the jump, provides difficult adult migration conditions. Combined with CDFW survey results and the degraded nature of the crossing as described in Sections 2 and 3 above, this site is a strong candidate for upgrading. Full HEC-RAS output results are included in Appendix B.

8.4.4 Proposed conditions hydraulic modeling results

Proposed-conditions hydraulic modeling was conducted by replacing the existing 6-foot diameter culvert with a new 18-foot width aluminum pipe arch structure that is submerged in the channel with to insure a natural-bottomed channel that has the same Manning's "n" value as the rest of the creek channel. The proposed crossing structure details are shown in the Design Plans in Appendix A. Figure 5 shows how the new structure greatly improves crossing functionality in terms of passing 100-year flows and reducing jump height. Additional, the 2% exceedance flow through the culvert is calculated to be 4.1 feet per second.

8.4.4.1 Scour analyses

The Hydraulic Design function in HEC-RAS was utilized to analyze scour of the proposed arch. As shown in the second figure in Appendix B, potential scour depth around the abutments is estimated to be approximately 4.4 feet deep. This is approximately the depth of embedment of the proposed arch culvert so there is minimal risk of undercutting the culvert. Additionally, some lateral scour potential may also occur. The design plans require rock wingwalls feathering the proposed arch culvert inlet into the surrounding topography to protect from scour in this area. Additional rock sizing calculations to prevent bed and armor mobilization are described in Section 9.

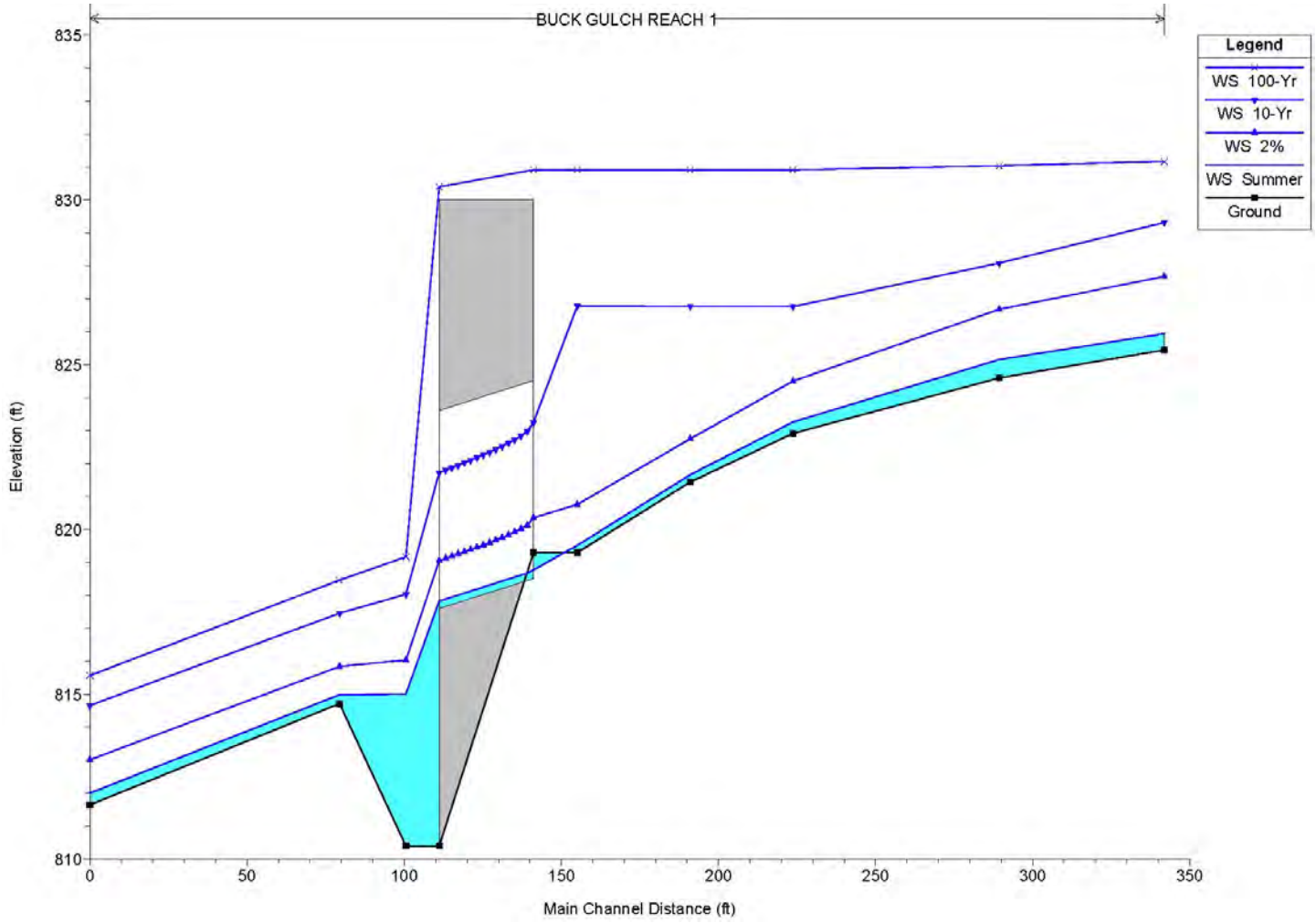


Figure 4. Existing conditions longitudinal profile from HEC-RAS.

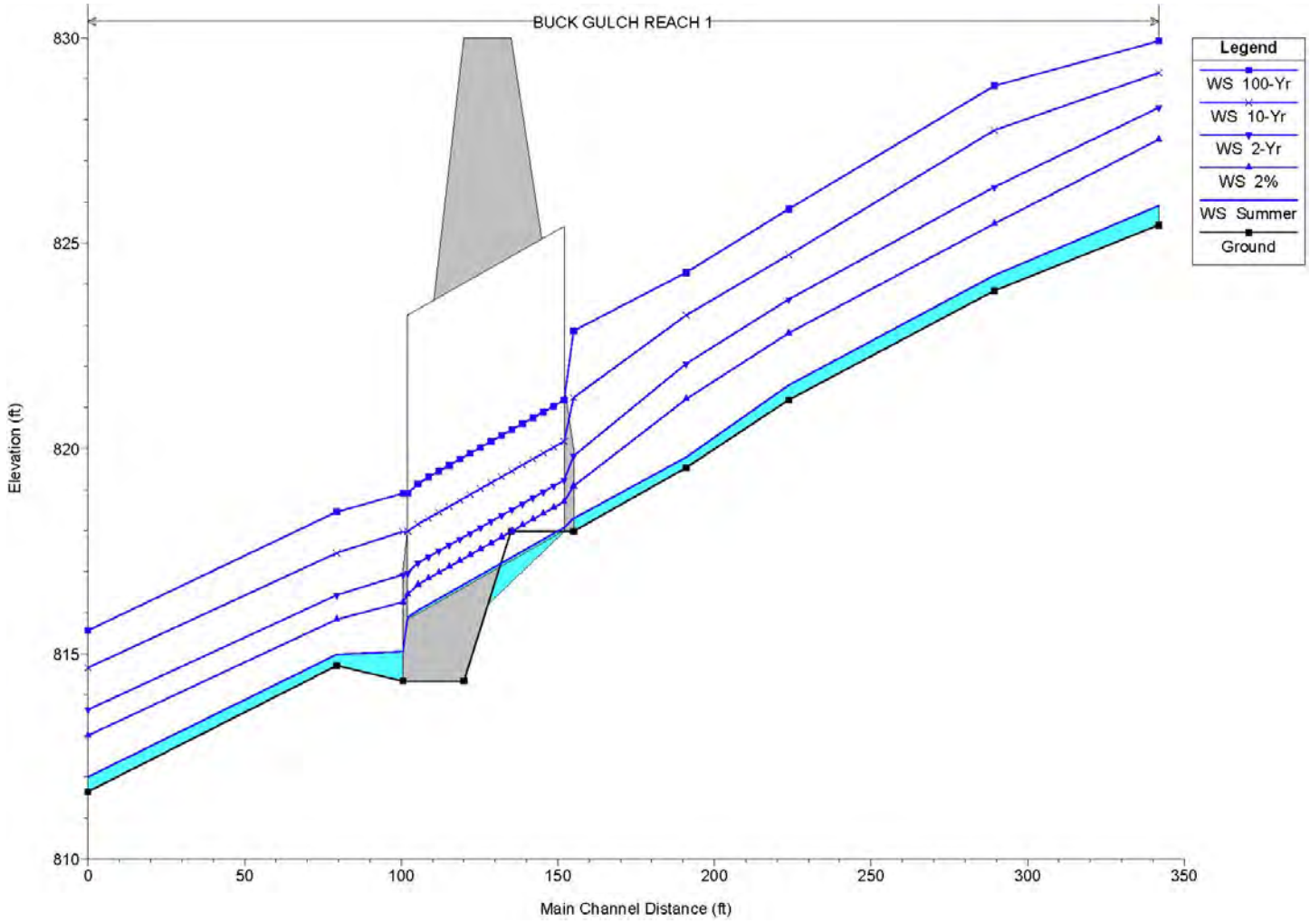


Figure 5. Proposed conditions longitudinal profile from HEC-RAS.

9 DETAILED PROJECT DESIGN

9.1 Channel Design

The project design is shown on the Design Plans in Appendix A.

9.2 Rock Sizing and Placement

Stable rock sizes for the slope protection, steps, and ramps were computed using methods described in DFW 2009. These structures are designed to remain relatively stable at the 100-year flow. All calculations are shown in Appendix C.

9.2.1 Rock slope protection

Minimum rock size for the slope protection was determined using values of 100-year flow depth and velocity obtained from the hydraulic model outputs. An average flow velocity of 7 feet per second was used for the computations. A D50 of 0.2 feet was computed using the FHWA (1989) method. However, based on standard practices of placing large riprap adjacent to bridge and arch culvert abutments to protect road fill, a much larger size class ranging from 2 feet to 5 feet diameter will be used, as listed on Sheet 5 in Appendix A.

9.2.2 Grade control structures

Rock size for the grade control structures was determined using the NRCS (2000) method. A 100-year water surface width of 32 feet, a depth of 3.5 feet and a water surface slope of 5% was obtained from the hydraulic model and used for the computations. A D_{min} of 1.5 feet, a D_{50} of 3.5 feet, and a D_{100} of 7 feet were computed. However, based on experience constructing grade control structures and the difficulty of working with 7-foot boulders, a range of diameters between 2 feet and 5 feet are recommended, as listed on Sheet 5 in Appendix A.

As shown on Sheet 5 in Appendix A, the two large grade control structures extend approximately 8 feet into the bank in an excavated trench. This is based on guidance from DFW 2009 which recommends that key-ins "typically extend at least as far into the banks as the banks are tall, or two foundation rock widths, whichever is greater."

9.2.2.1 Rock ramps

Rock sizes for the Engineered Streambed Material (ESM) used for the rock ramps were determined using the ACOE (1994) method based on a slope of 4% and unit discharge of 21.6 cfs/ft. This unit discharge was determined by dividing the total 100-year discharge by the active channel width of 20 feet. A D84 of 1.4 feet and D50 of 0.6 feet were calculated with this method. To be conservative, these size classifications have been increased by approximately 10% to insure stability. Sizing for the ESM is listed on Sheet 5 in Appendix A.

9.3 65% Cost Estimate

65% design level cost estimates for the project are shown on Table 3.

Table 3. 65% engineer's cost estimate for construction.

No.	Item	Unit Cost	Quantity	Units	Total cost
1	Mobilization	$5,000.00	1	Lump Sum	$5,000.00
2	Dewatering	$5,000.00	1	Lump Sum	$5,000.00
3	Grading (cut/take to temporary spoils)	$20.00	500	Cubic Yard	$10,000.00
4	54' length x 18' width x 11' 4" rise Arch Culvert (materials)	$75,000.00	1	Each	$75,000.00
5	Arch Culvert (pre-assembly)	$25,000.00	1	Lump Sum	$25,000.00
6	Backing Rock Placement	$100.00	50	Cubic Yard	$5,000.00
7	Arch Culvert placement	$5,000.00	1	Lump Sum	$5,000.00
8	Grading (fill balanced on site)	$50.00	500	Cubic Yard	$25,000.00
9	Large Wood—Placed and Anchored	$1,500.00	8	Each	$12,000.00
10	Boulders—Placed and Anchored	$150.00	100	Tons	$15,000.00
11	Seeding/mulch/planting	$2,000.00	1	Lump Sum	$2,000.00
12	Permits (DFW 1600)	$3,095.00	1	Lump Sum	$3,095.00
13	Engineering - Bid support, construction oversight, As-builts	$20,000.00	1	Lump Sum	$20,000.00
Total construction cost:					**$207,095.00**

10 RISK ASSESSMENT

Overall, this project greatly reduces the risk of catastrophic road failure and sediment delivery. However, as is the case with any culvert upgrade project, there is the potential that significant sediment and/or debris from an offsite source may deposit within the project reach thereby causing changes to channel morphology that could adversely impact functionality of the proposed structure. However, it is important to note that the new structure is three times as wide as the current structure and the same height, making it significantly more resilient to adapting to potential changes.

A second project risk is that several large wood and boulder structures are proposed for the site to enhance instream habitat upstream and downstream of the culvert. These structures will be anchored to prevent them from moving, but typical large wood structures have a design life of approximately 20 years before the rood becomes rotten, so it is critical to design the project to account for this reality.

10.1 Risk Management

Long-term functionality of the project will be maintained by anchoring all wood structures per CDFW protocols and by closely monitoring the site following large storm events by an engineer/geologist (or other qualified restoration practitioner) to ensure that all components of the project are functioning as designed.

In a broader context of risk assessment, it is also important to consider the risk of the "no-project alternative" which will result in degradation, and lack of fish passage benefit as proposed for this project.

11 IMPLEMENTATION PLAN

11.1 Overview

The 30-foot length by 72-inch-diameter culvert will be replaced with a 54 foot length by 18 foot width by 11-foot 4-inch rise arch culvert. The arch culvert will be supplied by Contech and be placed on a minimum 1 foot thick bedding of backing rock. Riprap will be installed along the streambanks at the culvert inlet and outlet as shown on the plans. The riprap will be placed in a toe trench excavated to a depth of approximately 3' below the channel to eliminate the risk of failure caused by scour. The lower two courses of riprap will be 1- to 2-ton boulders with upper courses consisting of 1/4 ton size class.

The interior of the arch culvert will be filled with native streambed material excavated from the upstream channel and lower portion of the road. Some additional imported cobble and boulders may be imported so that the streambed material matches the specifications on Sheet 5 in Appendix A.

Removal of the existing culvert and fill prism will involve excavation of approximately 500 cubic yards of material which will be reused to rebuild the road prism following installation of the new arch culvert. Material of poor quality that includes decomposed organic matter will be permanently stored on a flat location adjacent to the project site. When fill material is placed for permanent storage, the receiving area will be ripped or decompacted first. Areas chosen for this purpose will be devoid of tree and shrub vegetation. The fill will then be placed in 1-foot lifts and shaped to blend with the surrounding topography with final surface grading designed to reduce runoff concentration as much as possible. Upon completion of the fill, woody debris will be scattered over the surface of the area as mulch.

Road crossing removal may involve some removal of vegetation that has grown in sediment that has been deposited upslope of road prisms. Most of this vegetation will be used as coarse wood mulch on bare soils to reduce surface erosion. Some of the material will be transplanted on-site as one component of the restoration action items. In all cases, disruption of existing vegetation will be minimized.

Culvert replacement requires diverting stream flow around the project site and excavating the existing culvert with heavy equipment. Grade control structures are incorporated into the project design to prevent excessive down-cutting of the stream. All work concerning culvert replacement will be consistent with current DFW and NOAA criteria concerning fish passage. Current NOAA fish passage guidelines can be found on the web at: http://swr.nmfs.noaa.gov/hcd/NMFSSCG.PDF . DFW fish passage guidelines can be found in Part IX of the *California Salmonid Stream Habitat Restoration Manual*, available at http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp.

11.2 Erosion Control

The following erosion control measures will be taken during project construction to mitigate during and post-project adverse impacts on instream habitat:

1. Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant fall rainfall. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of salmon and steelhead. Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).
2. No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
3. Work must be performed in isolation from the flowing stream. If there is any flow when the work is done, the operator shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.
4. For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.
5. If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting DFG and NOAA criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.
6. Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.

7. Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream.
8. Measures shall be taken to minimize harm and mortality to listed salmonids resulting from fish relocation and dewatering activities:
   i. Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
   ii. DFG shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.
   iii. All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service *Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act*, June 2000.
9. If for some reason these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site will be discontinued.

11.3 Oversight and Permitting

The landowner or project proponent will hire a Civil Engineer or other licensed professional trained in this type of project to oversee implementation. Heavy equipment work should be sub-contracted to a licensed contractor with experienced in restoration and specifically fish passage projects. Project implementation is expected to take place in August 2019.

Department of Fish and Wildlife (CDFW) will be the lead agency for CEQA. The project will be covered under CDFW's regional general permit which includes the 404 Certification (US Army Corps of Engineers), 401 Certification (CA State Water Board). The landowner will apply for the CDFW 1600 Permit.

12 MONITORING PLAN

Extensive on-site monitoring will be performed throughout the construction phase as well as post-implementation. During implementation, activities are carefully monitored to make sure plans are followed and that the correct materials and techniques are used so that the objectives of the activities are met while protecting the environment. Pre, post and monitoring photos will be taken from set photo point monuments. The project site will be monitored during the first winter storm events and monitoring photos will be compared to post-project photos to ensure that excessive channel adjustment is not taking place.

A post construction survey shall be completed just after construction that includes a survey of bridge placement and channel components. Permanent benchmarks will be established that can be used for a minimum of five years. The final project reports should contain "as-built" design drawings signed and stamped by the engineer as well as pre- and post-photographs.

The next phase of post-activity monitoring is designed to assess the effectiveness of project work types and should occur within one to three years after an action item is complete. DFW will randomly select ten percent of the action items within each project work type for evaluation. This evaluation shall be recorded on standard project evaluation forms developed by California Department of Fish and Wildlife as described in the *California Salmonid Stream Habitat*

Restoration Manual, Part VIII, Project Monitoring and Evaluation, or using new monitoring procedures developed under a DFW grant. Effectiveness monitoring addresses the physical response associated with an activity, such responses are generally more easily measured and interpreted. Biological response data especially that for anadromous fish, is more difficult to collect and interpret. Reliable assessment of anadromous salmonid response to habitat improvement prescriptions generally require many years of trend data. DFW intends to address the biological response to habitat improvement through a coastal salmonid population monitoring plan which is currently under development in association with the National Oceanic Atmospheric Administration.

13 REFERENCES

FEMA (Federal Emergency Management Agency). 2017. Flood Insurance Study. Humboldt County, California. Flood Insurance Study No. 06023CV001B.

Flosi, G., S. Downie, J. Hopelain, M. Bird, R. Coey, and B. Collins. 1998. California Salmonid Stream Habitat Restoration Manual. Third Edition. IFD, CDFG, Sacramento, California.

Kelsey, H., and G. Carver. 1988. Late Neogene and Quaternary tectonics associated with northward growth of the San Andreas transform fault, northern California, Journal of Geophysical Research, 93: 4,797–4,819.

McLaughlin, R., S. Ellen, M. C. Blake Jr., A. S. Jayko, W. P. Irwin, K. R. Aalto, G. A. Carver, and S. H. Clarke Jr. 2000. Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern part of the Hayfork 30 X 60 minute quadrangles and adjacent offshore area, Northern California, U.S. Department of the Interior, United States Geological Survey.

Stillwater Sciences. 2017. Flow Enhancement Feasibility Study for Part of Redwood Creek in the South Fork Eel River Watershed. Final Report. Prepared by Stillwater Sciences, Arcata, California for Salmonid Restoration Federation, Eureka, California.

BUCK GULCH FISH PASSAGE IMPLEMENTATION - 65% DESIGN PLANS

HUMBOLDT COUNTY, CA

GENERAL NOTES, TERMS, & CONDITIONS:

1. DESIGN INTENT. THESE DRAWINGS REPRESENT THE GENERAL DESIGN INTENT TO BE IMPLEMENTED AND CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS SHOWN ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE PROJECT MANAGER FOR ANY CLARIFICATIONS OR FURTHER DETAILS NECESSARY TO ACCOMMODATE ACTUAL SITE CONDITIONS. ANY DEVIATION FROM THESE PLANS WITHOUT ERWIG'S REPRESENTATIVE APPROVAL ARE AT THE CONTRACTOR'S OWN RISK AND EXPENSE. NOTIFY PROJECT MANAGER IMMEDIATELY OF ANY UNEXPECTED AND CHANGED CONDITIONS, SAFETY HAZARDS, AND ENVIRONMENTAL PROBLEMS ENCOUNTERED.

2. JOB SITE CONDITIONS AND CONTRACTOR RESPONSIBILITY. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, AND ALL ENVIRONMENTAL PROTECTION ELEMENTS, WHETHER SHOWN ON THESE DRAWINGS OR NOT. CONTRACTOR SHALL FOLLOW ALL APPLICABLE CONSTRUCTION AND SAFETY REGULATIONS. THESE REQUIREMENTS SHALL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ERWIG OR THE ENGINEER (STILLWATER SCIENCES) HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FROM LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ERWIG OR ENGINEER.

3. DAMAGE. CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO EXISTING PUBLIC AND PRIVATE PROPERTY, INCLUDING NATIVE TREES AND SHRUBS, AND OTHER PROPERTY IMPROVEMENTS. IF CONTRACTOR CAUSES DAMAGES TO SUCH ITEMS, HE SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT IN LIKE NUMBER, KIND, CONDITION, AND SIZE. ANY SUCH COST MAY BE DEDUCTED BY OWNER FROM MONIES DUE CONTRACTOR UNDER THIS CONTRACT.

4. LIMITS OF WORK, ACCESS, STAGING AND MOBILIZATION AREAS. THE APPROXIMATE LIMITS OF WORK ARE SHOWN ON THE DRAWINGS. EXACT LIMITS OF WORK, POINTS OF INGRESS-EGRESS, CREEK CHANNEL ACCESS, MOBILIZATION, STAGING, AND WORK AREAS WILL BE FLAGGED IN THE FIELD BY THE ENGINEER. EQUIPMENT MAINTENANCE AND FUELING MUST OCCUR OUTSIDE OF THE CHANNEL AREA AS DESCRIBED IN THE ENVIRONMENTAL PERMITS FOR THE PROJECT.

5. WORK IN STREAM CHANNELS AND STREAM DIVERSIONS. ALL WORK INVOLVING USE OF HEAVY EQUIPMENT MUST BE COMPLETED FROM TOP OF BANK UNLESS A SPECIFIC POINT OF CREEK CHANNEL ACCESS HAS BEEN APPROVED AND IS SHOWN ON THE PLANS, AND THEN ONLY IN NON-LIVE WATER AS DEFINED BY CDFW. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THE DEWATERING PLAN DEPICTED IN THIS PLAN SET.

   5.1. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSING OF ALL WATER CONTROL STRUCTURES AND EQUIPMENT.

   5.2. THE CONTRACTOR SHALL FURNISH, INSTALL, AND OPERATE ALL OTHER NECESSARY MACHINERY, APPLIANCES, AND EQUIPMENT TO DIVERT FLOWING WATER AROUND WORK AREAS, AND TO KEEP EXCAVATIONS AND TRENCHES REASONABLY FREE FROM WATER DURING CONSTRUCTION. CONTRACTOR SHALL DISPOSE OF THE WATER SO AS NOT TO CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY, OR TO CAUSE A NUISANCE OR A MENACE TO THE PUBLIC, OR TO DEGRADE WATER QUALITY. HE SHALL AT ALL TIMES HAVE ON HAND SUFFICIENT PUMPING EQUIPMENT AND MACHINERY IN GOOD WORKING CONDITION FOR ALL ORDINARY EMERGENCIES AND SHALL HAVE AVAILABLE AT ALL TIMES COMPETENT MECHANICS FOR THE OPERATION OF ALL PUMPING EQUIPMENT. IF THE CONTRACTOR CHOOSES TO USE A PUMPING SYSTEM FOR ANY PORTION OF THE WATER CONTROL WORK, HE SHALL HAVE ADEQUATE BACK-UP EQUIPMENT TO INSURE THE CONTINUOUS OPERATION OF THE EQUIPMENT.

   5.3. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE FOR THE ADEQUATE RETURN FLOW OF DIVERSIONS BELOW THE PROJECT SITE. THE CONTRACTOR MAY TEMPORARILY DIVERT WATER DURING CONSTRUCTION, AS OUTLINED IN THE APPROVED STREAM DIVERSION AND WATER CONTROL PLAN. THIS MAY INCLUDE FOR INSTANCE, VISQUEEN AND STRAW BALE OR SAND BAG DIVERSION DIKES AND PIPING SYSTEMS. RETURN FLOW SHALL BE FILTERED THROUGH FILTER CLOTH, STRAW BALES AND/OR THROUGH A SERIES OF STILLING BASINS WHEN REQUIRED.

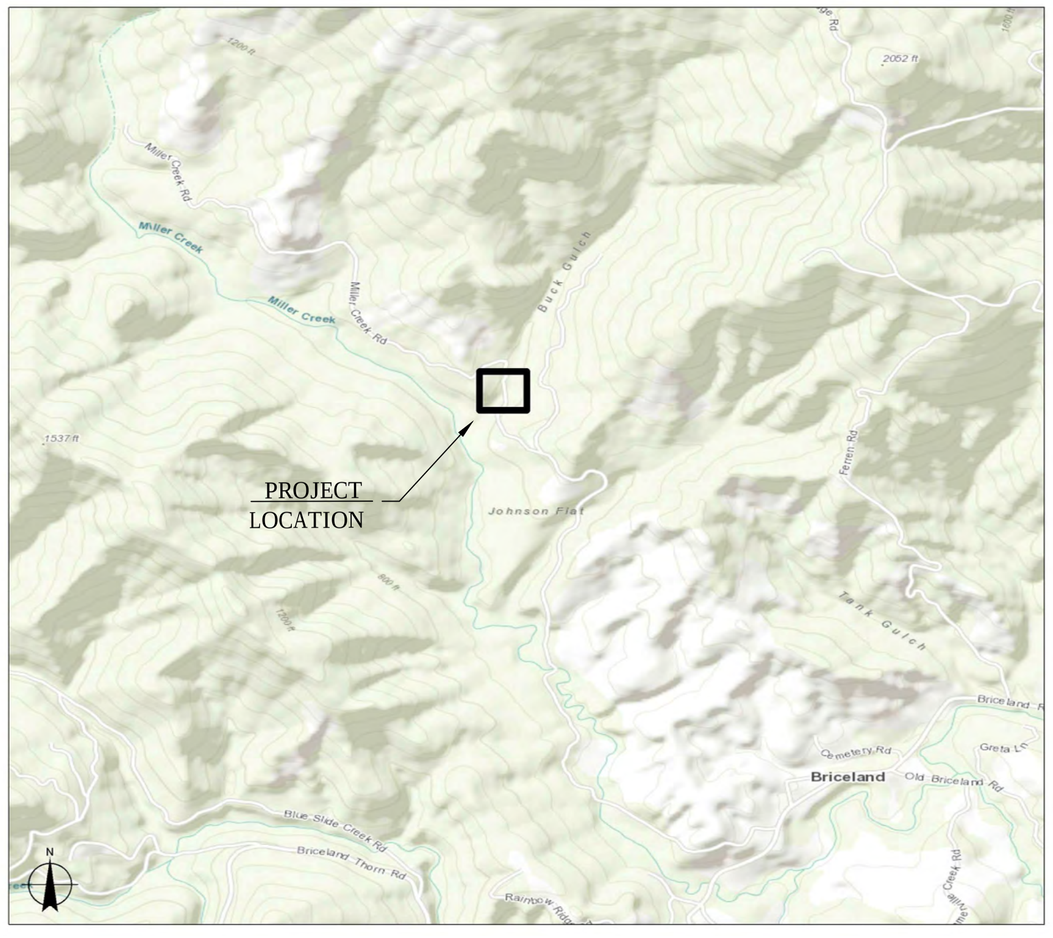
   5.4. TURBID DEWATERING FLOWS SHALL BE PUMPED INTO A HOLDING FACILITY OR SPRAYED OVER A LARGE AREA OUTSIDE THE STREAM CHANNEL TO ALLOW FOR NATURAL FILTRATION OF SEDIMENTS. AT NO TIME SHALL TURBID WATER FROM THE HOLDING FACILITY BE ALLOWED BACK INTO THE STREAM CHANNEL UNTIL WATER IS CLEAR OF SILT.

   5.5. ALL HEAVY EQUIPMENT MUST HAVE A SUPPLY OF SORBENT PADS AVAILABLE TO CLEAN-UP GREASE, OIL, OR FUEL THAT DRIPS OR SPILLS INTO THE STREAM CHANNEL. SORBENT BOOMS MUST BE PLACED DOWNSTREAM FROM LOCATIONS WHERE MACHINERY IS EXPECTED TO CROSS THE STREAM CHANNEL. USED PADS AND BOOMS ARE TO BE DISPOSED OF PROPERLY AT CONTRACTOR'S EXPENSE.

6. EARTHWORK QUANTITIES. CONTRACTOR IS RESPONSIBLE FOR ALL EARTHWORK, INCLUDING GRADING, PROVISION AND PLACEMENT OF ROCK MEETING SIZE LIMITS, AS SHOWN ON DRAWINGS, AND DISPOSAL OF ALL EXCESS SOIL AND RUBBLE. EARTHWORK QUANTITIES, INCLUDING GRADING, PLACED ROCK RIP-RAP AND OFF-HAUL QUANTITY ESTIMATES PROVIDED BY THE ENGINEER ARE ESTIMATES ONLY. ERWIG AND ENGINEER DO NOT, EXPRESSLY OR OTHERWISE BY IMPLICATION, EXTEND ANY WARRANTY TO EARTHWORK CALCULATIONS

7. THE FOLLOWING PERMITS ARE REQUIRED FOR THIS PROJECT, THE CONTRACTOR SHALL BE GIVEN COPIES OF ALL THE PERMITS, SHALL BECOME FAMILIAR WITH THE PERMIT REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR ADHERENCE TO AND CONFORMANCE WITH ALL PERMIT CONDITIONS.
   - SEC. 404 PERMIT ISSUED BY US ARMY CORPS OF ENGINEERS
   - 1601/1603 STREAMBED ALTERATION AGREEMENT ISSUED BY CA DEPT. FISH & WILDLIFE
   - WATER QUALITY CERTIFICATION, BY NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD
   - US FISH AND WILDLIFE SERVICE CONSULTATION AND IMPLEMENTATION RECOMMENDATIONS
   - NATIONAL MARINE FISHERIES SERVICE CONSULTATION AND IMPLEMENTATION RECOMMENDATIONS.
8. AREAS TO BE GRADED SHALL BE CLEARED OF ALL VEGETATION INCLUDING ROOTS AND OTHER UNSUITABLE MATERIAL FOR A STRUCTURAL FILL, THEN SCARIFIED TO A DEPTH OF 6 INCHES PRIOR TO PLACING OF ANY FILL.
9. AREAS WITH EXISTING SLOPES WHICH ARE TO RECEIVE FILL MATERIAL SHALL BE KEYED AND BENCHED.
10. FILL MATERIAL SHALL BE SPREAD IN LIFTS NOT EXCEEDING 6 INCHES IN COMPACTED THICKNESS, MOISTENED OR DRIED AS NECESSARY TO NEAR OPTIMUM MOISTURE CONTENT AND COMPACTED BY AN APPROVED METHOD. FILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY 1957 ASTM D - 1557 - 91 MODIFIED PROCTOR (AASHO) TEST OR SIMILAR APPROVED METHODS.
11. CUT SLOPES SHALL NOT EXCEED A GRADE OF 1.5 HORIZONTAL TO 1 VERTICAL. FILL AND COMBINATION FILL AND CUT SLOPES SHALL NOT EXCEED 2 HORIZONTAL TO 1 VERTICAL. SLOPES OVER THREE FEET IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED PERENNIAL OR TREATED WITH EQUALLY APPROVED EROSION CONTROL MEASURES PRIOR TO FINAL INSPECTION.
12. BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES: ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ONSITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS MUST BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED AS A SOLID WASTE. TRASH AND CONSTRUCTION RELATED SOLID WASTE MUST BE DEPOSITED INTO A COVERED WASTE RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND. SEDIMENTS AND OTHER MATERIAL MAY NOT BE TRACKED FROM TO THE SITE BY VEHICLE TRAFFIC.

VICINITY MAP



LANDOWNER

ELIZABETH WORLEY
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Sheet List Table	
Sheet Title	Sheet Number
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EXISTING & PROPOSED - PLAN & PROFILE	2
DEWATERING PLAN	3
CHANNEL CROSS-SECTIONS	4
DETAILS 1	5
DETAILS 2	6

EARTHWORK ESTIMATES:

EARTHWORK BALANCED ON SITE

IMPORT:
- 90 TONS 1-2 TON BOULDERS
- 30 TONS ¼-TON BOULDERS
- 100 TONS 6"-12" ROCK ARMOR
- 75 TONS 3" MINUS BASE ROAD ROCK

TREES:
- 3 TREES REMOVED WITH 12" DBH OR GREATER; 5 TREES REMOVED WITH 4-6" DBH; ALL SUITABLE REMOVED TREES USED FOR ONSITE INSTREAM HABITAT

ABBREVIATIONS AND SYMBOLS:

<E>	EXISTING
<P>	PROPOSED
	EXISTING TREE (SURVEYED)
	EXISTING TREE (APPROXIMATE LOCATION)
	EXISTING POOL (APPROXIMATE LOCATION)
1	LARGE WOOD FEATURE NUMBER
a	INDIVIDUAL LOG OR ROOTWAD DESIGNATION
3 / 8	FIGURE # ON SHEET / SHEET #

BUCK GULCH FISH PASSAGE IMPLEMENTATION - 65% DESIGN PLANS

HUMBOLDT COUNTY, CA

Stillwater Sciences
2855 TELEGRAPH AVENUE, SUITE 400
BERKELEY, CA 94705 P: (510) 848-8098

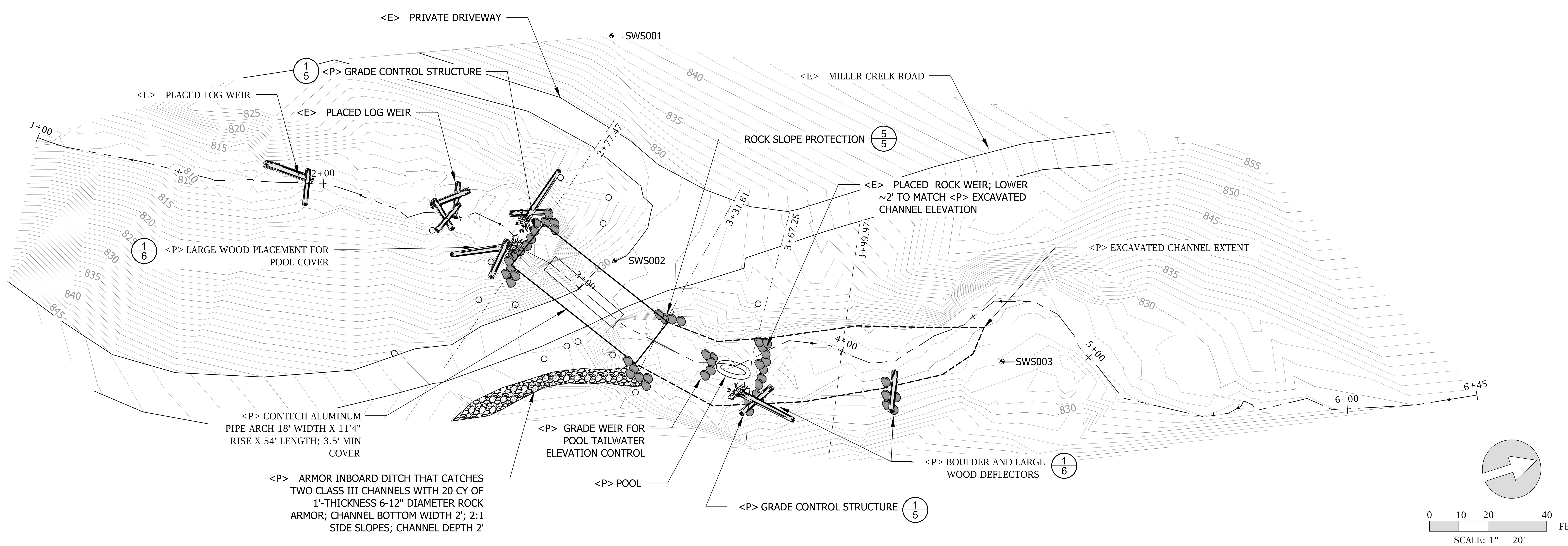
PROJECT NUMBER: 546.47
SCALE: AS NOTED
DATE: 3/20/2018

DESIGN: JM
DRAWN: RBT
CHECKED: CL
APPROVED: JM

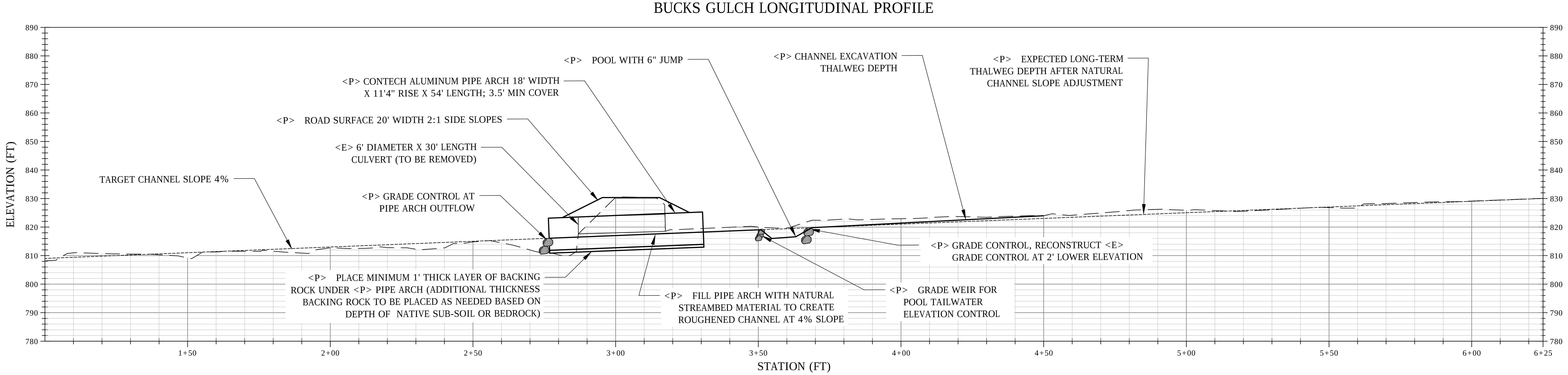
REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER L. MONSCHKE No. 79688 9-30-18 EXPIRES CIVIL STATE OF CALIFORNIA

TITLE SHEET

SHEET 1 OF 6



BUCKS GULCH LONGITUDINAL PROFILE



BUCK GULCH FISH PASSAGE IMPLEMENTATION - 65% DESIGN PLANS

HUMBOLDT COUNTY, CA

Stillwater Sciences
2855 TELEGRAPH AVENUE, SUITE 400
BERKELEY, CA 94705
P: (510) 848-8098

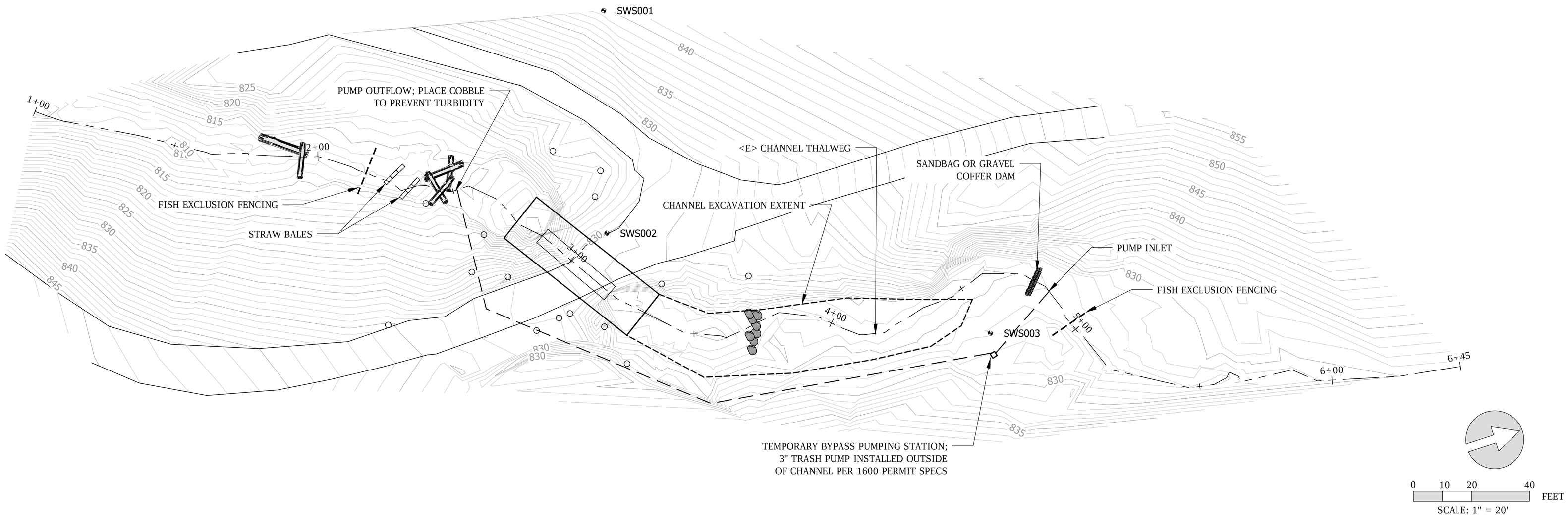
PROJECT NUMBER: 546.47
SCALE: AS NOTED
DATE: 3/20/2018

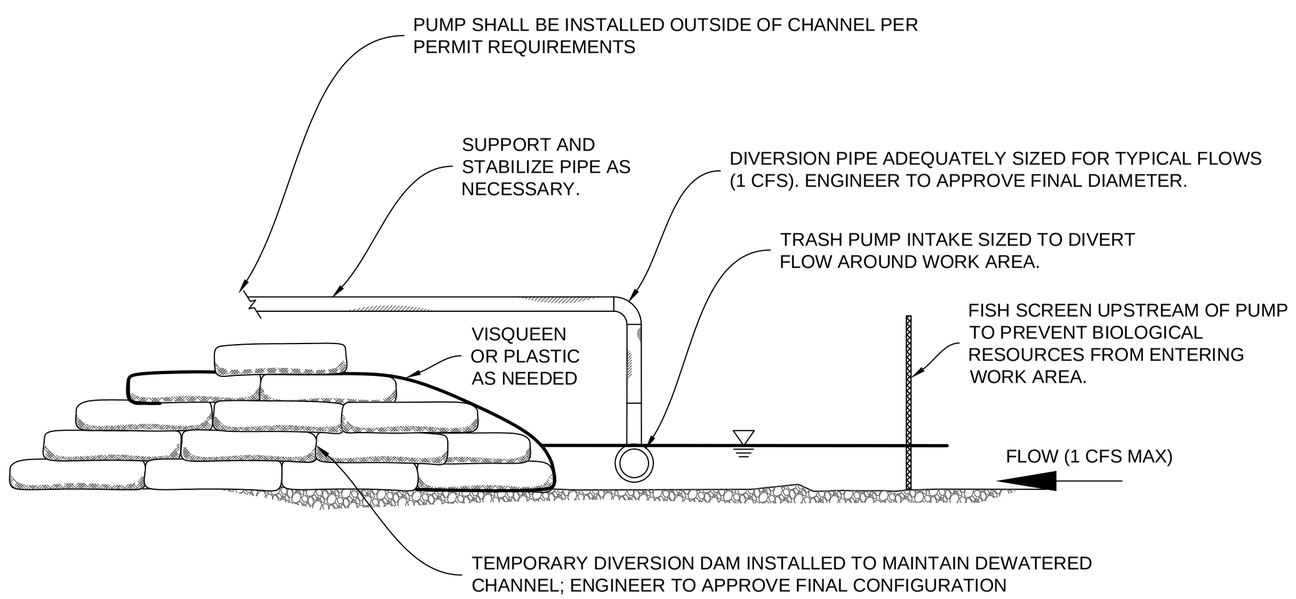
DESIGN: JM
DRAWN: RBT
CHECKED: CL
APPROVED: JM

REGISTERED PROFESSIONAL ENGINEER JOEL MONSCHKE No. 79688 EXPIRES 9-30-18 CIVIL STATE OF CALIFORNIA

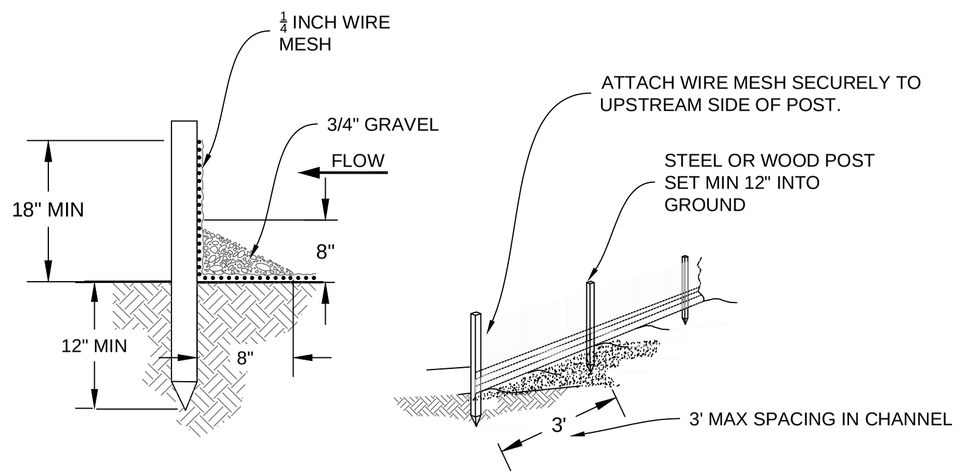
EXISTING & PROPOSED - PLAN & PROFILE

SHEET 2 OF 6





1 COFFER DAM AND PUMP INTAKE
NTS



2 FISH EXLUSIONARY FENCING
NTS

BUCK GULCH FISH PASSAGE IMPLEMENTATION - 65% DESIGN PLANS

HUMBOLDT COUNTY, CA

Stillwater Sciences
2855 TELEGRAPH AVENUE, SUITE 400
BERKELEY, CA 94705 P: (510) 848-8098

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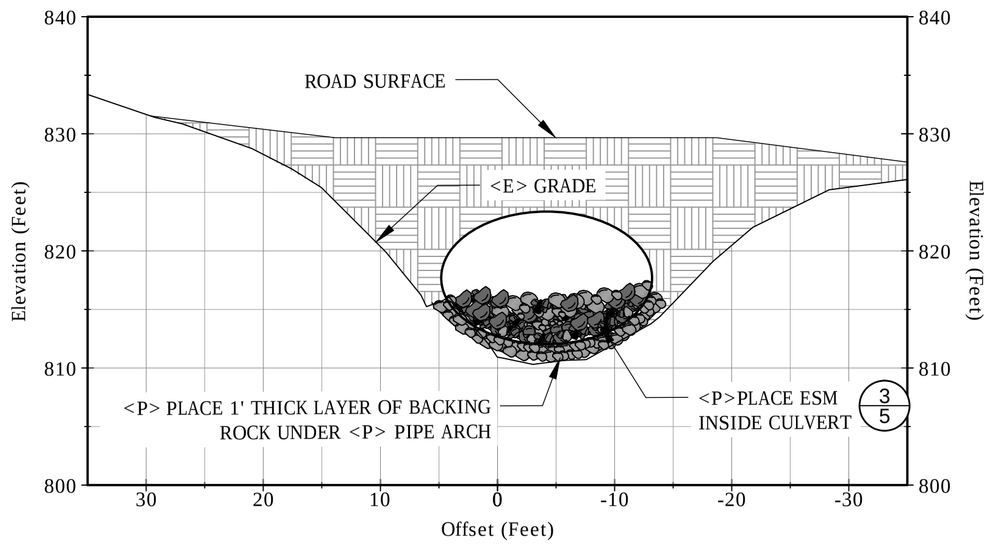
REGISTERED PROFESSIONAL ENGINEER JOEL MONSEN No. 79688 9-30-18 EXPIRES CIVIL STATE OF CALIFORNIA

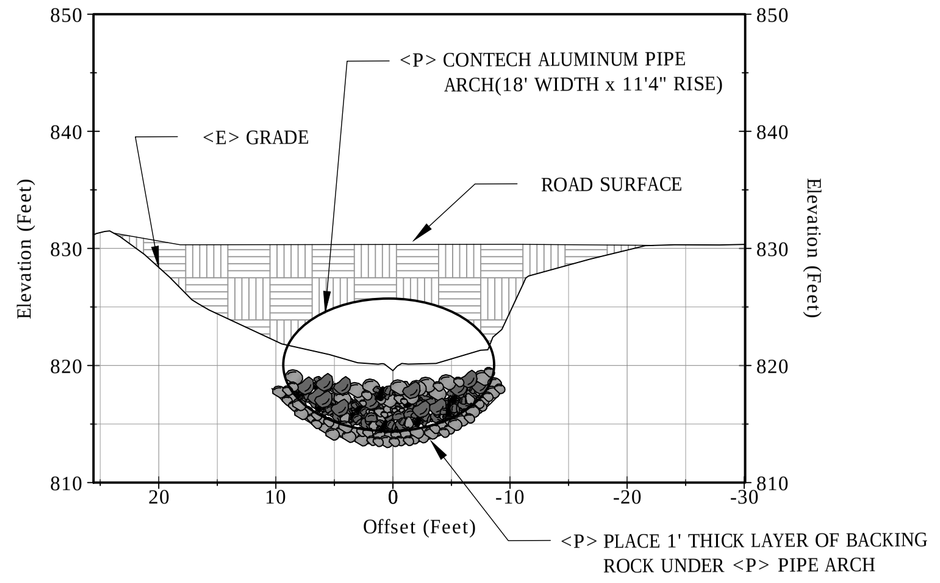
DEWATERING PLAN

SHEET 3 OF 6

2+77



3+32



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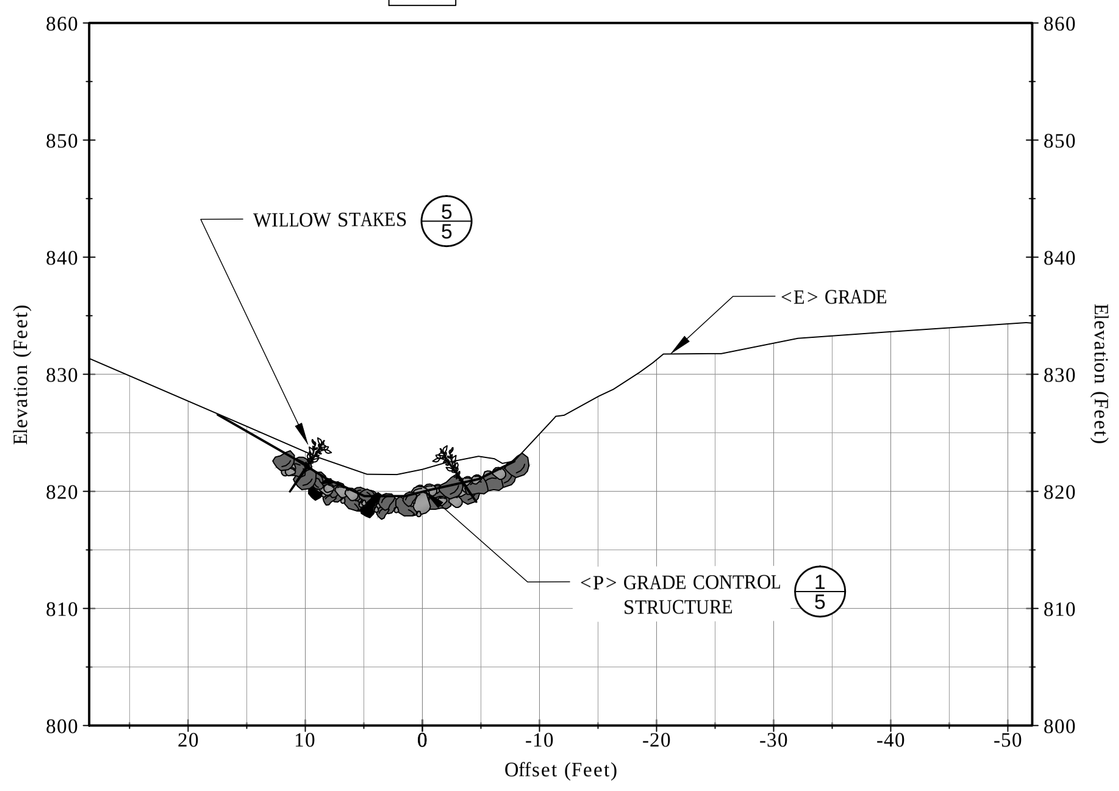

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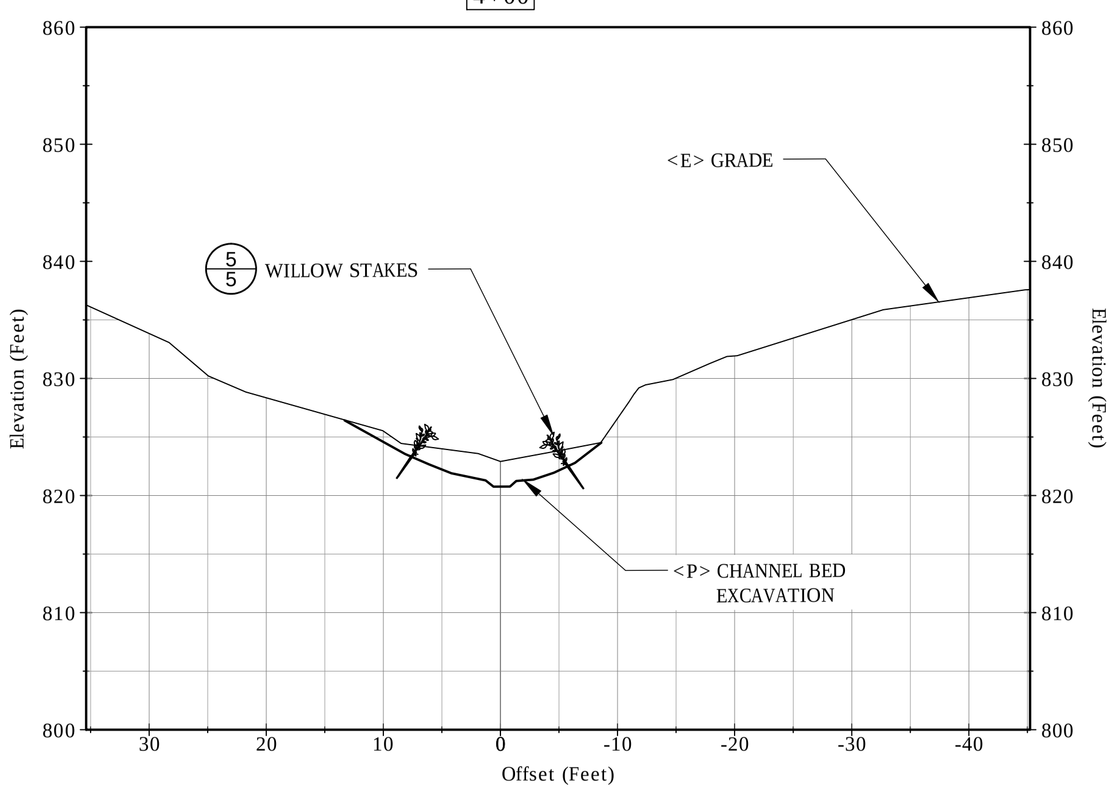

BUCK GULCH FISH PASSAGE IMPLEMENTATION - 65% DESIGN PLANS

HUMBOLDT COUNTY, CA

Stillwater Sciences

2855 TELEGRAPH AVENUE, SUITE 400
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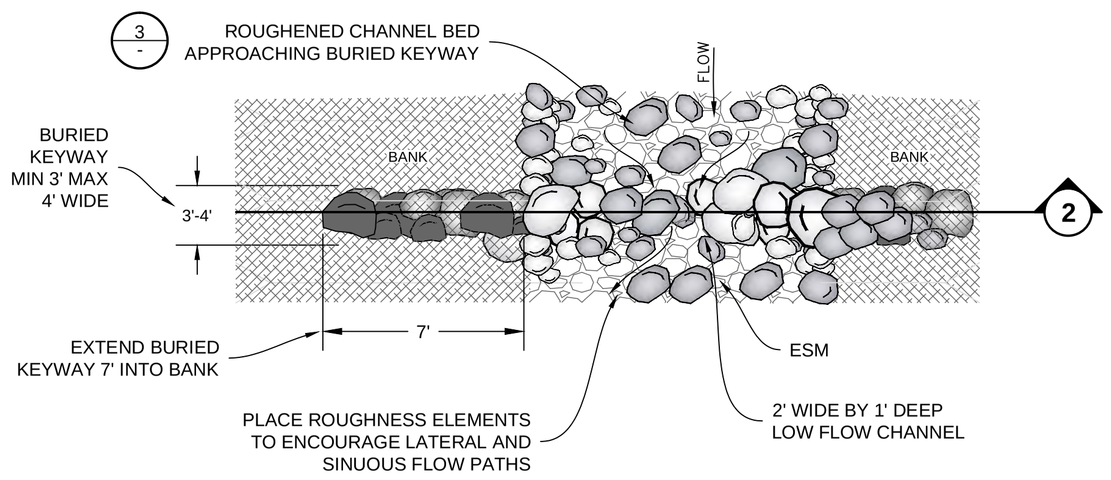
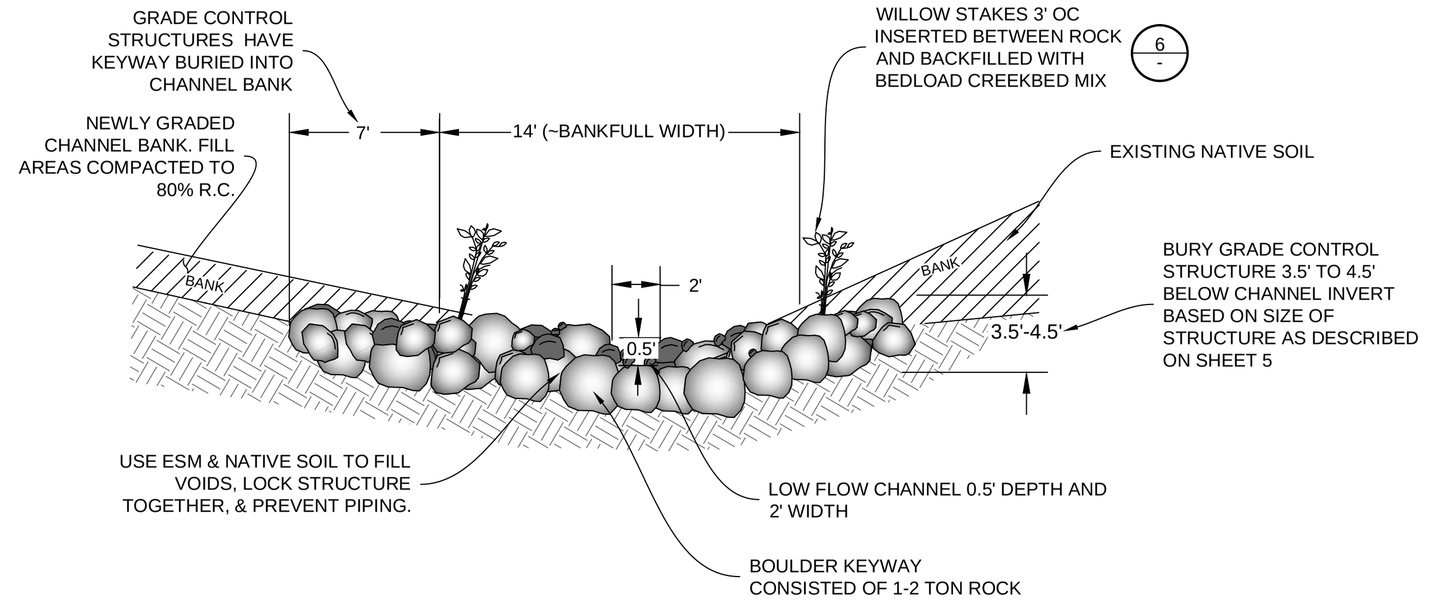
REGISTERED PROFESSIONAL ENGINEER JOEL MONSEBRAIE No. 79688 9-30-18 EXPIRES CIVIL STATE OF CALIFORNIA

CHANNEL CROSS-SECTIONS

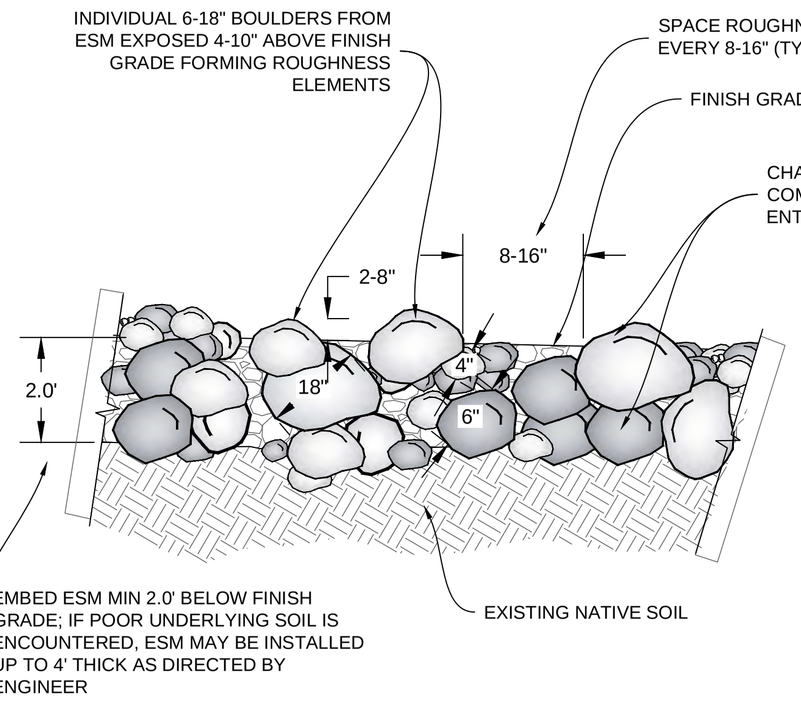
SHEET 4 OF 6



1 LARGE GRADE CONTROL STRUCTURE AND ROUGHEDN CHANNEL PLAN VIEW
NTS



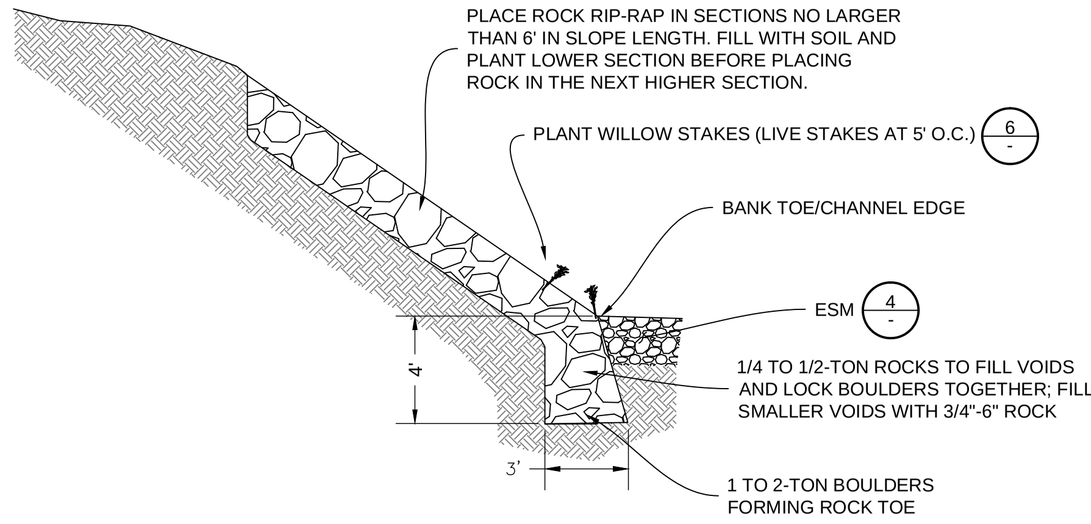
2 BURIED BOULDER KEYWAY SECTION VIEW
NTS



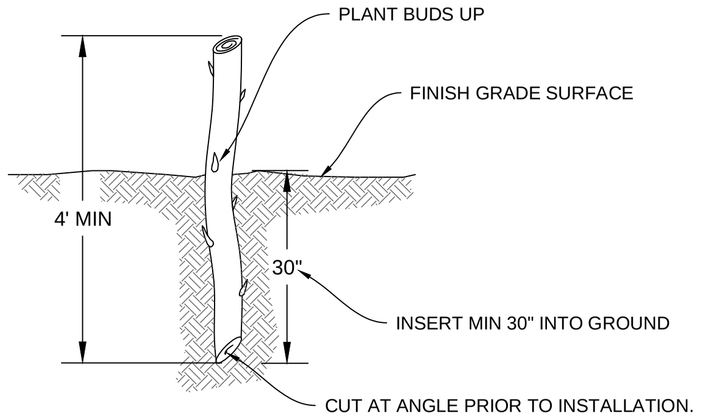
3 ROUGHENED CHANNEL BED SIDE VIEW (ESM)
NTS

	ENGINEERED STREAMBED MATERIAL (ESM)*	
	SIZE (INCHES)	%PASSING
ANCHOR BOULDERS 1-2 TON - 30" - 60"	D84	15"-18"
	D50	10"
	D30	6"
GRADE CONTROL STRUCTURES • INDIVIDUALLY PLACED 1-2 TON ROCK. • BACKFILL WITH ESM	D16	1"
	D0	SAND
RSP FOR AROUND ARCH INLET AND OUTLET 1 - 2 TON - 24" - 60"	*ESM SHALL CONTAIN A MIN OF 10% AND MAX OF 15% NATIVE ON-SITE SOIL.	

4 ROCK SIZING AND VOLUME
NTS



5 **WILLOW PLANTED RSP**
NTS



6 WILLOW STAKES
NTS

NOTE:

1. WILLOW STAKE SPECIES SHALL BE A MIX OF SPECIES PRESENT AT AND ADJACENT TO THE WORK SITE.
2. MRC WILL PROVIDE WILLOW.
3. EACH STAKE SHALL BE 1.5" - 3" THICK AT THE BOTTOM TO FACILITATE ROOT GROWTH AFTER TREATMENT WITH ROOTING HORMONE.
4. INSERT MIN 30" INTO GROUND
5. FOR WILLOW STAKES IN ROCK STRUCTURES, INSTALL STAKES AND ROCK CONCURRENTLY AND THEN BACKFILL WITH NATIVE SOIL TO PROMOTE ROOTING.

BUCK GULCH FISH PASSAGE IMPLEMENTATION - 65% DESIGN PLANS

HUMBOLDT COUNTY, CA

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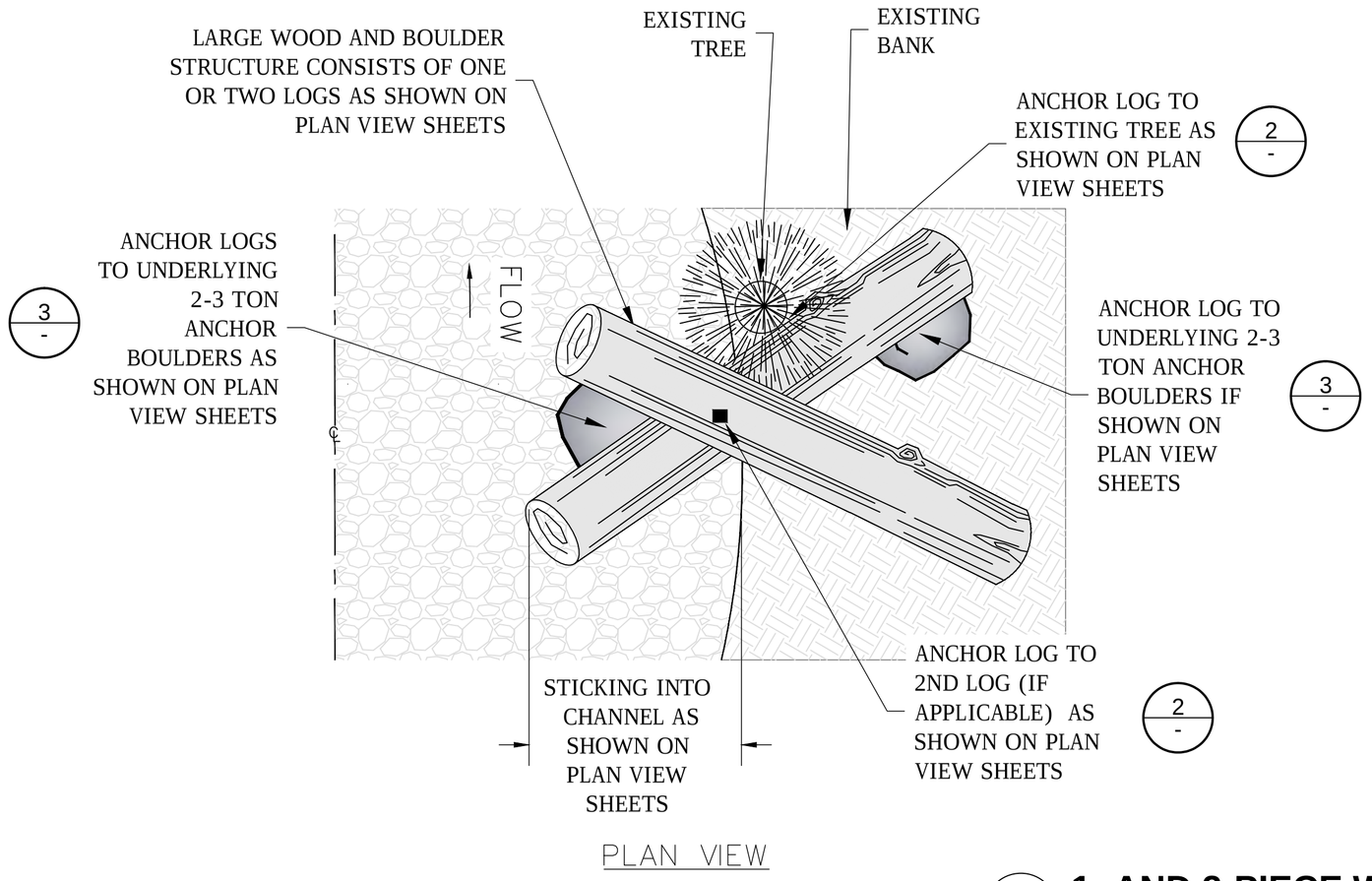
REGISTERED PROFESSIONAL ENGINEER
JOEL MONSCHKE
No. 79688
9-30-18
EXPIRES
CIVIL
STATE OF CALIFORNIA

DETAILS 1

SHEET 5 OF 6

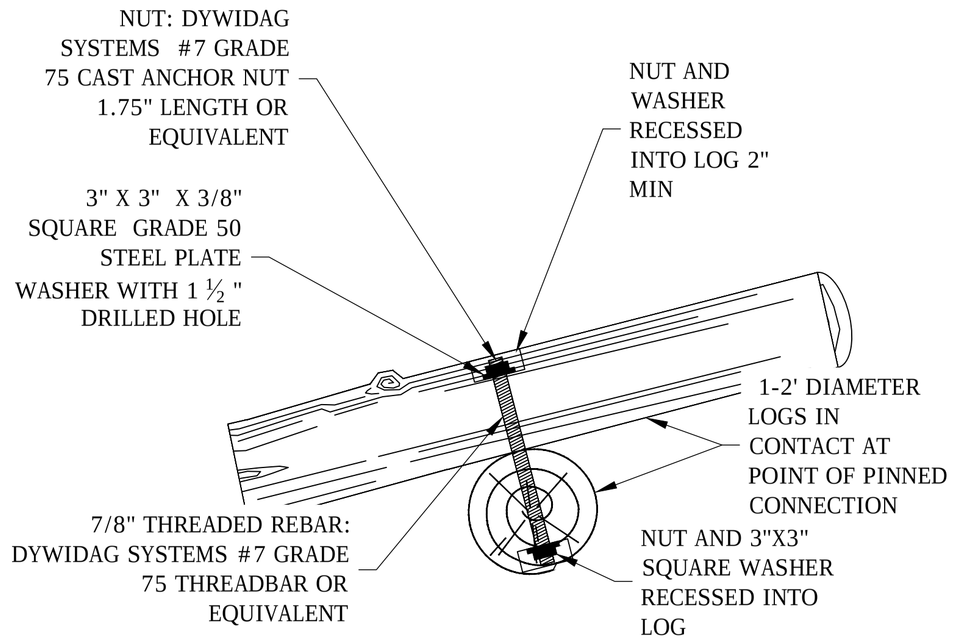


1 1- AND 2-PIECE WOOD STRUCTURE DETAILS

NTS

NOTES:

1. LOG STRUCTURES SHALL BE INSTALLED AS SHOWN ON PLAN VIEW SHEETS
2. WHERE BANKS ARE STEEP, LOG STRUCTURES MAY BE TRENCHED INTO THE BANK TO ALLOW FOR A LOWER ANGLE AND PROVIDE MORE WOOD VOLUME IN THE ACTIVE CHANNEL
3. LOG STRUCTURE CONSTRUCTION DETAILS MAY BE MODIFIED IN THE FIELD AS APPROVED BY THE PROJECT MANAGER AND ENGINEER

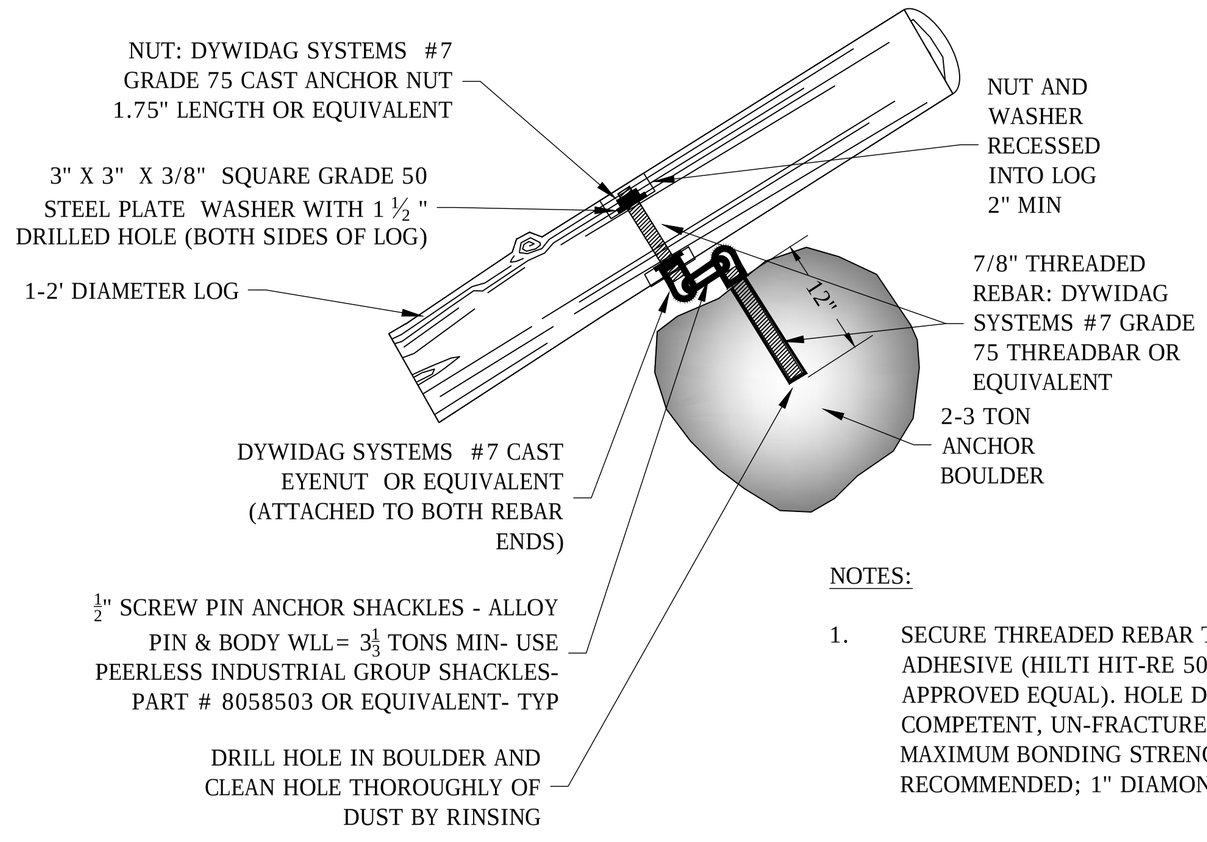


NOTES:

1. NOTCHING NOT REQUIRED ON LIVE TREES TO REDUCE IMPACTS TO TREE HEALTH

2 LOG-LOG OR LOG-TREE ANCHORING

NTS



NOTES:

1. SECURE THREADED REBAR TO 2 TON BOULDER USING EPOXY ADHESIVE (HILTI HIT-RE 500-SD (TUBE) EPOXY CARTRIDGES, OR APPROVED EQUAL). HOLE DEPTH MUST BE SUFFICIENT TO REACH COMPETENT, UN-FRACTURED ROCK IN ORDER TO OBTAIN MAXIMUM BONDING STRENGTH. A MINIMUM OF 12 INCHES IS RECOMMENDED; 1" DIAMOND-TIPPED DRILL (TIGHT FIT).

3 LOG-BOULDER ANCHORING

NTS

BUCK GULCH FISH PASSAGE IMPLEMENTATION - 65% DESIGN PLANS

HUMBOLDT COUNTY, CA

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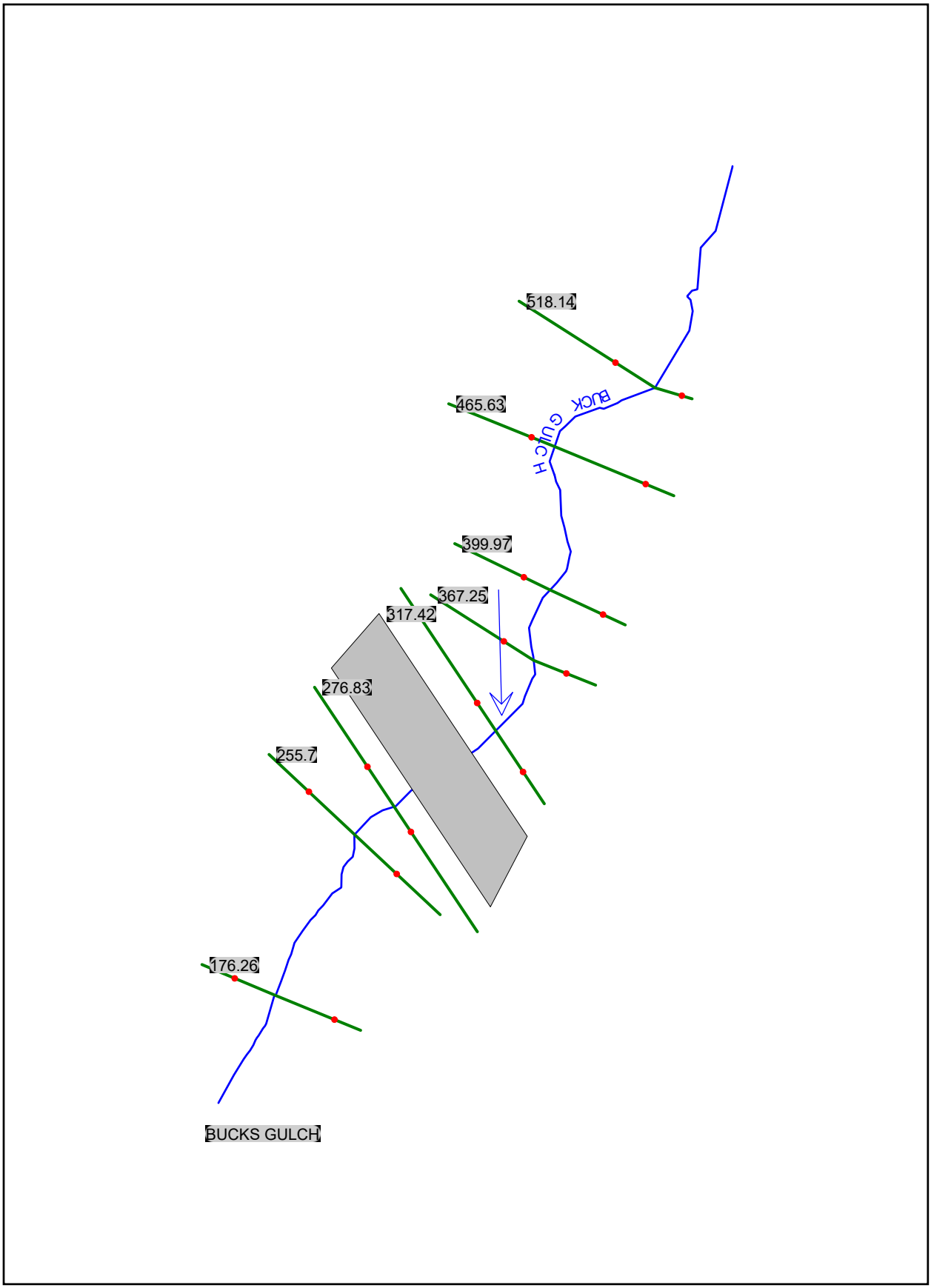
REGISTERED PROFESSIONAL ENGINEER ROBERT MONSCHKE No. 79688 9-30-18 EXPIRES CIVIL STATE OF CALIFORNIA

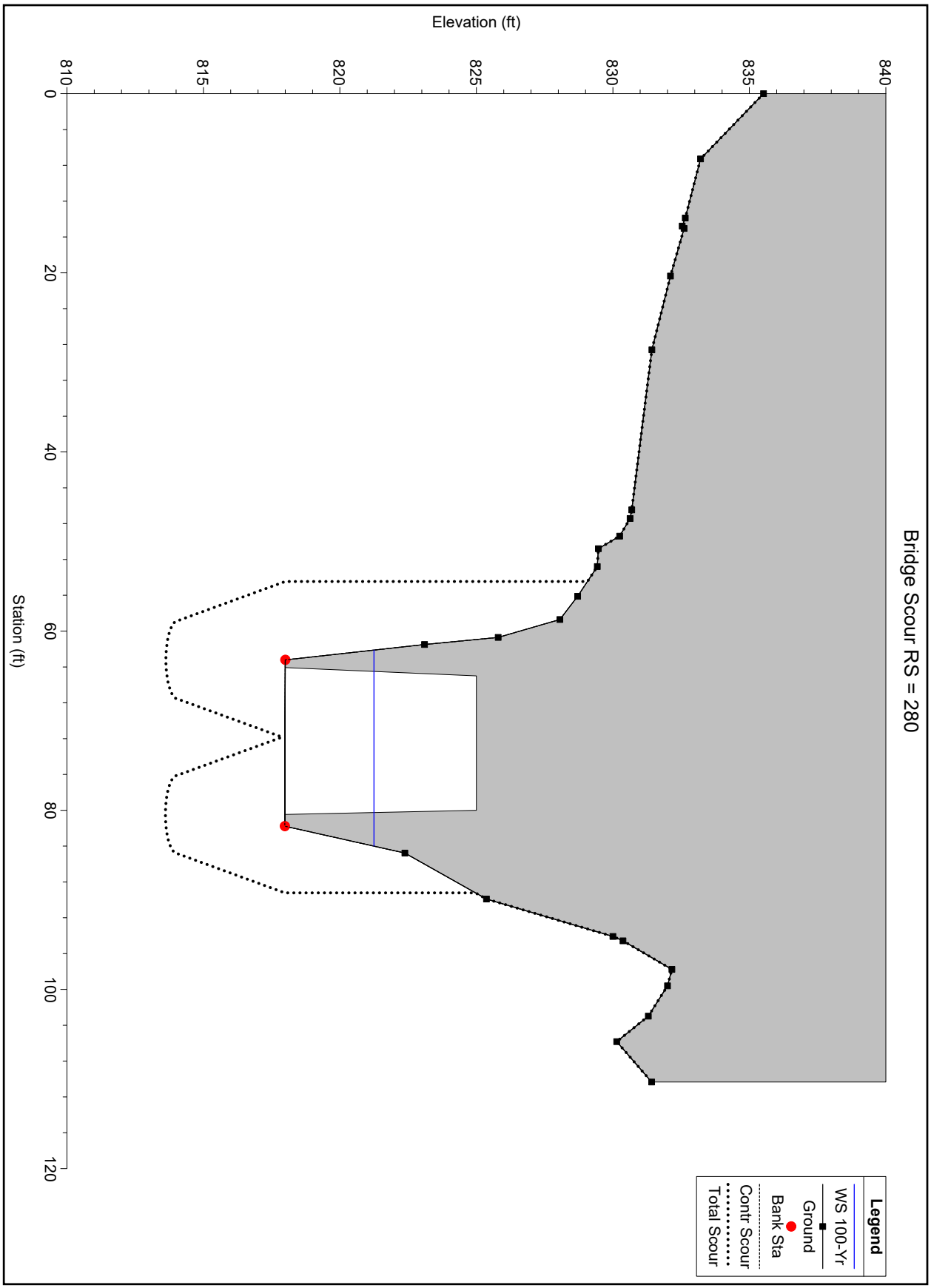
DETAILS 2

SHEET 6 OF 6

Appendix B

HEC-RAS Hydraulic Model Outputs


518.14
465.63
BUCK GULCH
399.97
367.25
317.42
276.83
255.7
176.26
BUCKS GULCH


Bridge Scour RS = 280
Elevation (ft)
Station (ft)
840
835
830
825
820
815
810
0
20
40
60
80
100
120
Legend
WS 100-Yr
Ground
Bank Sta
Contr Scour
Total Scour

HEC-RAS Plan: Existing River: BUCK GULCH Reach: BUCKS GULCH

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
BUCKS GULCH	518.14	Summer	1.00	825.44	825.94		825.96	0.015295	1.17	0.85	3.44	0.42
BUCKS GULCH	518.14	30%	4.00	825.44	826.30		826.34	0.013075	1.56	2.56	5.97	0.42
BUCKS GULCH	518.14	Winter	7.00	825.44	826.52		826.56	0.011926	1.74	4.03	7.49	0.42
BUCKS GULCH	518.14	2%	48.00	825.44	827.67		827.77	0.012890	2.62	18.32	19.70	0.48
BUCKS GULCH	518.14	2-Yr	120.00	825.44	828.36		828.55	0.014688	3.46	34.79	29.62	0.54
BUCKS GULCH	518.14	5-Yr	230.00	825.44	828.95		829.24	0.015396	4.37	54.61	36.53	0.58
BUCKS GULCH	518.14	10-Yr	300.00	825.44	829.30		829.62	0.014034	4.62	68.13	39.58	0.57
BUCKS GULCH	518.14	25-Yr	380.00	825.44	829.88		830.16	0.009664	4.39	92.27	44.51	0.49
BUCKS GULCH	518.14	50-Yr	440.00	825.44	830.66		830.85	0.004819	3.71	129.07	49.96	0.36
BUCKS GULCH	518.14	100-Yr	540.00	825.44	831.16		831.37	0.004223	3.82	154.74	51.86	0.35
BUCKS GULCH	465.63	Summer	1.00	824.59	825.15		825.17	0.014649	1.21	0.83	2.95	0.40
BUCKS GULCH	465.63	30%	4.00	824.59	825.51		825.56	0.017083	1.81	2.21	4.82	0.47
BUCKS GULCH	465.63	Winter	7.00	824.59	825.73		825.79	0.018337	1.98	3.54	7.25	0.50
BUCKS GULCH	465.63	2%	48.00	824.59	826.67	826.37	826.83	0.026598	3.20	14.99	20.23	0.66
BUCKS GULCH	465.63	2-Yr	120.00	824.59	827.33		827.57	0.024026	3.94	30.43	27.53	0.66
BUCKS GULCH	465.63	5-Yr	230.00	824.59	828.04	827.53	828.34	0.019131	4.41	52.17	33.49	0.62
BUCKS GULCH	465.63	10-Yr	300.00	824.59	828.08		828.57	0.030217	5.60	53.53	33.77	0.78
BUCKS GULCH	465.63	25-Yr	380.00	824.59	829.56		829.74	0.005910	3.37	112.65	44.57	0.37
BUCKS GULCH	465.63	50-Yr	440.00	824.59	830.51		830.64	0.002968	2.80	156.93	48.59	0.28
BUCKS GULCH	465.63	100-Yr	540.00	824.59	831.03		831.16	0.002871	2.96	182.54	50.76	0.27
BUCKS GULCH	399.97	Summer	1.00	822.91	823.25	823.23	823.32	0.076333	2.06	0.48	2.83	0.88
BUCKS GULCH	399.97	30%	4.00	822.91	823.51	823.48	823.62	0.061540	2.69	1.48	4.96	0.87
BUCKS GULCH	399.97	Winter	7.00	822.91	823.66	823.62	823.80	0.058888	2.97	2.36	6.62	0.88
BUCKS GULCH	399.97	2%	48.00	822.91	824.49	824.38	824.73	0.039205	3.90	12.31	17.03	0.81
BUCKS GULCH	399.97	2-Yr	120.00	822.91	825.02	824.92	825.50	0.042352	5.55	21.60	18.22	0.90
BUCKS GULCH	399.97	5-Yr	230.00	822.91	825.54	825.54	826.38	0.049458	7.31	31.46	19.37	1.01
BUCKS GULCH	399.97	10-Yr	300.00	822.91	826.75		827.17	0.015381	5.18	57.96	24.48	0.59
BUCKS GULCH	399.97	25-Yr	380.00	822.91	829.37		829.49	0.002385	2.79	136.26	35.20	0.25
BUCKS GULCH	399.97	50-Yr	440.00	822.91	830.39		830.49	0.001528	2.53	175.72	41.01	0.21
BUCKS GULCH	399.97	100-Yr	540.00	822.91	830.90		831.02	0.001616	2.78	197.00	42.77	0.22
BUCKS GULCH	367.25	Summer	1.00	821.43	821.65		821.69	0.034671	1.40	0.72	4.23	0.60
BUCKS GULCH	367.25	30%	4.00	821.43	821.86		821.94	0.042927	2.27	1.76	5.85	0.73
BUCKS GULCH	367.25	Winter	7.00	821.43	821.99	821.92	822.11	0.045541	2.74	2.55	6.67	0.78
BUCKS GULCH	367.25	2%	48.00	821.43	822.74	822.74	823.11	0.063349	4.86	9.88	13.80	1.01
BUCKS GULCH	367.25	2-Yr	120.00	821.43	823.34	823.34	823.90	0.056403	5.99	20.03	18.50	1.02
BUCKS GULCH	367.25	5-Yr	230.00	821.43	824.86		825.17	0.012393	4.44	51.81	23.40	0.53

HEC-RAS Plan: Existing River: BUCK GULCH Reach: BUCKS GULCH (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
BUCKS GULCH	367.25	10-Yr	300.00	821.43	826.76		826.90	0.002904	2.96	102.48	30.42	0.27
BUCKS GULCH	367.25	25-Yr	380.00	821.43	829.37		829.43	0.000732	2.04	195.84	41.21	0.15
BUCKS GULCH	367.25	50-Yr	440.00	821.43	830.39		830.45	0.000548	1.97	240.17	45.14	0.13
BUCKS GULCH	367.25	100-Yr	540.00	821.43	830.90		830.98	0.000636	2.22	263.62	47.02	0.14
BUCKS GULCH	331.28	Summer	1.00	819.29	819.51	819.51	819.57	0.121566	1.96	0.51	4.70	1.05
BUCKS GULCH	331.28	30%	4.00	819.29	819.68	819.68	819.77	0.091055	2.49	1.61	8.34	1.00
BUCKS GULCH	331.28	Winter	7.00	819.29	819.76	819.76	819.90	0.086457	2.93	2.39	9.31	1.02
BUCKS GULCH	331.28	2%	48.00	819.29	820.75	820.43	820.94	0.020934	3.52	13.62	13.45	0.62
BUCKS GULCH	331.28	2-Yr	120.00	819.29	822.57	821.13	822.68	0.004168	2.56	46.91	21.54	0.31
BUCKS GULCH	331.28	5-Yr	230.00	819.29	824.90	821.84	824.97	0.001572	2.21	103.91	26.89	0.20
BUCKS GULCH	331.28	10-Yr	300.00	819.29	826.77	822.16	826.83	0.000834	1.91	156.87	30.29	0.15
BUCKS GULCH	331.28	25-Yr	380.00	819.29	829.37	822.51	829.40	0.000381	1.56	246.40	40.42	0.10
BUCKS GULCH	331.28	50-Yr	440.00	819.29	830.39	822.75	830.43	0.000323	1.56	291.58	47.48	0.10
BUCKS GULCH	331.28	100-Yr	540.00	819.29	830.90	823.12	830.95	0.000392	1.78	317.97	58.72	0.11
BUCKS GULCH	317.42		Culvert									
BUCKS GULCH	276.83	Summer	1.00	810.39	815.00		815.00	0.000000	0.02	58.68	20.48	0.00
BUCKS GULCH	276.83	30%	4.00	810.39	815.20		815.20	0.000002	0.06	62.73	21.07	0.01
BUCKS GULCH	276.83	Winter	7.00	810.39	815.33		815.33	0.000005	0.11	65.48	21.26	0.01
BUCKS GULCH	276.83	2%	48.00	810.39	816.04		816.04	0.000136	0.59	80.93	22.46	0.06
BUCKS GULCH	276.83	2-Yr	120.00	810.39	816.79		816.81	0.000488	1.22	98.31	23.81	0.11
BUCKS GULCH	276.83	5-Yr	230.00	810.39	817.61		817.67	0.001061	1.94	118.45	25.28	0.16
BUCKS GULCH	276.83	10-Yr	300.00	810.39	818.03		818.11	0.001415	2.32	129.25	26.04	0.18
BUCKS GULCH	276.83	25-Yr	380.00	810.39	818.45		818.56	0.001802	2.71	140.39	26.80	0.21
BUCKS GULCH	276.83	50-Yr	440.00	810.39	818.74		818.88	0.002078	2.97	148.23	27.32	0.22
BUCKS GULCH	276.83	100-Yr	540.00	810.39	819.17		819.34	0.002532	3.37	160.03	28.08	0.25
BUCKS GULCH	255.7	Summer	1.00	814.71	814.98		815.00	0.035169	1.12	0.89	7.34	0.57
BUCKS GULCH	255.7	30%	4.00	814.71	815.15		815.19	0.034507	1.70	2.36	10.27	0.62
BUCKS GULCH	255.7	Winter	7.00	814.71	815.27		815.32	0.034556	1.83	3.83	14.91	0.64
BUCKS GULCH	255.7	2%	48.00	814.71	815.84		816.01	0.029860	3.38	14.21	19.56	0.70
BUCKS GULCH	255.7	2-Yr	120.00	814.71	816.43		816.75	0.027565	4.53	26.49	21.91	0.73
BUCKS GULCH	255.7	5-Yr	230.00	814.71	817.10		817.56	0.025585	5.47	42.09	24.66	0.74
BUCKS GULCH	255.7	10-Yr	300.00	814.71	817.45		817.99	0.024804	5.88	51.04	26.11	0.74
BUCKS GULCH	255.7	25-Yr	380.00	814.71	817.81		818.42	0.024172	6.26	60.66	27.58	0.74
BUCKS GULCH	255.7	50-Yr	440.00	814.71	818.07		818.72	0.023855	6.46	68.08	29.25	0.75
BUCKS GULCH	255.7	100-Yr	540.00	814.71	818.46		819.17	0.023169	6.77	79.73	31.18	0.75

HEC-RAS Plan: Existing River: BUCK GULCH Reach: BUCKS GULCH (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
BUCKS GULCH	176.26	Summer	1.00	811.64	812.00	811.95	812.02	0.040060	1.33	0.75	5.36	0.62
BUCKS GULCH	176.26	30%	4.00	811.64	812.19	812.12	812.24	0.040039	1.90	2.11	8.78	0.68
BUCKS GULCH	176.26	Winter	7.00	811.64	812.29	812.22	812.37	0.040013	2.32	3.02	9.24	0.72
BUCKS GULCH	176.26	2%	48.00	811.64	813.01	812.89	813.28	0.040054	4.20	11.43	14.28	0.83
BUCKS GULCH	176.26	2-Yr	120.00	811.64	813.64	813.51	814.12	0.040008	5.60	21.43	17.13	0.88
BUCKS GULCH	176.26	5-Yr	230.00	811.64	814.30	814.18	815.03	0.040002	6.85	33.56	19.56	0.92
BUCKS GULCH	176.26	10-Yr	300.00	811.64	814.66	814.56	815.49	0.040020	7.33	40.94	21.47	0.94
BUCKS GULCH	176.26	25-Yr	380.00	811.64	814.99	814.90	815.95	0.040013	7.87	48.29	22.65	0.95
BUCKS GULCH	176.26	50-Yr	440.00	811.64	815.22	815.13	816.27	0.040010	8.22	53.53	23.46	0.96
BUCKS GULCH	176.26	100-Yr	540.00	811.64	815.56	815.51	816.75	0.040025	8.73	61.86	24.68	0.97

HEC-RAS Plan: Proposed River: BUCK GULCH Reach: REACH 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
REACH 1	518.14	Summer	1.00	825.44	825.91		825.94	0.020497	1.31	0.76	3.26	0.48
REACH 1	518.14	30%	4.00	825.44	826.22	826.05	826.28	0.021946	1.90	2.10	5.41	0.54
REACH 1	518.14	Winter	7.00	825.44	826.40	826.20	826.47	0.022220	2.20	3.19	6.66	0.56
REACH 1	518.14	2%	48.00	825.44	827.52		827.67	0.019927	3.08	15.56	18.15	0.59
REACH 1	518.14	2-Yr	120.00	825.44	828.30		828.51	0.016842	3.65	32.95	27.65	0.58
REACH 1	518.14	5-Yr	230.00	825.44	828.88		829.20	0.017649	4.57	52.04	35.92	0.62
REACH 1	518.14	10-Yr	300.00	825.44	829.14		829.53	0.018394	5.06	61.88	38.20	0.65
REACH 1	518.14	25-Yr	380.00	825.44	829.41		829.87	0.018922	5.52	72.49	40.51	0.67
REACH 1	518.14	50-Yr	440.00	825.44	829.61		830.10	0.018984	5.79	80.42	42.16	0.68
REACH 1	518.14	100-Yr	540.00	825.44	829.92		830.47	0.018394	6.12	94.15	44.83	0.68
REACH 1	465.63	Summer	1.00	823.84	824.22	824.17	824.27	0.055705	1.87	0.54	2.86	0.76
REACH 1	465.63	30%	4.00	823.84	824.48		824.58	0.051373	2.56	1.56	4.88	0.80
REACH 1	465.63	Winter	7.00	823.84	824.62	824.57	824.76	0.052313	3.00	2.34	5.83	0.83
REACH 1	465.63	2%	48.00	823.84	825.47	825.47	825.95	0.060140	5.57	8.62	9.13	1.01
REACH 1	465.63	2-Yr	120.00	823.84	826.36	826.36	827.01	0.053273	6.47	18.55	14.25	1.00
REACH 1	465.63	5-Yr	230.00	823.84	827.34	827.14	827.87	0.037721	5.82	39.53	27.66	0.86
REACH 1	465.63	10-Yr	300.00	823.84	827.75		828.27	0.031515	5.82	51.57	31.43	0.80
REACH 1	465.63	25-Yr	380.00	823.84	828.13		828.68	0.027357	5.93	64.09	34.15	0.76
REACH 1	465.63	50-Yr	440.00	823.84	828.39		828.95	0.025330	6.02	73.14	35.98	0.74
REACH 1	465.63	100-Yr	540.00	823.84	828.83		829.39	0.023088	6.01	89.88	41.46	0.72
REACH 1	399.97	Summer	1.00	821.18	821.54	821.47	821.57	0.031575	1.39	0.72	4.02	0.58
REACH 1	399.97	30%	4.00	821.18	821.77	821.68	821.84	0.034204	2.02	1.98	6.64	0.65
REACH 1	399.97	Winter	7.00	821.18	821.90	821.80	822.00	0.034441	2.42	2.89	7.41	0.68
REACH 1	399.97	2%	48.00	821.18	822.81		823.11	0.031693	4.39	10.93	10.30	0.75
REACH 1	399.97	2-Yr	120.00	821.18	823.63		824.16	0.034180	5.88	20.42	12.85	0.82
REACH 1	399.97	5-Yr	230.00	821.18	824.35	824.23	825.23	0.041647	7.55	30.48	15.10	0.94
REACH 1	399.97	10-Yr	300.00	821.18	824.71	824.67	825.78	0.044471	8.30	36.15	16.22	0.98
REACH 1	399.97	25-Yr	380.00	821.18	825.10	825.10	826.33	0.045350	8.92	42.61	17.29	1.00
REACH 1	399.97	50-Yr	440.00	821.18	825.38	825.38	826.71	0.044848	9.24	47.61	18.07	1.00
REACH 1	399.97	100-Yr	540.00	821.18	825.83	825.83	827.27	0.044160	9.63	56.10	19.75	1.01
REACH 1	367.25	Summer	1.00	819.53	819.79	819.79	819.86	0.102198	2.14	0.47	3.22	0.99
REACH 1	367.25	30%	4.00	819.53	820.00	820.00	820.16	0.084256	3.22	1.24	3.95	1.01
REACH 1	367.25	Winter	7.00	819.53	820.16	820.16	820.37	0.076156	3.70	1.89	4.47	1.00
REACH 1	367.25	2%	48.00	819.53	821.20	821.20	821.70	0.060399	5.65	8.50	8.66	1.00
REACH 1	367.25	2-Yr	120.00	819.53	822.06	822.06	822.75	0.054730	6.66	18.01	13.36	1.01

HEC-RAS Plan: Proposed River: BUCK GULCH Reach: REACH 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
REACH 1	367.25	5-Yr	230.00	819.53	822.86	822.86	823.75	0.049118	7.58	30.33	16.98	1.00
REACH 1	367.25	10-Yr	300.00	819.53	823.24	823.24	824.26	0.047448	8.10	37.03	18.17	1.00
REACH 1	367.25	25-Yr	380.00	819.53	823.63	823.63	824.77	0.046260	8.59	44.24	19.41	1.00
REACH 1	367.25	50-Yr	440.00	819.53	823.88	823.88	825.12	0.046141	8.94	49.20	20.22	1.01
REACH 1	367.25	100-Yr	540.00	819.53	824.28	824.28	825.64	0.044660	9.35	57.72	21.54	1.01
REACH 1	331.28	Summer	1.00	817.98	818.29	818.04	818.29	0.000258	0.18	5.67	18.88	0.06
REACH 1	331.28	30%	4.00	817.98	818.40	818.10	818.40	0.001570	0.52	7.62	18.99	0.15
REACH 1	331.28	Winter	7.00	817.98	818.47	818.15	818.48	0.002737	0.77	9.06	19.06	0.20
REACH 1	331.28	2%	48.00	817.98	819.08	818.58	819.17	0.008664	2.30	20.91	19.69	0.39
REACH 1	331.28	2-Yr	120.00	817.98	819.82	819.07	819.99	0.010160	3.37	35.61	20.43	0.45
REACH 1	331.28	5-Yr	230.00	817.98	820.72	819.64	821.00	0.010138	4.22	54.50	21.36	0.47
REACH 1	331.28	10-Yr	300.00	817.98	821.24	819.96	821.56	0.009839	4.57	65.71	21.88	0.46
REACH 1	331.28	25-Yr	380.00	817.98	821.80	820.28	822.17	0.009440	4.86	78.15	22.46	0.46
REACH 1	331.28	50-Yr	440.00	817.98	822.20	820.51	822.60	0.009136	5.04	87.32	22.87	0.45
REACH 1	331.28	100-Yr	540.00	817.98	822.86	820.87	823.29	0.008742	5.26	102.65	24.03	0.45
REACH 1	331.27		Culvert									
REACH 1	276.83	Summer	1.00	814.33	815.05		815.05	0.000819	0.36	2.82	7.80	0.10
REACH 1	276.83	30%	4.00	814.33	815.32		815.33	0.002470	0.76	5.26	10.66	0.19
REACH 1	276.83	Winter	7.00	814.33	815.48		815.49	0.003396	0.99	7.11	12.39	0.23
REACH 1	276.83	2%	48.00	814.33	816.26		816.35	0.009362	2.41	19.92	19.26	0.42
REACH 1	276.83	2-Yr	120.00	814.33	816.93		817.13	0.012055	3.61	33.25	20.57	0.50
REACH 1	276.83	5-Yr	230.00	814.33	817.62		817.98	0.014797	4.77	48.24	22.53	0.57
REACH 1	276.83	10-Yr	300.00	814.33	817.97		818.42	0.016112	5.33	56.33	23.63	0.61
REACH 1	276.83	25-Yr	380.00	814.33	818.32		818.86	0.017388	5.87	64.72	24.72	0.64
REACH 1	276.83	50-Yr	440.00	814.33	818.56		819.16	0.018120	6.22	70.72	25.47	0.66
REACH 1	276.83	100-Yr	540.00	814.33	818.90		819.62	0.019548	6.78	79.59	26.54	0.69
REACH 1	255.7	Summer	1.00	814.71	814.98		815.00	0.035169	1.12	0.89	7.34	0.57
REACH 1	255.7	30%	4.00	814.71	815.15		815.19	0.034507	1.70	2.36	10.27	0.62
REACH 1	255.7	Winter	7.00	814.71	815.27		815.32	0.034556	1.83	3.83	14.91	0.64
REACH 1	255.7	2%	48.00	814.71	815.84		816.01	0.029860	3.38	14.21	19.56	0.70
REACH 1	255.7	2-Yr	120.00	814.71	816.43		816.75	0.027565	4.53	26.49	21.91	0.73
REACH 1	255.7	5-Yr	230.00	814.71	817.10		817.56	0.025585	5.47	42.09	24.66	0.74
REACH 1	255.7	10-Yr	300.00	814.71	817.45		817.99	0.024804	5.88	51.04	26.11	0.74
REACH 1	255.7	25-Yr	380.00	814.71	817.81		818.42	0.024172	6.26	60.66	27.58	0.74

HEC-RAS Plan: Proposed River: BUCK GULCH Reach: REACH 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
REACH 1	255.7	50-Yr	440.00	814.71	818.07		818.72	0.023855	6.46	68.08	29.25	0.75
REACH 1	255.7	100-Yr	540.00	814.71	818.46		819.17	0.023169	6.77	79.73	31.18	0.75
REACH 1	176.26	Summer	1.00	811.64	812.00	811.95	812.02	0.040060	1.33	0.75	5.36	0.62
REACH 1	176.26	30%	4.00	811.64	812.19	812.12	812.24	0.040039	1.90	2.11	8.78	0.68
REACH 1	176.26	Winter	7.00	811.64	812.29	812.22	812.37	0.040013	2.32	3.02	9.24	0.72
REACH 1	176.26	2%	48.00	811.64	813.01	812.89	813.28	0.040054	4.20	11.43	14.28	0.83
REACH 1	176.26	2-Yr	120.00	811.64	813.64	813.51	814.12	0.040008	5.60	21.43	17.13	0.88
REACH 1	176.26	5-Yr	230.00	811.64	814.30	814.19	815.03	0.040002	6.85	33.56	19.56	0.92
REACH 1	176.26	10-Yr	300.00	811.64	814.66	814.55	815.49	0.040020	7.33	40.94	21.47	0.94
REACH 1	176.26	25-Yr	380.00	811.64	814.99	814.91	815.95	0.040013	7.87	48.29	22.65	0.95
REACH 1	176.26	50-Yr	440.00	811.64	815.22	815.14	816.27	0.040010	8.22	53.53	23.46	0.96
REACH 1	176.26	100-Yr	540.00	811.64	815.56	815.51	816.75	0.040025	8.73	61.86	24.68	0.97

Revetment Sizing (FHWA 1989)

$$D_{50} = C \frac{0.001 V_{avg}^{3}}{d_{avg}^{1.5} K^{0.5}}$$

D_{50} = Rock diameter
C = Correction factor = 2.2
V_{avg} = 7.0 ft/s
d_{avg} = 3.5 ft
$K = \sqrt{1 - \frac{\sin^2\theta}{\sin^2\phi}} = 0.5$

where θ = bank angle = 33.7°
ϕ = riprap angle of repose 40°

$$D_{50} = 2.2 \frac{(0.001)(7.0)^3}{(6.55)\cdot(0.5)} = 0.23 \text{ ft}$$

Rock Weir Sizing (NRCS 2000)

$$D_{75\text{-riprap}} = \frac{3.5\, w\, D\, S}{C\, K}$$

$D_{75\text{-riprap}}$ = Riprap size in inches

w = Channel Top Width at design flow = 32'

D = Max flow depth = 3.5'

S = Channel Slope = 5% = 0.05

C = curviture coef. = 1

K = side coef. = 0.75 (2.5:1 revetment)

$D_{75\text{-riprap}} = 26$ inches $= 1.2 D_{50\text{-riprap}}$

$D_{50\text{-riprap}} = 22$ inches

$D_{50\text{-weir}} = 2 \cdot D_{50\text{-riprap}} = 44$ inches

$D_{100\text{-weir}} = 4 \times D_{50\text{ riprap}} = 88$ inches

$D_{min\text{-weir}} = 0.75 \times D_{50\text{ riprap}} = 17$ inches

Based on experience constructing weirs Recommend:

2' to 5'

Rock Ramp Sizing (ACOE 1994)

$$D_{30\,ACOE} = \frac{1.95 S^{0.555} (1.25 q)^{2/3}}{g^{1/3}}$$

$D_{30\,ACOE}$ = Stable partice size

S = Hydraulic Slope = 0.04

q = unit discharge = 432/20 = 21.6 cfs/ft

g = gravitational accelerations = 32.2 ft/s

(.327)

$$D_{30\,ACOE} = \frac{1.95 (.04)^{0.555} (1.25 \cdot 21.6)^{2/3}}{32.2^{1/3}} = 0.925 \text{ ft}$$

$D_{84} = 1.5\, D_{30\,ACOE} = 1.4'$

$D_{50} = 0.4\, D_{84} = 0.6'$

TECHNICAL MEMORANDUM

DATE:	9 May 2018
TO:	California Department of Fish and Wildlife
FROM:	Joel Monschke, Stillwater Sciences
SUBJECT:	Stream Crossing Upgrades and Water Diversions on APN 220-271-008 (Worley Property)

I hereby state that all work described in the attached Technical Memorandum for the Erosion Remediation Project of APN 220-271-008 follows accepted engineering practice and was completed under my direction. The proposed project consists of two culvert replacements and permitting two points of diversion. The work will improve fish passage and decrease existing and potential sediment delivery to Buck Gulch and tributaries of Miller Creek in the Redwood Creek watershed in southern Humboldt County.

Joel Monschke, P.E.
Senior Civil Engineer/Hydrologist
Stillwater Sciences

1 INTRODUCTION

Stillwater Sciences was contracted to perform a site assessment at APN 220-271-008 and develop a remediation plan to remove a fish-migration barrier and decrease potential sediment delivery to Buck Gulch and tributaries of Miller Creek. The applicant also intends to permit water diversion from an existing spring and diversion structure in Miller Creek for domestic and irrigation water supply. The property boundary, points of diversion, and remediation sites are shown in Appendix A.

2 FIELD OBSERVATIONS

A site visit was conducted by Stillwater Sciences senior engineer/hydrologist, Joel Monschke, P.E., to assess the stream crossings and associated road segments. The proposed project consists of replacing two culvert stream crossings and permitting two points of diversion (a spring and a diversion in Miller Creek). All site locations are shown in Appendix A and each site is described below.

- Site C1 is a proposed replacement of a fish-passage barrier culvert (6-foot diameter, shotgun outlet). The replacement stream crossing will be an 18-foot width by 11-foot 4-inch rise arch culvert. Minor channel modification and large wood and armor placement in the upstream channel is also proposed to maintain grade that will allow fish passage and restore a natural sediment transport regime.
- Site C2 is a proposed upgrade of a 12-inch diameter stream crossing culvert.
- "Spring POD" is a spring point of diversion. The spring is used for domestic and irrigation purposes.
- "Miller Creek POD" is a diversion in Miller Creek used for irrigation purposes.

3 GEOLOGY AND SOILS

The subject property is located in Southern Humboldt County, situated at the confluence of Buck Gulch and Miller Creek, which is tributary to Redwood Creek in the South Fork Eel River watershed. The property and surrounding vicinity are composed of marine sedimentary rocks consisting of Paleocene sandstone, shale and conglomerate (mostly well consolidated)[1]. Based on NRCS soils map for the region[2], the culvert sites are located in Gshwend-Frenchman complex and the majority of the property is Sproulish-Canoecreek-Redwohly complex.

4 HYDROLOGIC AND HYDRAULIC ANALYSES FOR STREAM CROSSING DESIGN

The hydraulics of several significant flow magnitudes were modeled using the U.S. Army Corps of Engineers' (USACE) Hydrologic Engineering Center's River Analysis System (HEC-RAS) for the large culvert replacement. Methods, results, and analysis for the large culvert replacement

[1] California Department of Conservation. 2010. Geologic map of California. Accessed online at: http://maps.conservation.ca.gov/cgs/gmc.
[2] NRCS Watershed Boundary Dataset, Sub-region level, 2012.

hydrology and hydraulic analyses are described in the Basis of Design Report for Buck Gulch Fish Passage Project (Appendix B).

The smaller stream crossing culvert was evaluated using the Rational Method (also known as the Rational Formula) to calculate the design flow for the 100-year storm event. This method is appropriate for determining flow rates for relatively small drainage areas of less than 200 acres (Cafferata et al. 2004). The Rational Formula incorporates a combination of rainfall intensity, drainage area and runoff coefficient to estimate maximum flows and is defined as:

$$Q = CIA$$

Where:

Q = Flow Discharge
C = Runoff Coefficient
I = Rainfall Intensity
A = Area

4.1 Determining Storm Duration

For the Rational Method analysis, the total drainage area, slope, and longest flow path were determined based on field observations and analyses on a USGS 7.5-minute topographic map. Based on these values (summarized in Table 1), the "Time of Concentration" was estimated using the Airport Drainage Formula. The "Time of Concentration" is defined as the time it takes runoff to travel along the longest flow path within the contributing watershed and arrive at a site crossing. Per Cafferata et al. (2004), the "Time of Concentration" can be found with the following Airport Drainage Formula[3]

$$T_c=((1.8)(1.1–C)(D^{0.5}))/(S^{0.33})$$

Where:

T_c=Time of Concentration (minutes)
C=Runoff Coefficient (dimensionless, 0<C<1.0)
D=Distance (in feet from the point of interest to the point in the watershed from which the time of flow is the greatest)
S = Slope (percent)

Table 1. Summary of time-of-concentration analyses.

Site number	Drainage area (ac)	Longest flow path (ft)	Maximum elevation change (ft)	Slope (%)	Time of Concentration (min)	100-year rainfall intensity (in/hr)
C2	2.3	444	31	7	14	3.17

[3] Note that two methods for determining Time of Concentration were described in Cafferata et al. (2004) including (1) the Kirpich formula and (2) the Airport Drainage equation. The Kirpich Formula was developed in 1940 based on precipitation and runoff data from seven rural watersheds in Tennessee with average slopes ranging from 3% to 10%. We believe that the Kirpich Formula does not provide good estimates for Time to Concentrations on steeper northern California watersheds. Additionally, Yee (2004) recommends use of the Airport Drainage equation.

4.2 Precipitation Data

The intensity-duration-frequency (IDF) curve used for the Rational Method analysis came from National Oceanic and Atmospheric Administration's National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server (PFDS).[4] Rainfall intensity was determined from the IDF curve for the 100-year recurrence interval for storm durations equivalent to the "Time of Concentration" for the project site. The 100-year rainfall intensity from the PFDS is also shown in Table 1.

4.3 Runoff Coefficient

Cafferata et al. (2004) suggest a runoff coefficient ranging from 0.30 to 0.45, depending on the specific location of the crossing. A runoff coefficient of 0.3, 0.35, and 0.4 reflect woodland, pasture, and cultivated land use, respectively, with heavy clay soil, soil with a shallow impeding horizon, or shallow soil over bedrock; per Figure 1 taken from Appendix A, Table A-1 of *The Handbook for Forest, Ranch and Rural Roads* (Weaver et al. 2014).

We have used a Runoff Coefficient of 0.4 for the crossing based on the land use of the area tributary to the crossing.

Soils	Land use or type	C value
Sandy and gravelly soils	Cultivated	0.20
	Pasture	0.15
	Woodland	0.10
Loams and similar soils without impeded horizons	Cultivated	0.40
	Pasture	0.35
	Woodland	0.30
Heavy clay soil or those with a shallow impeding horizon; shallow over bedrock	Cultivated	0.50
	Pasture	0.45
	Woodland	0.40

Figure 1. Runoff coefficients (adopted from Appendix A, Table A-1 of the *Handbook for Forest, Ranch and Rural Roads* (Weaver et al. 2014).

4.4 Storm Discharges

Discharge from the Rational Method calculations for 100-year storm events are shown in Table 2.

Table 2. 100-year discharge.

Site number	100-year discharge (cfs)
C2	3

[4] http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html

4.5 Drainage Structure Sizing

The culvert crossing was designed to be capable of carrying flows from the 100-year storm event. The FHWA Culvert Capacity Inlet Control Nomograph (Figure A-1 of Weaver et al. 2014) was used to size the culvert. A HW/D ratio of 1.0 was used, as shown in Figure 2 below.

Specific upgrade recommendations for the proposed crossing is described in Section 5.

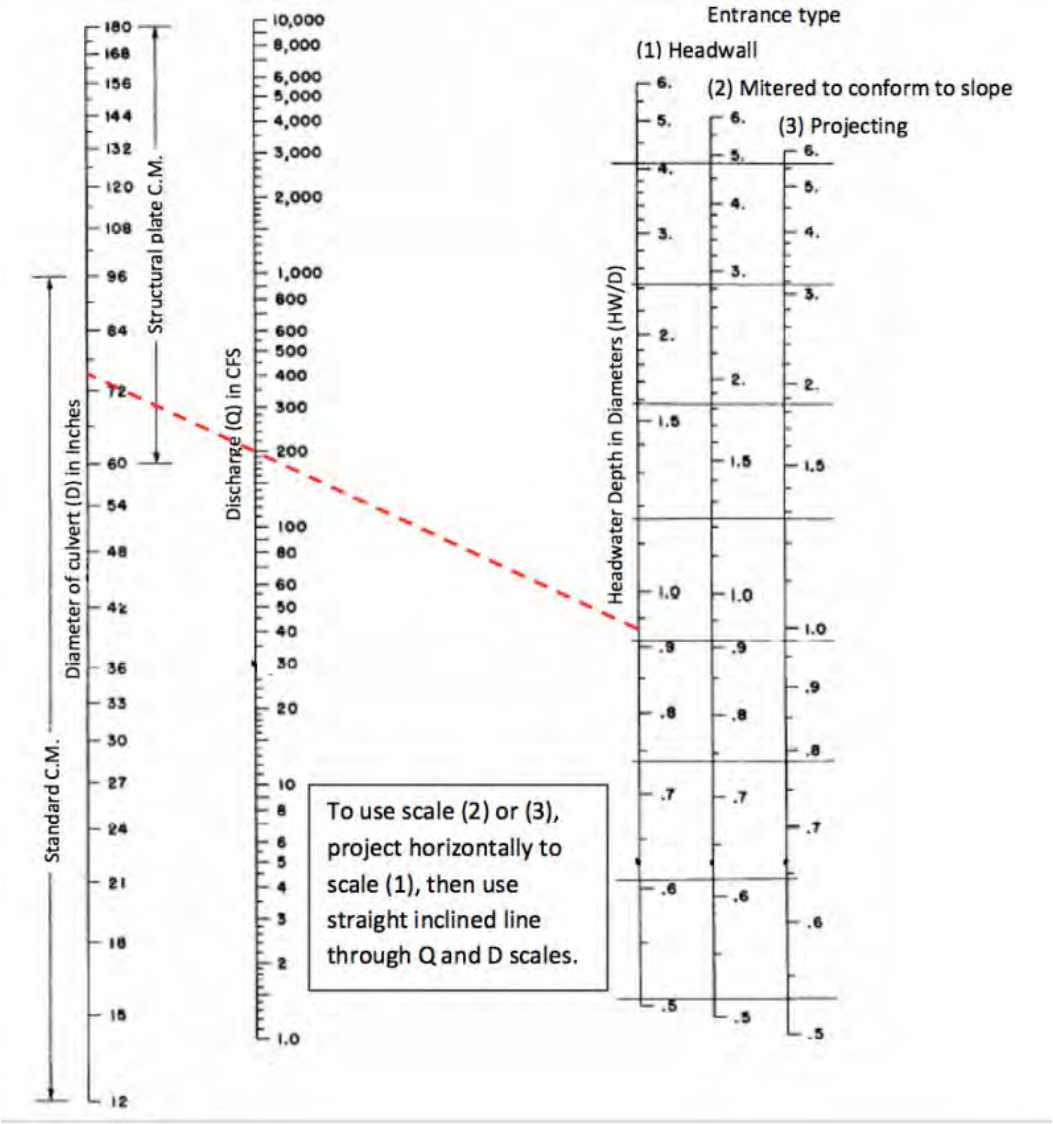


Figure 2. FHWA Culvert Capacity Inlet Control Nomograph (Figure A-1 of Weaver et al. 2014))

5 IMPLEMENTATION PLAN

5.1 Road-Stream Crossings

- Site C1 will require installation of an 18-foot width by11-foot 4-inch rise pipe arch. Minor channel modification and grade control structures are proposed in the 120-foot long upstream

reach from the culvert to restore a natural sediment transport regime (see Appendix B for details).

- Site C2 currently has a 12-inch diameter culvert, which will be replaced with a 24-inch diameter corrugated metal pip (CMP) culvert.

5.2 Culvert Upgrades

As described above, replacing two culvert crossings is proposed.

Table 3. Site-specific culvert upgrade specifications.

Site number	Culvert diameter (inches)	Culvert length (ft)	Headwall rock (cubic yards)	Outlet rock volume (cubic yards)	Rock size range (ft)*
C2	24	30	1	4	0.5–1

* Approximate rock size to weight conversion:

- 0.5–1 ft rock = backing
- 1.5–2 ft rock = ¼–½ ton
- 2–3 ft rock = 1–2 ton

5.2.1 General culvert upgrade specifications

Please see the attached 65% Design of the large culvert for replacement specifications. Typical culvert installation and rock armor placement is depicted on Figure 3. Additionally, the following specification should be followed when installing the smaller culvert:

- Remove existing culvert (if applicable) and excavate a trench at the original channel gradient to place the culvert. Note that on steep channels culverts may be installed at a more gentle slope with extensive rock armoring placed under the outlet for channel armoring and energy dissipation as shown on Figure 3.
- If extensive rock armoring is necessary downstream from the culvert, the rock should be placed prior to the installation of the culvert to allow for best equipment access. Begin to place rock from the downstream extent of the culverts spillway with the first row of rock firmly keyed in to the bench at the bottom of the spillway.
- Upon completion of the spillway near to the elevation of the culvert outlet, finalize the trench where the culvert shall be placed. The base of the trench shall be well compacted (minimum 90% RC) and shall be constructed at an even gradient with a minimum width of 4 feet greater than the culvert diameter to allow for compaction along the sides of the culvert.
- Place culvert with dimensions shown on Table 3 in the trench. Compaction around the culvert should occur in 6-inch to 1-foot lifts using a Wacker or other approved method. Soils should be wetted or dried for maximum compaction (minimum 90% RC).
- After culvert is covered with fill, begin rebuilding road prism in 1-foot lifts. Compaction should occur with a Sheepsfoot or other approved method.
- Place final rock armoring around culvert outlet, culvert inlet, and upstream channel as described in Table 3 and in the site-specific specifications. A critical dip will be constructed over new fill. The dip will be constructed of rock armoring that extends from the top of the culvert to the road surface.

- Insure that road surface drainage is controlled with rolling dips upslope from the crossing and armored inboard ditches as necessary.
- Place a minimum of 6-inch road rock on all disturbed area adjacent to the crossing.
- All sites subject to changes based on field conditions and/or as directed by an engineer or geologist.

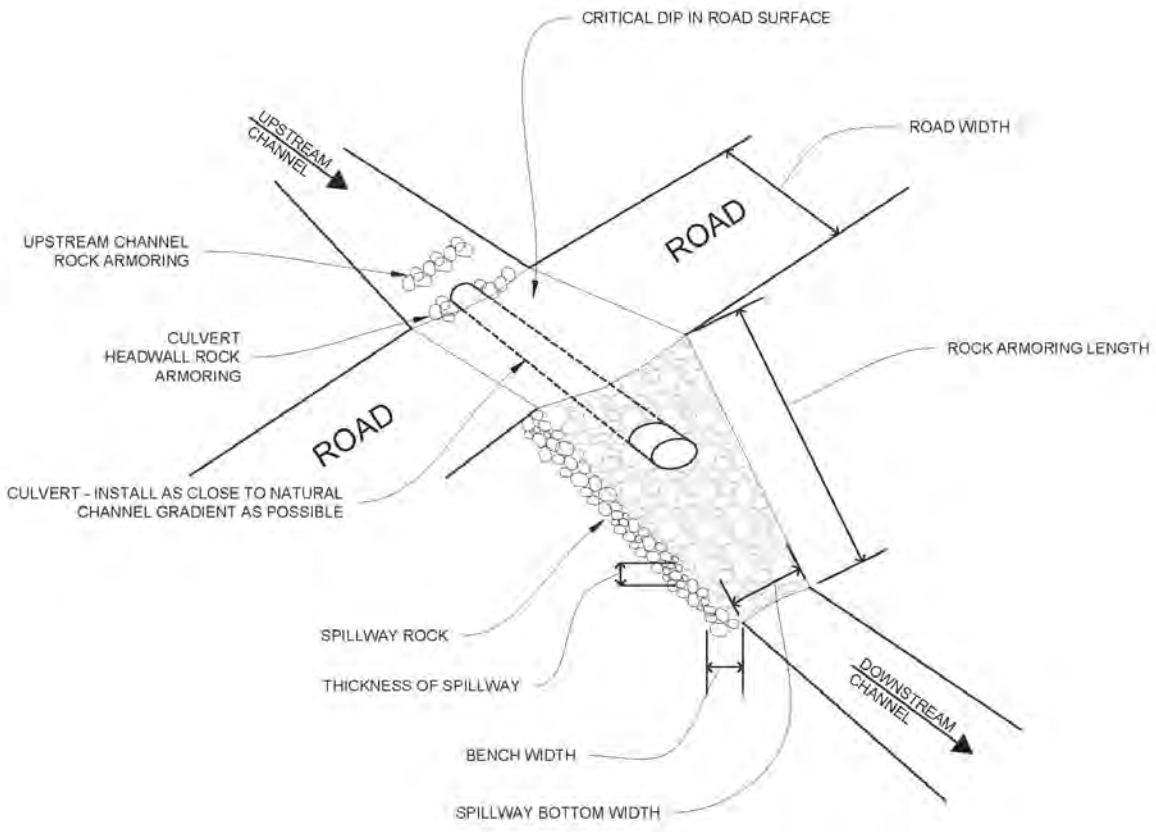


Figure 3. Culvert installation schematic.

5.3 General Road Surface Drainage Treatments

Install rolling dips and crown road surface to reduce runoff concentration along road segments, especially those near streams.

6 CONSTRUCTION COST ESTIMATE FOR SITES REQUIRING 1602 NOTIFICATION

Table 4. Summary of approximate construction costs.

Site number	Culvert and other materials	Rock armoring (delivered)	Heavy equipment and labor	Total construction cost	Total DFW permit fee
C1	$75,000	$32,000	$77,000	$184,000	$3,185.25
C2	$500	$200	$1,500	$2,200	$577.25
Spring POD	-	-	-	-	$0 (Already Paid)
Creek POD	-	-	-	-	$577.25
Total	**$75,500**	**$32,250**	**$78,500**	**$186,200**	**$4,339.75**

6.1 Erosion Control BMPs (to be used at all sites where soil is disturbed)

- Erosion and sediment control best management practices (BMPs) shall be installed prior to the wet season (1 October through 30 April).
- Sensitive areas and areas where existing vegetation is being preserved shall be protected with construction fencing; fencing shall be maintained throughout construction activities.
- All areas disturbed during grading activities shall be seeded with native grass seed and mulched with rice straw.
- Prior to seeding and straw, disturbed areas should be roughened by track walking with a dozer.
- Straw shall be applied at a uniform rate of approximately 4,000 lbs per acre by hand.
- At the completion of the project, straw wattles shall be placed as directed by the engineer or geologist.
- All sediment control BMPs shall be maintained throughout the wet season until new vegetation has become established on all graded areas.

7 LATITUDE AND LONGITUDE FOR SITES REQUIRING 1602 NOTIFICATION

Table 5. Latitude and Longitude for 1602 sites.

Site number	Latitude	Longitude
C1	40.1227°	-123.9144°
C2	40.1228°	-123.9148°
Spring POD	40.1222°	-123.9180°
Creek POD	40.1218°	-123.9164°

8 WATER USE AND STORAGE

8.1 Water Sources

A spring and a diversion in Miller Creek provide water for the property. Domestic water use (~200 gallons/day) is supplied by a spring. Irrigation water is supplied by both diversions.

8.2 Water Storage and Plumbing

The landowner currently has ~30,000 gallons of water storage in poly tanks and plans to increase storage capacity to about 150,000 gallons to meet cultivation needs and to limit summer diversion.

8.3 Water Use

Domestic use is estimated at 200 gallons per day (supplied by the spring).

Agricultural activities on the property consist of ~10,000 square feet of cultivation. Irrigation water use was estimated by Green Road Consulting and is described in Table 6 below. Based on these estimates, ~150,000 gallons of water will be used during the 2018 growing season. There is currently about 27,000 gallons of hard-tank storage on the property. With the addition of 123,000 gallons of storage, diversions during the summer will not be necessary. The applicant has applied for a Small Irrigation Use Registration to store 150,000 gallons of water, diverted from the spring and creek during the 31 October–31 March season at rates compliant with the SWRCB's Cannabis Cultivation Policy.

Table 6. Agricultural water use estimates per month.

Source	J	F	M	A	M	J	J	A	S	O	N	D
Spring POD (gal x 1,000)	0	0	0	8	9	10.5	8	8.5	7.5	10	0	0
Creek POD (gal x 1,000)				8	9	10.5	8	8.5	7.5	10		
Tanks (gal x 1,000)							9	9	9			

9 BIOLOGICAL RESOURCES ASSESSMENT

A desktop assessment to identify the potential for special-status fish, wildlife, plants, and designated critical habitat was conducted for parcel APN 220-281-008. This assessment was conducted using aerial imagery, site photos, and querying the following data sources in May 2018:

- California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDB) 5-mile buffer
- U.S. Fish and Wildlife Service (USFWS) site-specific query (https://ecos.fws.gov/ipac/)
- California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants of California (http://www.rareplants.cnps.org) Garberville quadrangle
- National Marine Fisheries Service Garberville quadrangle (http://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html)

Special-status species and designated critical habitats identified during these queries are discussed below and shown in Figure 4; representative habitat photos are provided in Figure 5. Special-status species include state species of special concern, state and federally listed, endangered, candidate, and California Rare Plant Rank (CRPR) 1B, 2B, 3, and 4 with CNPS threat ranks of 0.1, 0.2, and 0.3.

Since CNDDB is a CDFW tool to identify locations of previously documented species, the results of this desktop analysis may not capture all special-status species that may be present. This assessment did not include a site visit by a biologist.

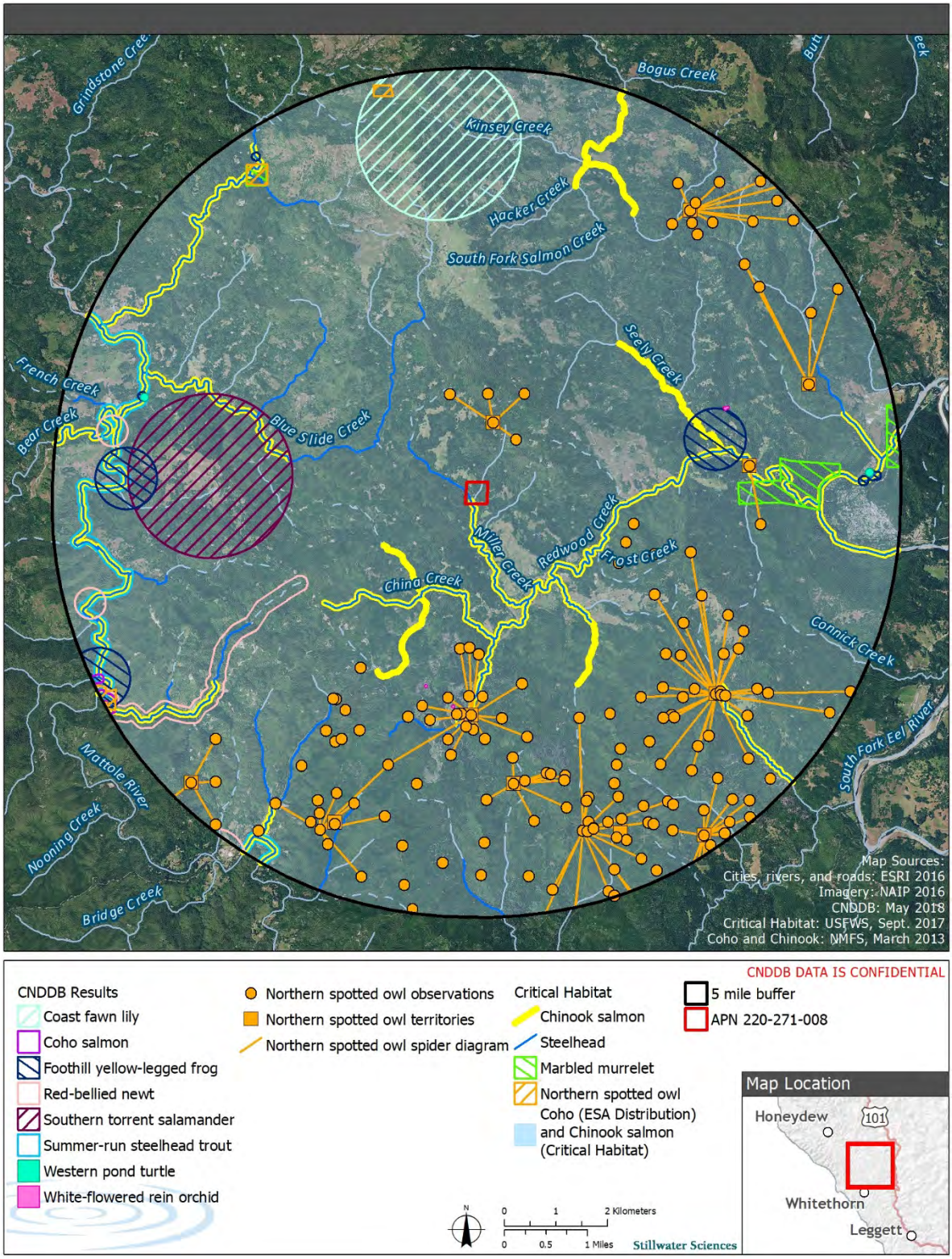


Figure 4. Special-status species that have been documented and critical habitat within 5 miles of the parcel.

Figure 5. Representative site photos.

9.1 Plants

- *Ceanothus gloriosus* var. *exaltatus* (glory brush) (CRPR 4.3) is associated with chaparral habitats at elevations from 100 to 1,000 feet. The blooming period is March–June, but may extend into August. This species has been documented in the Garberville USGS quadrangle, though the distance from the parcel area is unknown. Based on existing conditions in the immediate work area (i.e., riparian forest with no chaparral habitat) this species is not likely to be present and not likely to be affected by project activities. (Query source: CNPS inventory.)
- *Coptis laciniate* (Oregon goldthread) (CRPR 4.2) is associated with mesic habitats including meadows and seeps and streambanks in north coast coniferous forest at elevations from 0 to 3,280 feet. The blooming period is March through May (sometimes as early as February). This species has been documented in the Garberville USGS quadrangle, though the distance

from the parcel area is unknown. Based on existing conditions in the immediate work area (i.e., riparian forest) there is a potential for this species to be present in the work area. If the species is present, it could be impacted by project activities. (Query source: CNPS inventory.)

- *Gilia capitata* ssp. *pacifica* (Pacific gilia) (CRPR 1B.2) is associated with coastal bluff scrub, openings in chaparral, coastal prairie, and valley and foothill grassland at elevations from 15 to 5,460 feet. The blooming period is April through August. This species has been documented in the Garberville USGS quadrangle, though the distance from the parcel area is unknown. Based on existing conditions in the immediate work area (i.e., riparian forest) this species is not likely to be present and not likely to be affected by project activities. (Query source: CNPS inventory.)
- *Montia howellii* (Howell's montia) (CRPR 2B.2) is associated with meadows and seeps, north coast coniferous forest, and vernal pools; sometimes in roadsides at elevations from 0 to 2,740 feet. The blooming period for this species is March through May (sometimes as early as February). This species has been documented in the Garberville USGS quadrangle, though the distance from the parcel area is unknown. Based on existing conditions in the immediate work area (i.e., roadside within riparian forest) there is a potential for this species to be present in the work area. If the species is present, it could be impacted by project activities. (Query source: CNPS inventory.)
- *Piperia candida* (white-flowered rein orchid) (CRPR 1B.2) is associated with serpentine soils in broadleafed upland forest, lower montane coniferous forest, and north coast coniferous forest at elevations from 100 to 4,300 feet. The blooming period for this species is May through August (sometimes as early as March and May). There were four occurrences of this species within 5 miles of the parcel in 2012 along upper Redwood Creek and near Seely Creek. Based on existing conditions in the immediate work area (i.e., riparian forest) there is a potential for this species to be present. If the species is present, it could be impacted by project activities. (Query source: CNDDB and CNPS inventory.)
- *Erythronium revolutum* (Coast fawn lily) (CRPR 2B.2) is associated with bogs and fens, streambanks, broadleafed upland forest, and north coast coniferous forest at elevations of 0–5,249 feet. The blooming period for this species is March through July (possibly extending into August). There was one occurrence of this species within 5 miles surrounding the parcel from 1993. Based on existing conditions in the immediate work area (i.e., streambank within riparian forest) there is a potential for this species to be present. If the species is present, it could be impacted by project activities. (Query source: CNDDB and CNPS inventory.)

9.1.1 Recommended minimization measure

- The project footprint will be minimized to avoid adjacent vegetated areas. Equipment access and staging areas will be kept to existing roads to the extent possible.

9.2 Fish

Both Miller Creek and Buck Gulch run through this parcel. The proposed project consists of two culvert replacements on Buck Gulch and permitting of two points of diversion. A CDFW survey conducted in the summer of 2017 documented California steelhead within the stream reach where the fish passage upgrade project is proposed. Buck Gulch flows into Miller Creek which joins with Redwood Creek and flows into the South Fork Eel River. Based on the critical habitat layers obtained by NMFS, critical habitat for both northern Southern Oregon /northern California coho (state and federally threatened) and California coastal Chinook salmon (federally threatened) is

present through the entire area, and critical habitat for California steelhead (federally threatened) is located just downstream on Miller Creek (based on the recent CDFW survey, this critical habitat should be extended through the project area). Summer-run steelhead trout (state species of special concern) have been documented approximately 4 miles away on the Mattole River. Fish are likely to be present in the stream during proposed culvert replacement activities, so they have the potential to be impacted.

Replacing the culverts will improve fish passage and decrease existing and potential sediment delivery to Buck Gulch and Miller Creek.

9.2.1 Recommended minimization measure

- As a permit condition to minimize potential impacts to fish a CDFW-approved biologist shall implement a fish rescue and relocation effort prior to construction.
- Erosion and sediment control BMPs, as described in Section 6.1 of the Technical Memorandum, will be employed to reduce any impacts outside of the immediate work area.

9.3 Amphibians/Reptiles

- Foothill yellow-legged frog (state candidate threatened, state species of special concern) is associated with shallow tributaries and mainstems of perennial streams and rivers, typically associated with cobble or boulder substrate. Foothill yellow-legged frog have been documented about three miles downstream near the confluence of Seeley Creek and Redwood Creek. There is a potential for these frogs to be present in the work area and, if present, directly affected by construction activities.
- Southern torrent salamander (state species of special concern) is associated with habitat in and adjacent to cold, permanent, well shaded mountain springs, waterfalls, and seeps with rocky substrate. Southern torrent salamander was documented in 1960 about 2 miles from this parcel. Suitable habitat is present for this species and, if present in the work area, they could be directly affected by construction activities.
- Western pond turtle (state species of special concern) is associated with permanent, slow-moving fresh or brackish water with available basking sites and adjacent open habitats or forest for nesting. This species has been documented about 3 miles from the parcel. Although basking habitat appears limited at this site, individuals may be in the work area and could be directly affected by construction activities.
- Red-bellied newt (state species of special concern) is associated with streams or rivers in coastal woodlands and redwood forest. Within the area queried during the analysis, four occurrences of red-bellied newts have been documented within 5 miles of the parcel, two occurrences in the 1970s and two in the 1990s. Habitat is present for this species and, if present in the work area, they could be directly affected by construction activities.

9.3.1 Recommended minimization measure

- As a permit condition to minimize potential impacts to amphibians and reptiles, CDFW may consider requiring a CDFW-approved biologist to conduct an amphibian/reptile clearance of the work area prior to initiating activities.
- Erosion and sediment control BMPs, as described in Section 6.1 of the Technical Memorandum, will be employed to reduce any impacts outside of the immediate work area.

9.4 Birds

The USFWS query identified four federally protected bird species:

- Marbled murrelet (federally and state endangered)—No marbled murrelet have been documented within 5 miles of the parcel; critical habitat is located approximately 3 miles east of the parcel.
- Northern spotted owl (federally and state threatened)—There are 11 activity centers within 5 miles of the parcel. The closest activity center (HUM0531/year 1992) is located about 1 mile north of the parcel; the next closest activity center (HUM0580/year 2000) is about 2 miles south of the parcel. Critical habitat located about 5 miles southwest of the parcel. No removal of large trees with diameter at breast height (dbh) >18 inch is proposed and noise from proposed construction activity would not affect these activity centers.
- Western snowy plover (federally threatened)—No suitable breeding habitat (ocean dunes) is present at this location.
- Yellow-billed cuckoo (federally threatened, state endangered)—The western yellow-billed cuckoo nesting habitat is associated with riparian habitat, particularly low, dense, scrubby vegetation (e.g., willow and cottonwood) and riparian forests along rivers and floodplains. Although a small amount of riparian habitat is present in the project area, it is not likely a large enough area for this species to be present. Furthermore, western yellow-billed cuckoo is very rare in this area and vegetation removal is minimized to that necessary to construct the project.

Suitable breeding habitat may be present for birds identified by the USFWS as protected under the Migratory Bird Treaty Act (e.g., Allen's hummingbird and western screech owl) in trees surrounding the stream/culvert location (Figure 5). Removing snags and vegetation during the breeding season (1 February–31 August) has the potential to result in direct mortality should birds be nesting in the vegetation.

9.4.1 Recommended minimization measure

- As a permit condition to minimize potential impacts to birds, CDFW may consider requiring that any vegetation removal occur between 1 September and 30 January (outside of the breeding bird season [1 February–31 August]), unless the area has been surveyed and received a clearance by a biologist.

9.5 Mammals

No mammals were identified during the scoping process.

10 REFERENCES

Buxton, T. H., W. J. Trush, and S. A. Flanagan. 1996. A comparison of empirical and regional peak discharge predictions to actual January 3, 1995 discharge at fifteen Bull Creek, Northwestern California tributary culverts. Unpubl. Rept. Prepared for the Humboldt State University Institute for River Ecosystems Road Stream Crossing Project, Arcata, California.

Cafferata, P., T. Spittler, M. Wopat, G. Bundros, and S. Flanagan. 2004. Designing watercourse crossings for passage of 100-year flood flows, wood, and sediment, California Department of

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Yee, C. S. 1994, Culvert design and installation, Unpublished paper. California Licensed Foresters Association Workshop: Road Location and Design. Redding, California, June 9, 1995.

ATTACHMENT 4

REFERRAL AGENCY COMMENTS AND RECOMMENDATIONS

The project was referred to the following referral agencies for review and comment. Those agencies that provided written comments are checked off.

Referral Agency	Response	Recommendation	Location
Building Inspection Division	✓	Comments	**Attached**
Division Environmental Health	✓	Conditional Approval	**Attached**
Public Works, Land Use Division	✓	Comments	**Attached**
California Department of Fish & Wildlife		No Response	**Attached** – Planning staff request for comments
Northwest Information Center	✓	Further Study	On file and confidential
Bear River Band of the Rohnerville Rancheria	✓	Comments	On file and confidential
Intertribal Sinkyone Wilderness Council		No Response	
So. Humboldt Joint Unified School District		No Response	
North Coast Unified Air Quality Management District		No Response	

COUNTY OF HUMBOLDT
PLANNING AND BUILDING DEPARTMENT
CURRENT PLANNING
3015 H STREET, EUREKA, CA 95501 ~ PHONE (707) 445-7245

4/30/2020

Project Referred To The Following Agencies:

Environmental Health, PW Land Use, Building Inspections, NCUAQMD, School District: Southern Humboldt JUSD, Cal Fish & Wildlife, Bear River Band, Intertribal Sinkyone Wilderness Council, NWIC

Applicant Name Miller Creek Farms **Key Parcel Number** 220-271-008-000

Application (APPS#) PLN-12221-SP **Assigned Planner** Liza Welsh 707-268-3718

Please review the above project and provide comments with any recommended conditions of approval. To help us log your response accurately, please include a copy of this form with your correspondence.

Questions concerning this project may be directed to the assigned planner for this project between 8:30am and 5:30pm Monday through Friday.

County Zoning Ordinance allows up to 15 calendar days for a response. If no response or extension request is received by the response date, processing will proceed as proposed.

☐ If this box is checked, please return large format maps with your response.

Return Response No Later Than: 5/15/2020

Planning Clerk
County of Humboldt Planning and Building Department
3015 H Street
Eureka, CA 95501
Email: PlanningClerk@co.humboldt.ca.us **Fax**: (707) 268 - 3792

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

☐ Recommend Approval. The department has no comment at this time.

☒ Recommend Conditional Approval. Suggested conditions attached.

☐ Applicant needs to submit additional information. List of items attached.

☐ Recommend Denial. Attach reasons for recommended denial.

Other Comments: Bldg #4 IS IN SMA will Require Special Permit From Planning. Compost Toilet is in nutrient shed. Bldg #3

4-30-2020 — DATE:

Rob Edwards — PRINT NAME:

Megan Marruffo

From: Van Hattem, Michael@Wildlife <Michael.vanHattem@wildlife.ca.gov>
Sent: Wednesday, September 22, 2021 12:57 PM
To: Megan Marruffo
Subject: RE: APPS #12221, APN: 220-271-008, Miller Creek Farms: PROJECTED HEARING DATE: 10/7/2021

Megan,
It looks we are involved of this and the activities are covered under the LSAA. THX for asking.
m

Michael G. van Hattem | Senior Environmental Scientist Supervisor | Coastal Conservation Planning – Eureka Field Office |707-499-9457 Cell | Michael.vanHattem@Wildlife.ca.gov |*Propera ad naturam servandam!*

From: Manthorne, David@Wildlife <David.Manthorne@wildlife.ca.gov>
Sent: Wednesday, September 22, 2021 8:44 AM
To: Van Hattem, Michael@Wildlife <Michael.vanHattem@wildlife.ca.gov>
Subject: RE: APPS #12221, APN: 220-271-008, Miller Creek Farms: PROJECTED HEARING DATE: 10/7/2021

Mike,
This is covered in the LSA to upgrade a culvert to a bridge for fish passage. CDFW fisheries should be aware and I believe Isaac Milkus is doing the work and moving fish as needed with fisheries.

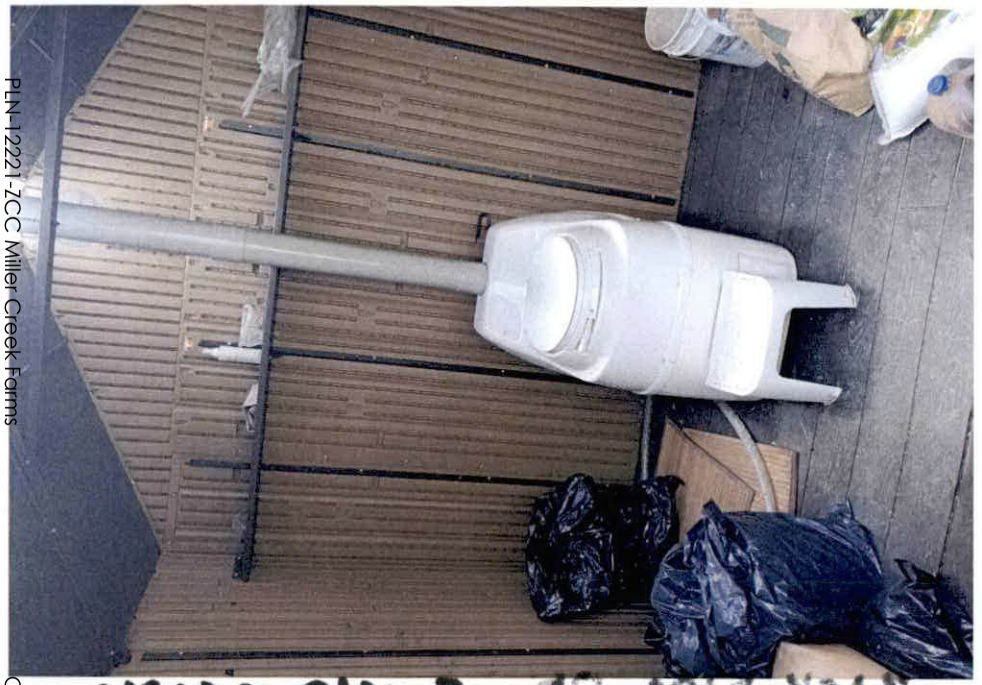
From: Van Hattem, Michael@Wildlife <Michael.vanHattem@wildlife.ca.gov>
Sent: Wednesday, September 22, 2021 6:52 AM
To: Manthorne, David@Wildlife <David.Manthorne@wildlife.ca.gov>
Subject: FW: APPS #12221, APN: 220-271-008, Miller Creek Farms: PROJECTED HEARING DATE: 10/7/2021

Dave, as you know we are not currently responding to these requests, but this one seems to be a result of your interaction and has some element of fish passage. Is this one that you should review or at least know of, I'm guessing your getting information via LSAA reporting?

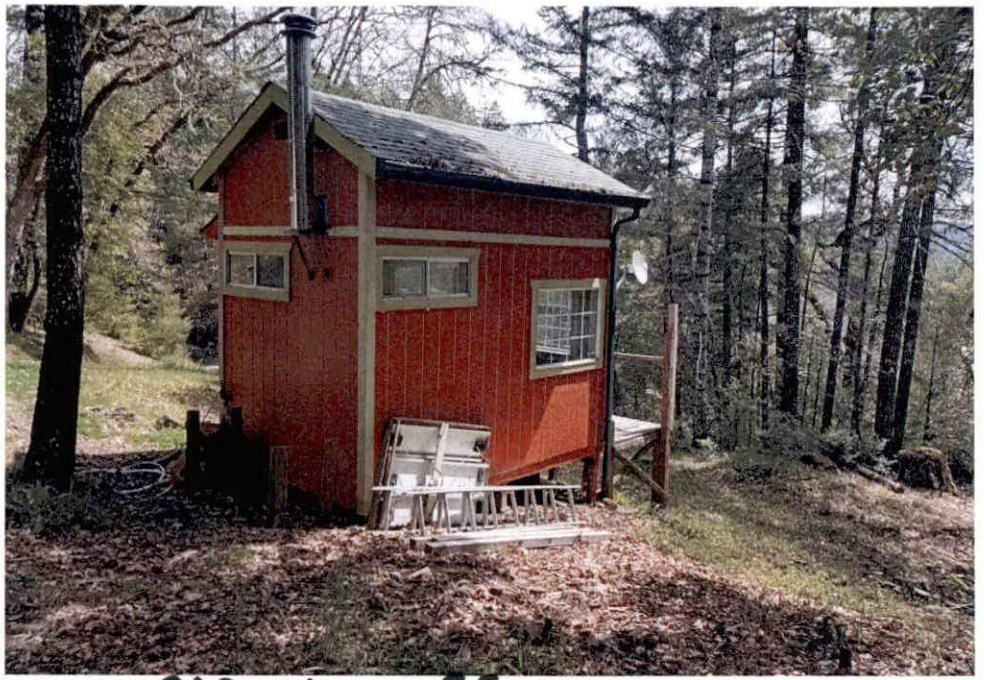
From: Megan Marruffo <marruffom@lacoassociates.com>
Sent: Tuesday, September 21, 2021 12:43 PM
To: Van Hattem, Michael@Wildlife <Michael.vanHattem@wildlife.ca.gov>
Cc: Cliff Johnson <CJohnson@co.humboldt.ca.us> <cjohnson@co.humboldt.ca.us>; Meghan Ryan <ryanm@lacoassociates.com>
Subject: APPS #12221, APN: 220-271-008, Miller Creek Farms: PROJECTED HEARING DATE: 10/7/2021

Good afternoon, Michael,

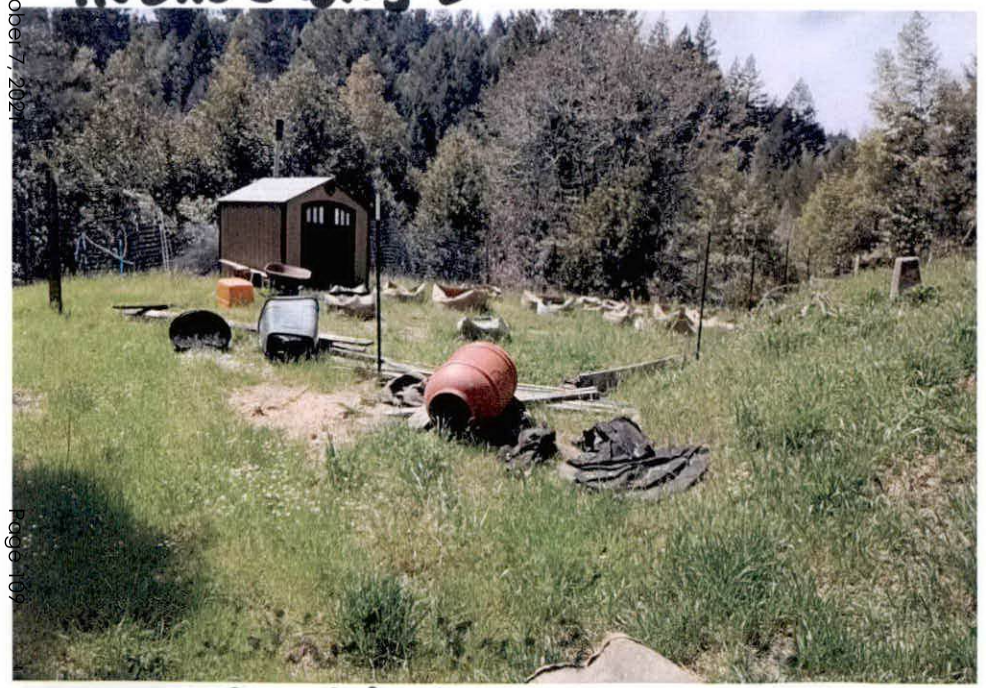
APN 220-271-007 4-16-2020



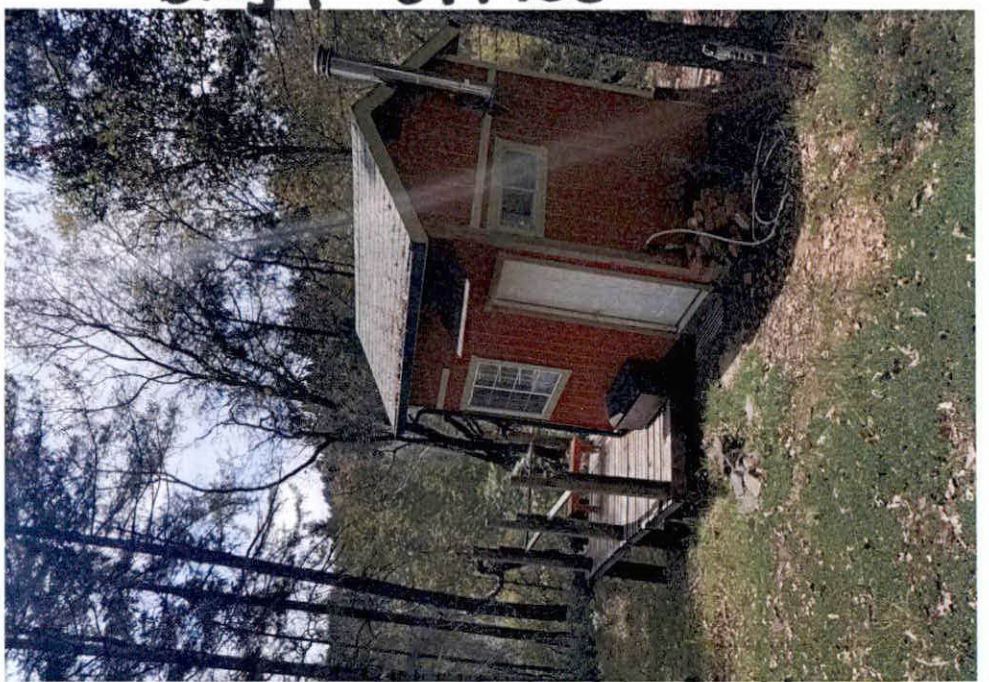
INSIDE Bldg. 3



Bldg. 1 OFFICE



Bldg. 3 CA 2



Bldg. 1

Buck Gulch 1 of 3
8/02/18

Buck Gulch
8/02/18

Bldg. 4 Buck Gulch
8/02/18 2 of 3

Back side of Bldg 4
8/02/18 3 of 3

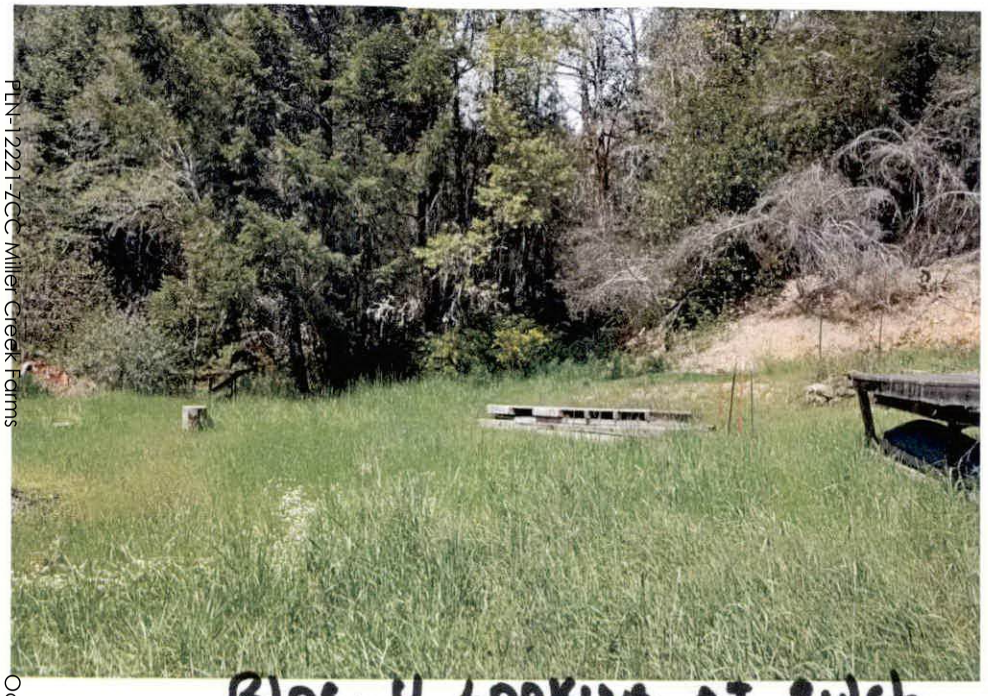
Bldg. 6
Bldg. 6

CA 1
Bldg. 6 entrance

Bldg. CA1
Bldg. CA1

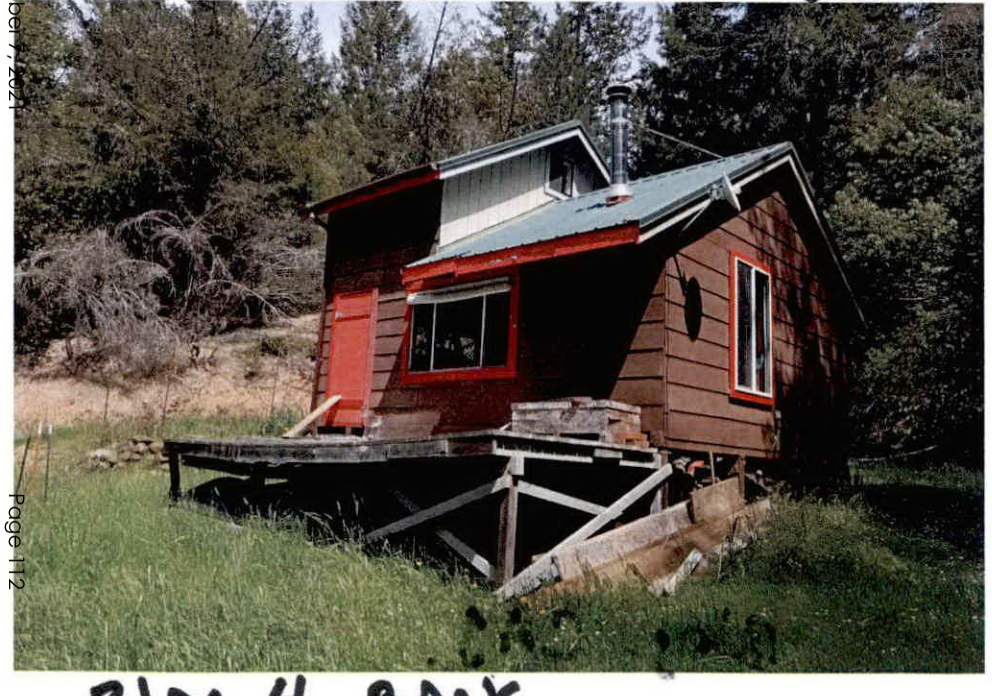
CA 1
Bldg. CA1 entrance

APN 220-271-007 4/16/2020

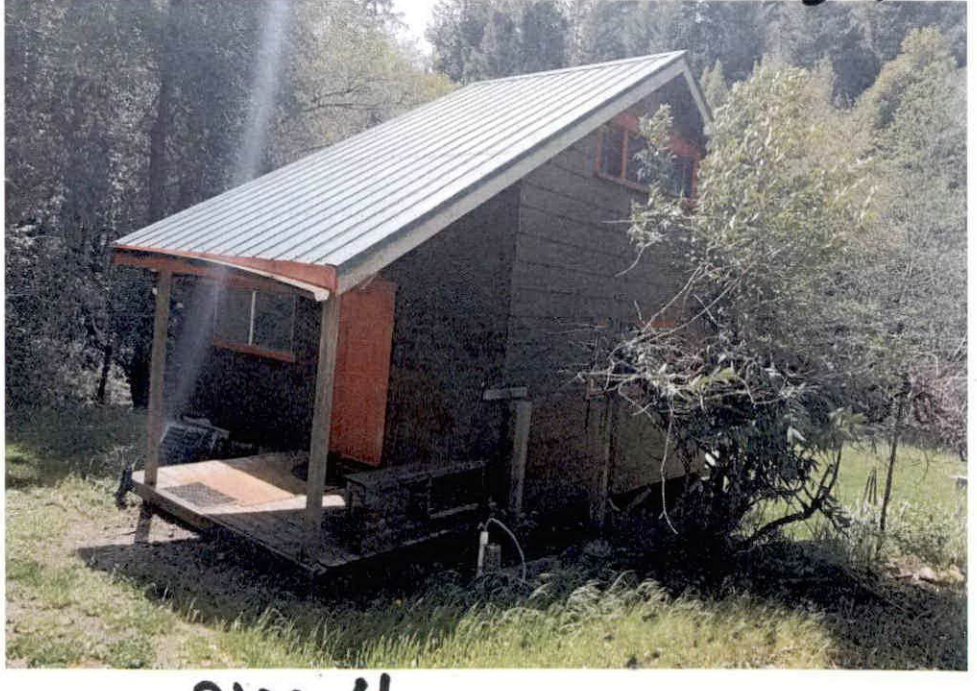


Bldg. 4 Looking at gulch

Entrance to Bldg 4



Bldg 4 Back



Bldg. 4

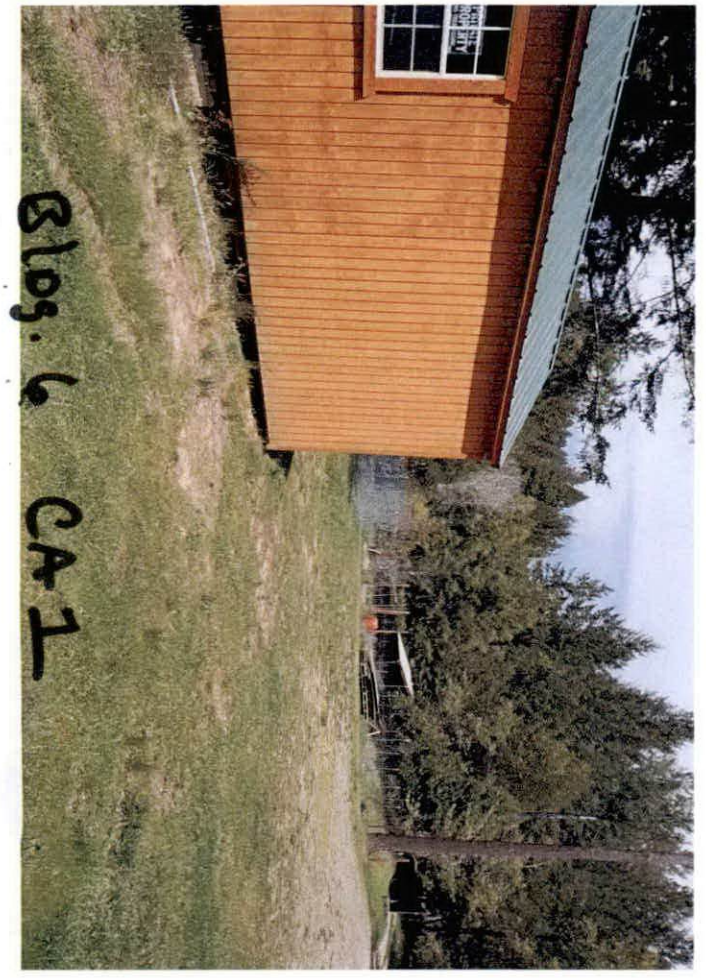
APN 220-271-007 4-16-2020

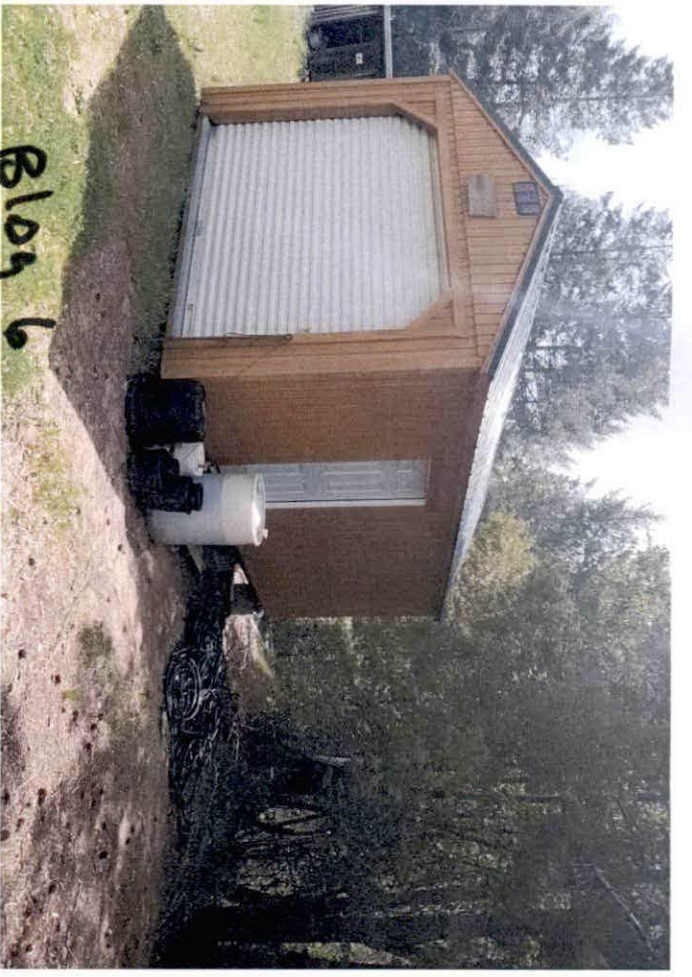
Interior Bldg 2

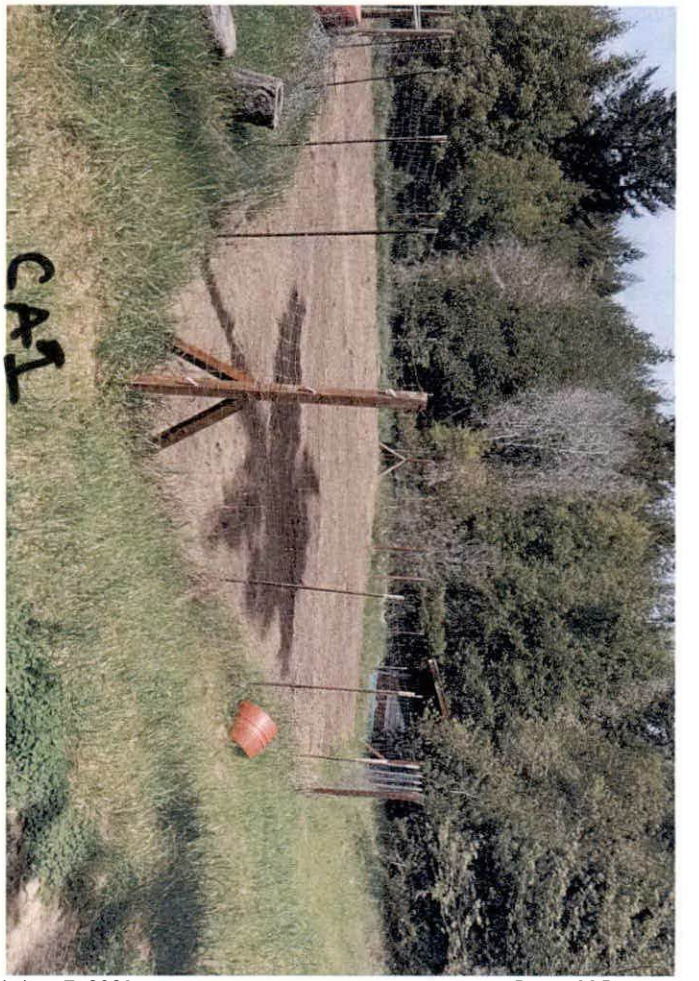
Interior Bldg. 2

Bldg 2

Bldg 2


Bldg. 6 CAT


Bldg 6


CAT

Bldg 6

CA 2

Apps 12221- Miller Creek Farms

1

WJ

Whittlesey, Joseph
Fri 9/3/2021 11:46 AM
To: Strickland, Abigail

Hi Abbie,

Yes, please revise DEH's referral response to include the following in addition to our previous response:

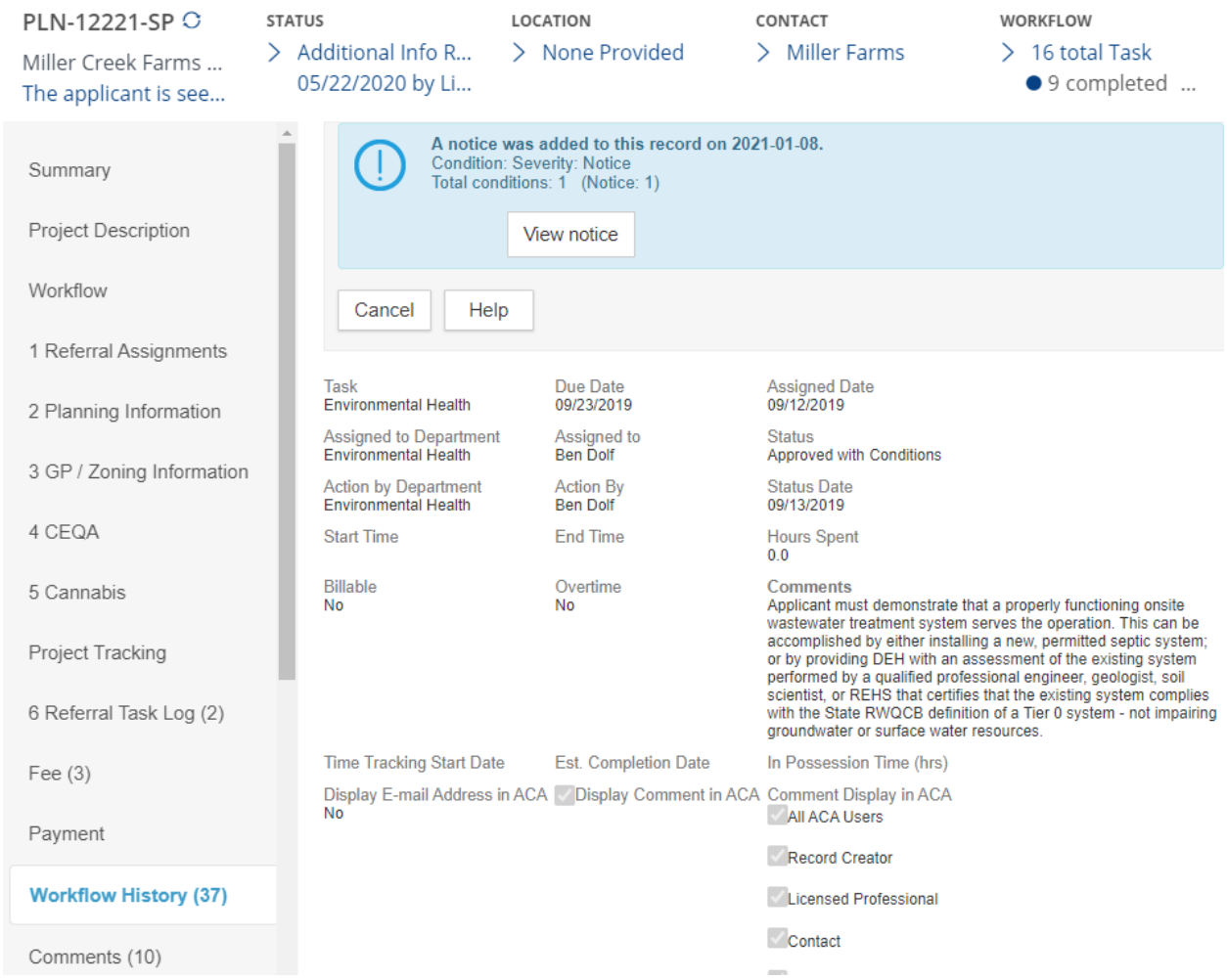
"DEH has no record of the existing waterless toilet located in Building 3 as shown on the site plan. Applicant shall discontinue the use of and decommission the composting toilet. Disposal of the end product must be in accordance with HCC § 615-10: bury remaining night soil below 18" of compacted soil, above ground water, no closer than 50' to any ephemeral stream and no closer than 100' to any perennial stream. Alternatively, applicant shall obtain Waterless Toilet System Permit from DEH prior to operating waterless toilet."

Thank you!

Joey Whittlesey
Senior Environmental Health Specialist
Land Use Program
Division of Environmental Health
100 H Street, Suite 100, Eureka, CA 95501
Phone: (707) 268-2240 – Fax: (707) 441-5699

...

Reply | Forward


PLN-12221-SP
Miller Creek Farms ...
The applicant is see...
STATUS
Additional Info R...
05/22/2020 by Li...
LOCATION
None Provided
CONTACT
Miller Farms
WORKFLOW
16 total Task
9 completed ...
Summary
Project Description
Workflow
1 Referral Assignments
2 Planning Information
3 GP / Zoning Information
4 CEQA
5 Cannabis
Project Tracking
6 Referral Task Log (2)
Fee (3)
Payment
Workflow History (37)
Comments (10)
A notice was added to this record on 2021-01-08.
Condition: Severity: Notice
Total conditions: 1 (Notice: 1)
View notice
Cancel
Help
Task
Environmental Health
Due Date
09/23/2019
Assigned Date
09/12/2019
Assigned to Department
Environmental Health
Assigned to
Ben Dolf
Status
Approved with Conditions
Action by Department
Environmental Health
Action By
Ben Dolf
Status Date
09/13/2019
Start Time
End Time
Hours Spent
0.0
Billable
No
Overtime
No
Comments
Applicant must demonstrate that a properly functioning onsite wastewater treatment system serves the operation. This can be accomplished by either installing a new, permitted septic system; or by providing DEH with an assessment of the existing system performed by a qualified professional engineer, geologist, soil scientist, or REHS that certifies that the existing system complies with the State RWQCB definition of a Tier 0 system - not impairing groundwater or surface water resources.
Time Tracking Start Date
Est. Completion Date
In Possession Time (hrs)
Display E-mail Address in ACA
No
Display Comment in ACA
Comment Display in ACA
All ACA Users
Record Creator
Licensed Professional
Contact

COUNTY OF HUMBOLDT
PLANNING AND BUILDING DEPARTMENT
BUILDING DIVISION

3015 H STREET EUREKA CA 95501
PHONE: (707) 445-7245 FAX: (707) 445-7446

Building Division's Referral Comments for Cannabis Operations:

Application No.: PLN-12221-SP
Parcel No.: 220-271-008
Case No.: _____

The following comments apply to the proposed project, (check all that apply).

- ☐ Site/plot plan appears to be accurate.
- ☒ Submit revised site/plot plan showing all of the following items: all grading including ponds and roads, location of any water course including springs, all structure including size and use and all setbacks from the above stated to each other and property lines.
- ☐ Existing operation appears to have expanded, see comments:_____
- ☒ Existing structures used in the cannabis operation shall not to be used/occupied until all required permits have been obtained.
- ☐ Proposed new operation has already started.

- ☐ Is development near wet area? yes or no
- ☐ If yes, what is the distance?
- ☒ Is development near Steam side Management Area (SMA)? (yes) or no
- ☐ If yes, what is the distance? APPROX. 30'

- ☒ Recommend approval based on the condition that all required grading, building, plumbing, electrical, and mechanical permits and or Agricultural Exemption are obtained.

- ☐ Other Comments: Building 4 is built in the SMA. Compost Toilet in Nutrient shed Bldg. 3

Name: Robert M Edens Date: 4-16-2020

Note: Remember to take photographs and then save them to the Planning's case number. File location J, Current Planning, Projects,(CUP, SP, ZCC) Case number.

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HUMBOLDT
MAILING ADDRESS: 1106 SECOND STREET, EUREKA, CA 95501-0579
AREA CODE 707

ON-LINE
WEB: CO.HUMBOLDT.CA.US

PUBLIC WORKS BUILDING
SECOND & L ST., EUREKA
FAX 445-7409

ADMINISTRATION	445-7491	NATURAL RESOURCES	445-7741
BUSINESS	445-7652	NATURAL RESOURCES PLANNING	267-9540
ENGINEERING	445-7377	PARKS	445-7651
FACILITY MANAGEMENT	445-7493	ROADS	445-7421

CLARK COMPLEX
HARRIS & H ST., EUREKA
FAX 445-7388
LAND USE 445-7205

LAND USE DIVISION INTEROFFICE MEMORANDUM

TO: Megan Ryan, Senior Planner, Planning & Building Department

FROM: Kenneth M. Freed, Assistant Engineer

DATE: 09/16/2019

RE:

Applicant Name	**MILLER CREEK FARMS**
APN	**220-271-008**
APPS#	**PLN-12221-SP**

The Department has reviewed the above project and has the following comments:

☒ The Department's recommended conditions of approval are attached as **Exhibit "A"**.

☐ Additional information identified on **Exhibit "B"** is required before the Department can review the project. **Please re-refer the project to the Department when all of the requested information has been provided.**

☐ Additional review is required by Planning & Building staff for the items on **Exhibit "C"**. **No re-refer is required.**

☐ *Road Evaluation Reports(s)* are required; See **Exhibit "D"**

Note: Prior to requesting an applicant to submit a road evaluation report, verify if the project is exempt from meeting road system performance standards under CCLUO v2.0 sections 313-55.4.6.5.1 and 314-55.4.6.5.1, even if this box is checked.

No re-refer is required.

*Note: Exhibits are attached as necessary.

Additional comments/notes:

Applicant has submitted a road evaluation report, dated 8/03/2019, with Part A – Box 2 checked, certifying that the road is equivalent to a road Category 4 standard.

// END //

Exhibit "A"

Public Works Recommended Conditions of Approval

(All checked boxes apply) APPS # 12221

☐ **COUNTY ROADS- FENCES & ENCROACHMENTS:**
All fences and gates shall be relocated out of the County right of way. All gates shall be setback sufficiently from the County road so that vehicles will not block traffic when staging to open/close the gate. In addition, no materials shall be stored or placed in the County right of way.

This condition shall be completed to the satisfaction of the Department of Public Works prior to commencing operations, final sign-off for a building permit, or Public Works approval for a business license.

☐ **COUNTY ROADS- DRIVEWAY (PART 1):**
The submitted site plan is unclear and/or shows improvements that are inconsistent with County Code and/or Department of Public Works policies. The applicant is advised that these discrepancies will be addressed at the time that the applicant applies to the Department of Public Works for an Encroachment Permit. If the applicant wishes to resolve these issues prior to approval of the Planning & Building permit for this project, the applicant should contact the Department to discuss how to modify the site plan for conformance with County Code and or Department of Public Works policies. Notes:

_____

_____

☐ **COUNTY ROADS- DRIVEWAY (PART 2):**
Any existing or proposed driveways that will serve as access for the proposed project that connect to a county maintained road shall be improved to current standards for a commercial driveway. An encroachment permit shall be issued by the Department of Public Works prior to commencement of any work in the County maintained right of way. This also includes installing or replacing driveway culverts; minimum size is typically 18 inches.

- If the County road has a paved surface at the location of the driveway, the driveway apron shall be paved for a minimum width of 18 feet and a length of 50 feet.
- If the County road has a gravel surface at the location of the driveway, the driveway apron shall be rocked for a minimum width of 18 feet and a length of 50 feet.
- If the County road is an urban road, frontage improvements (curb, gutter, and sidewalk) shall also be constructed to the satisfaction of the Department. Any existing curb, gutter or sidewalk that is damaged shall be replaced.

The exact location and quantity of driveways shall be approved by the Department at the time the applicant applies to the Department of Public Works for an Encroachment Permit.

This condition shall be completed to the satisfaction of the Department of Public Works prior to commencing operations, final sign-off for a building permit, or Public Works approval for a business license.

☐ **COUNTY ROADS- DRIVEWAY (PART 3):**
The existing driveway will require substantial modification in order to comply with County Code. The applicant may wish to consider relocating the driveway apron if a more suitable location is available.

☐ **COUNTY ROADS-PARKING LOT- STORM WATER RUNOFF:**
Surfaced parking lots shall have an oil-water filtration system prior to discharge into any County maintained facility.

This condition shall be completed to the satisfaction of the Department of Public Works prior to commencing operations, final sign-off for a building permit, or Public Works approval for a business license.

☒ **COUNTY ROADS- DRIVEWAY & PRIVATE ROAD INTERSECTION VISIBILITY:**
All driveways and private road intersections onto the County Road shall be maintained in accordance with County Code Section 341-1 (Sight Visibility Ordinance).

This condition shall be completed to the satisfaction of the Department of Public Works prior to commencing operations, final sign-off for a building permit, or Public Works approval for a business license.

☒ **COUNTY ROADS- PRIVATE ROAD INTERSECTION: (AT BRICELAND THORNE RD)**
Any existing or proposed non-county maintained access roads that will serve as access for the proposed project that connect to a county maintained road shall be improved to current standards for a commercial driveway. An encroachment permit shall be issued by the Department of Public Works prior to commencement of any work in the County maintained right of way.

- If the County road has a paved surface at the location of the access road, the access road shall be paved for a minimum width of 20 feet and a length of 50 feet where it intersects the County road.
- If the County road has a gravel surface at the location of the access road, the access road shall be rocked for a minimum width of 20 feet and a length of 50 feet where it intersects the County road.

This condition shall be completed to the satisfaction of the Department of Public Works prior to commencing operations, final sign-off for a building permit, or Public Works approval for a business license.

☐ **COUNTY ROADS- ROAD EVALUATION REPORT(S):**
All recommendations in the *Road Evaluation Report(s)* for County maintained road(s) shall be constructed/implemented to the satisfaction of the Public Works Department prior to commencing operations, final sign-off for a building permit, or approval for a business license. An encroachment permit shall be issued by the Department of Public Works prior to commencement of any work in the County maintained right of way.

// END //