

Water Resource Protection Plan

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Submitted to:

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Prepared by:

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Purpose

This Water Resource Protection Plan (WRPP) has been prepared on behalf of the property owner, Robert McCauley, for APN 218-091-009 by agreement and in response to the California Water Code Section 13260(a), which requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the state, other than into a community sewer system, shall file with the appropriate regional water board a Report of Waste Discharge (ROWD) containing such information and data as may be required by the Regional Water Board. The Regional Water Board may waive the requirements of Water Code section 13260 for specific types of discharges if the waiver is consistent with the Basin Plan and in the public interest. Any waiver is conditional and may be terminated at any time. A waiver should include monitoring requirements to verify the adequacy and effectiveness of the waiver's conditions. Order R1-2015-0023 conditionally waives the requirement to file a ROWD for discharges and associated activities described in finding 4.

Scope of Report

Order No. R1-2015-0023 states that "Tier 2 Dischargers and Tier 3 Dischargers who intend to cultivate cannabis before, during, or following site cleanup activities shall develop and implement a water resource protection plan that contains the elements listed and addressed below. Dischargers must keep this plan on site, and produce it upon request by Regional Water Board staff. Management practices shall be properly designed and installed, and assessed periodically for effectiveness. If a management measure is found to be ineffective, the plan must be adapted and implemented to incorporate new or additional management practices to meet standard conditions. Dischargers shall certify annually to the Regional Water Board individually or through an approved third party program that the plan is being implemented and is effectively protecting water quality, and report on progress in implementing site improvements intended to bring the site into compliance with all conditions of this Order."

Methods

The methods used to develop this WRPP include both field and office components. The office component consisted of aerial photography review and interpretation, existing USGS quad map review, GIS mapping of field data, review of on-site photography points, streamflow calculations, and general planning. The field component included identifying and accurately mapping all watercourses, wet areas, and wetlands located downstream of the cultivation areas, associated facilities, and all appurtenant roads accessing such areas. An accurate location of the Waters of the State is necessary to make an assessment of whether potential and existing erosion sites/pollution sites have the potential to discharge waste to an area that could affect waters of the State (including groundwater). Next, all cultivation areas, associated facilities, and all appurtenant roads accessing such areas were assessed for discharges and related controllable water quality factors from the activities listed in Order R1-2015-0023, Finding 4a-j. The field assessment also included an evaluation and determination of compliance with the Standard Conditions per Provision I.B of Order No. R1-2015-0023. The water resource protection plans required under Tier 2 are meant to describe the specific measures a Discharger implements to achieve compliance with standard conditions. Therefore, all required components of the water resource protection plan per Provision I.B of Order No. R1-2015-0023 were physically inspected and evaluated. A comprehensive summary of each Standard Condition as it relates to the subject property is appended.

Property Description

This project consists of a 41 acre parcel which includes a residence and associated cannabis cultivation. The property contains a Class II watercourse and three Class III tributaries to Chamise Creek. The property is located within the NW ¼ of Section 11, Township 5S, Range 5E, Humboldt County.

Monitoring Plan

Tier 2 Dischargers shall include a monitoring element in the water resource protection plan that at a minimum provides for periodic inspection of the site, checklist to confirm placement and efficacy of management measures, and document progress on any plan elements subject to a time schedule. Tier 2 Dischargers shall submit an annual report (Appendix C) by March 31 of each year that documents implementation and effectiveness of management measures during the previous year. Tier 2 annual reporting is a function that may be provided through an approved third party program.

Monitoring of the site includes visual inspection and photographic documentation of each feature of interest listed on the site map, with new photographic documentation recorded with any notable changes to the feature of interest. At a minimum, all site features must be monitored annually, to provide the basis for completion of the annual re-certification process. Additionally, sites shall be monitored at the following times to ensure timely identification of changed site conditions and to determine whether implementation of additional management measures is necessary to iteratively prevent, minimize, and mitigate discharges of waste to surface water: 1) just prior to October 15 to evaluate site preparedness for storm events and storm water runoff, 2) following the accumulation of 3" total precipitation or by November 15, whichever is sooner, and 3) following any rainfall event with an intensity of 3" precipitation in 24 hours. Precipitation data can be obtained from the National Weather Service Forecast Office (e.g. by entering the zip code of the parcel location at <http://www.srh.noaa.gov/forecast>).

Monitoring Plan Reporting Requirements

Order No. R1-2015-0023, Appendix C must be submitted to the Regional Water Board or approved third party program upon initial enrollment in the Order (NOI) and annually thereafter by March 31. Forms submitted to the Regional Water Board shall be submitted electronically to northcoast@waterboards.ca.gov. If electronic submission is infeasible, hard copies can be submitted to: North Coast Regional Water Quality Control Board, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403.

Assessment of Standard Conditions

Assessment of Standard Conditions consisted of field examinations on 11/15/2016 and 12/06/2016. The examination evaluated areas near, and areas with the potential to directly impact, watercourses for sensitive conditions. This includes but is not limited to, existing and proposed roads, skid trails and landings, unstable and erodible watercourse banks, unstable upslope areas, debris, jam potential, inadequate flow capacity, changeable channels, overflow channels, flood prone areas, and riparian zones. Field examinations also evaluated all roads and trails on the property, developed areas, cultivation sites, and any structures and facilities appurtenant to cultivation on the property. Anywhere the Standard Conditions are not met on the property, descriptions of the assessments and the prescribed treatments are outlined following each associated section below.

Summary of Standard Conditions Compliance

1. Site maintenance, erosion control, and drainage features Y☐/N☒
2. Stream crossing maintenance Y☐/N☒
3. Riparian and wetland protection and management Y☐/N☒
4. Spoils management Y☒/N☐
5. Water storage and use Y☒/N☐
6. Irrigation runoff Y☒/N☐
7. Fertilizers and soil amendments Y☒/N☐
8. Pesticides and herbicides? Y☒/N☐
9. Petroleum products and other chemicals Y☒/N☐
10. Cultivation-related wastes Y☒/N☐
11. Refuse and human waste Y☒/N☐

A. Standard Conditions, Applicable to All Dischargers

1. Site Maintenance, erosion control and drainage features (Compliance: Y☐ / N☒)
 - a. Roads shall be maintained as appropriate (with adequate surfacing and drainage features) to avoid developing surface ruts, gullies, or surface erosion that results in sediment delivery to surface waters.

All roads are maintained appropriately which prevents sediment delivery to surface waters.

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

There is one location where emergent groundwater is running down the inboard edge of a seasonal road and eroding the surface. This water hits a landing and disperses without ever reaching a watercourse. The Discharger plans to bypass this emergent groundwater into an existing Class III watercourse. This will be performed by capturing 100% of the emergent groundwater and piping it 200' south to a Class III watercourse. This will prevent further erosion along the road surface while protecting water quality. The flow rate of this emergent water should be low enough to not significantly alter the established Class III channel.

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

Physical reconnaissance revealed no unstable features within the property boundary per 14CCR 895.1.

- d. Roads, clearings, fill prisms, and terraced areas (cleared/developed areas with the potential for sediment erosion and transport) shall be maintained so that they are not hydrologically connected¹, as feasible, from surface waters, including wetlands, ephemeral, intermittent and perennial streams.

There are two Cultivation Sites (CS), CS #1 and #4, which are potentially hydrologically connected with a Class III watercourse. Both of these sites will be relocated a minimum of 50' from the nearest Class III watercourse. The Discharger shall remove all cultivation and related materials from within the 50' Class III buffer. Any bare mineral soils left exposed from the relocation will be stabilized with seed and mulch.

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

All ditch relief drains, rolling dip outlets, and developed surfaces are maintained so that no erosion or soil transportation are evident.

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

All construction materials are stored outside of riparian buffers in places where they do not threaten surface waters.

2. Stream Crossing Maintenance (Compliance: Y ☐ / N ☒)

- a. Culverts and stream crossings shall be sized to pass the expected 100-year peak streamflow.
- b. Culverts and stream crossings shall be designed and maintained to address debris associated with the expected 100-year peak streamflow.
- c. Culverts and stream crossings shall allow passage of all life stages of fish on fish-bearing or restorable streams, and allow passage of aquatic organisms on perennial or intermittent streams.

¹ Connected roads are road segments that deliver road surface runoff, via the ditch or road surface, to a stream crossing or to a connected drain that occurs within the high delivery potential portion of the active road network. A connected drain is defined as any cross-drain culvert, water bar, rolling dip, or ditch-out that appears to deliver runoff to a defined channel. A drain is considered connected if there is evidence of surface flow connection from the road to a defined channel or if the outlet has eroded a channel that extends from the road to a defined channel. (http://www.forestsandfish.com/documents/Road_Mgmt_Survey.pdf)

- d. Stream crossings shall be maintained so as to prevent or minimize erosion from exposed surfaces adjacent to, and in the channel and on the banks.
- e. Culverts shall align with the stream grade and natural stream channel at the inlet and outlet where feasible.²
- f. Stream crossings shall be maintained so as to prevent stream diversion in the event that the culvert/crossing is plugged, and critical dips shall be employed with all crossing installations where feasible.³

There are two stream crossings (SC) on the property, both of which require maintenance. California Department of Fish and Wildlife has been notified of these crossings.

- SC #1 consists of a 12" diameter CMP located on an unnamed Class III watercourse. The Discharger shall replace the crossing with a minimum 18" diameter culvert per specifications attached with this document and the 1600 Notification.
- SC #2 consists of an 18" diameter CPP located on the same Class III watercourse as SC #1. There is apparent erosion occurring at the inlet of this crossing. The Discharger shall install rock armor at the inlet to mitigate this erosion. Rock armor specifications are included with the Permanent Culvert BMPs attached with this document.

Rational Method for 100-year flood flow (A < 200 acres)

$T_c = 60((11.9 \times L^3)/H)^{0.385}$				$Q_{100} = CIA$			
Crossing	Channel length (to top of basin) (mi) L	Elevation difference (ft) H	Concentration time (min) T _c	Runoff coefficient C	100-year Return-Period Precipitation (in/hr) I*	Area (acres) A	100-yr flood flow (cfs) Q ₁₀₀
1				0.35	3.66	0.37	0.5
2				0.35	3.66	3.06	3.9

3. Riparian and Wetland Protection and Management (Compliance: Y ☐/ N ☒)

- a. For Tier 1 Dischargers, cultivation areas or associated facilities shall not be located within 200 feet of surface waters. While 200 foot buffers are preferred for Tier 2 sites, at a minimum, cultivation areas and associated facilities shall not be located or occur within 100 feet of any Class I or II watercourse or within 50 feet of any Class III watercourse or wetlands. The Regional Water Board or its or its Executive Officer may apply additional or alternative⁴ conditions on enrollment, including site-specific riparian buffers and other BMPs

² At a minimum, the culvert shall be aligned at the inlet. If infeasible to align the culvert outlet with the stream grade or channel, outlet armoring or equivalently effective means may be applied.

³ If infeasible to install a critical dip, an alternative solution may be chosen.

⁴ Alternative site-specific riparian buffers that are equally protective of water quality may be necessary to accommodate existing permanent structures or other types of structures that cannot be relocated.

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

As addressed above spoils are adequately contained within each cultivation site over winter. With the exception of the mapped soil spoils, 400 gallon smart pots contain the potting soil. The Discharger shall cover the mapped spoil pile to prevent migration from the site. Note, no spoils were observed migrating from a cultivation site or spoils pile during the site assessment.

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

There are no spoils present on the site generated from development or maintenance. In the future when spoils are generated from development they will be properly treated per these standard conditions.

5. Water Storage and Use (Compliance: Y ☒/ N ☐)

- a. Size and scope of an operation shall be such that the amount of water used shall not adversely impact water quality and/or beneficial uses, including and in consideration with other water use by operations, instream flow requirements and/or needs in the watershed, defined at the scale of a HUC-12⁶ watershed or at a smaller hydrologic watershed as determined necessary by the Regional Water Board Executive Officer.

This project consists of five fenced cultivation sites (CS). The total sum of the fenced area equals 24,800 square feet.

- **CS #1 consists of grassy hillside containing 18 cannabis plants. There is a gradual 16% slope at this site. The fenced area equals approximately 5,900 square feet.**
- **CS #2 consists of a grassy hillside containing 18 cannabis plants. There is a 20% slope at this location. The fenced area equals approximately 4,600 square feet.**
- **CS #3 consists of a small patch of 6 plants on a grassy hillside. The slope measures 18%. The fenced area here equals approximately 1,260 square feet.**
- **CS #4 consists of grassy hillside containing 27 plants. This site is the steepest at approximately 30%. The fenced area measures approximately 3,900 square feet.**
- **CS#5 consists of a relatively flat (<10%) meadow containing 57 plants. The fenced area equals approximately 9,200 square feet.**

The Discharger utilizes a rain catchment pond as the agricultural point of diversion on the property, POD #2. This pond holds an estimated 1.5 million gallons of water which exceeds the Discharger's agricultural needs.

⁶ See definition and link to maps at: <http://water.usgs.gov/GIS/huc.html>

There is also a domestic water source on the property, POD #1. This domestic source consists of a 3' diameter by 4' deep perforated concrete cistern. This structure diverts a combination of surface and shallow groundwater.

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

The Discharger diverts water from a rain catchment pond and uses drip irrigation.

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

This project possesses 21,475 gallons of water storage in the form of hard plastic tanks. The rain catchment pond is also an off-stream reservoir used as the sole source of irrigation water. This pond holds an estimated 1.5 million gallons of water.

- d. Water is applied using no more than agronomic rates.⁷

There is no evidence to conclude that the Discharger irrigates at a greater rate than the growth medium can facilitate. No signs of over watering are present on-site. It is recommended that the Discharger meter their water use and install float-valves on appropriate storage tanks.

- e. Diversion and/or storage of water from a stream should be conducted pursuant to a valid water right and in compliance with reporting requirements under Water Code section 5101.

An Initial Statement of Water Diversion and Use has been submitted to the State Water Control Board for the surface diversion. This project is pending an approved Lake and Stream Bed Alteration agreement with California Department of Fish and Wildlife for the diversion structure and jurisdictional activities.

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

All water storage features are maintained to insure integrity and prevent failure. Storage features are sighted in locations that will reduce the risks of failure and impacts to slope stability.

⁷ "Agronomic rates" is defined as the rates of fertilizer and irrigation water that a plant needs to enhance soil productivity and provide the crop or forage growth with needed nutrients for optimum health and growth, without having any excess water or nutrient percolate beyond the root zone.

6. Irrigation Runoff (Compliance: Y☒/ N☐)

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

There are no signs of irrigation run-off within any cultivation site. The Discharger irrigates at an agronomic rate to minimize waste and the risk of entrained constituents leaving the site.

7. Fertilizers and Soil Amendments (Compliance: Y☒/ N☐)

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

The Discharger stores all fertilizers and soil amendments inside a 30' by 30' storage structure with a concrete foundation. This shed completely contains fertilizers and amendments from being transported into surface waters or leaching into groundwater.

- b. Fertilizers and soil amendments shall be applied and used per packaging instructions and/or at proper agronomic rates.

All fertilizers and soil amendments are applied by the Discharger at agronomic rates per specifications included in the labeling.

- c. Cultivation areas shall be maintained so as to prevent nutrients from leaving the site during the growing season and post-harvest.

Cultivation sites were neatly maintained with all fertilizer and amendment containers stored away within the shed addressed in condition (A)7a.

8. Pesticides/Herbicides (Compliance: Y☒/ N☐)

At the present time, there are no pesticides or herbicides registered specifically for use directly on cannabis and the use of pesticides on cannabis plants has not been reviewed for safety, human health effects, or environmental impacts. Under California law, the only pesticide

products not illegal to use on cannabis are those that contain an active ingredient that is exempt from residue tolerance requirements and either registered and labeled for a broad enough use to include use on cannabis or exempt from registration requirements as a minimum risk pesticide under FIFRA section 25(b) and California Code of Regulations, title 3, section 6147. For the purpose of compliance with conditions of this Order, any uses of pesticide products shall be consistent with product labeling and any products on the site shall be placed, used, and stored in a manner that ensures that they will not enter or be released into surface or ground waters.

The Discharger uses pesticides legal in the state of CA purchased over the counter at any nursery or other horticultural supply store. Pesticides are applied per specifications included in the packaging and stored with the fertilizers.

9. Petroleum Products and Other Chemicals (Compliance: Y ☒/ N ☐)

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

The Discharger stores fuel within a 550 gallon steel diesel tank. This tank is stored adjacent to the generator shed approximately 130 feet away from a Class III watercourse on a cement foundation.

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

This storage tank possesses a cement secondary containment structure which can facilitate the entire capacity of the diesel tank.

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

Not Applicable

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

Not Applicable

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

Not Applicable

10. Cultivation-related Wastes (Compliance: Y☒/ N☐)

Cultivation-related wastes including, but not limited to, empty soil/soil amendment/fertilizer/pesticide bags and containers, empty plant pots or containers, dead or harvested plant waste, and spent growth medium shall, for as long as they remain on the site, be stored⁸ at locations where they will not enter or be blown into surface waters, and in a manner that ensures that residues and pollutants within those materials do not migrate or leach into surface water or groundwaters.

Cultivation waste is treated in two separate manners depending on the waste.

- **Organic matter such as stems and root balls are temporarily piled at the cultivation sites. After harvest is completed organic waste is aggregated in a shallow pit north of CS #5 where it is burned.**
- **Non-organic waste such as packaging and used materials are contained within trash bins and stored in the 30' by 30' storage structure. Spent growth medium or cultivation spoils treatment is addressed in Standard Condition (A)4.**

11. Refuse and Human Waste (Compliance: Y☒/ N☐)

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

Domestic sewage is collected within the septic system installed into the house located on the property. The house and septic system are over 200 feet from the nearest watercourse. There are no obvious signs of system failure such as foul odor, vegetation blooms, or pooling effluent. The OWTS does not appear to pose a threat to any watercourse or waterbody.

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

All trash is temporarily contained within trash bins stored in the 30' by 30' storage structure. Trash is hauled to a solid waste disposal site on average once per month.

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

All trash and refuse hauled off-site is properly disposed of at a solid waste disposal site such as the Redway Transfer Station, Redway, CA.

12. Remediation/Cleanup/Restoration

Remediation/cleanup/restoration activities may include, but are not limited to, removal of fill from watercourses, stream restoration, riparian vegetation planting and maintenance, soil stabilization, erosion control, upgrading stream crossings, road outsloping and rolling dip installation where safe and suitable, installing ditch relief culverts and overside drains,

⁸ Plant waste may also be composted, subject to the same restrictions cited above for cultivation-related waste storage.

removing berms, stabilizing unstable areas, reshaping cutbanks, and rocking native-surfaced roads. Restoration and cleanup conditions and provisions generally apply to Tier 3 sites, however owners/operators of Tier 1 or 2 sites may identify or propose water resource improvement or enhancement projects such as stream restoration or riparian planting with native vegetation and, for such projects, these conditions apply similarly. Appendix B accompanying this Order includes environmental protection and mitigation measures that apply to cleanup activities such as: temporal limitations on construction; limitations on earthmoving and construction equipment; guidelines for removal of plants and revegetation; conditions for erosion control, limitations on work in streams, riparian and wetland areas; and other measures.

Mitigation measures are listed below in the Mitigation Report and also noted above in the document. All locations listed within the mitigation report will be monitored by the Discharger.

Mitigation Report (Identified Sites Requiring Remediation)

*Time schedule for treatment accounts for appropriate permit approvals and allowed seasons of operation.

Unique Map Point(s)	Map Point Description	Associated Standard Condition	Temporary BMP	Permanent BMP	Priority for Action	Time Schedule for completion of Permanent BMP	Completion Date
Spring	Emergent groundwater is reaching the surface and eroding a seasonal road	(A)1b	N/A	Capture 100% of the emergent groundwater and bypass it 200' south to a Class III watercourse	4	10/15/20	
SC #1	12" diameter CMP on a Class III watercourse is too small and damaged	(A)2a-f	N/A	Replace existing culvert with minimum 18" diameter culvert per specifications attached to this WRPP	1	10/15/17	
SC #2	Erosion occurring at the inlet of this 18" diameter CPP	(A)2a-f	N/A	Install rock armor at the inlet of this crossing per specifications attached to this WRPP	2	10/15/18	
CS #1	Southwest corner of cultivation site encroaches within 50' minimum Class III buffer	(A)1d (A)3a-c	Remove all cultivation and related materials from 50' buffer	Mulch and seed disturbed earth leftover from relocation	1	10/15/17	
CS#4	Western edge of cultivation site encroaches within 50' minimum Class III buffer	(A)1d (A)3a-c	Remove all cultivation and related materials from 50' buffer	Mulch and seed disturbed earth leftover from relocation	2	10/15/18	

Treat Priority: Treatment Priority (1) indicates a very high priority with treatment being planned to occur immediately, (2) indicates a high priority site with treatment to occur prior to the start of the winter period (Oct. 15), (3) indicates a moderate priority with treatment being planned to occur within one year, or prior to the winter period (Oct. 15) of the 2nd season of operations, and (4) indicates a low priority with treatment being planned to occur in the shortest time possible, but no later than the expiration of this Order (five years).

Photographs



Picture 1: This is a photograph of the filled in pond site. The grassy flat in the left of the photo is where the pond once was. The white pole on the flat marks the point where groundwater reaches the surface. At the inboard edge of the road is surface runoff from the emergent groundwater. The Discharger would like to collect and bypass this emergent groundwater so it safely reaches the head of a Class III watercourse 200' to the south. Photo date: 11/15/2016

Photographs



Picture 2: This is a photograph of the emergent groundwater eroding the seasonal road. This erosion does not deliver to a watercourse. The concentrated surface flow reaches the landing below and dissipates. This erosion will be mitigated by bypassing the emergent groundwater as mentioned in Picture 1. Photo date: 11/15/2016

Photographs



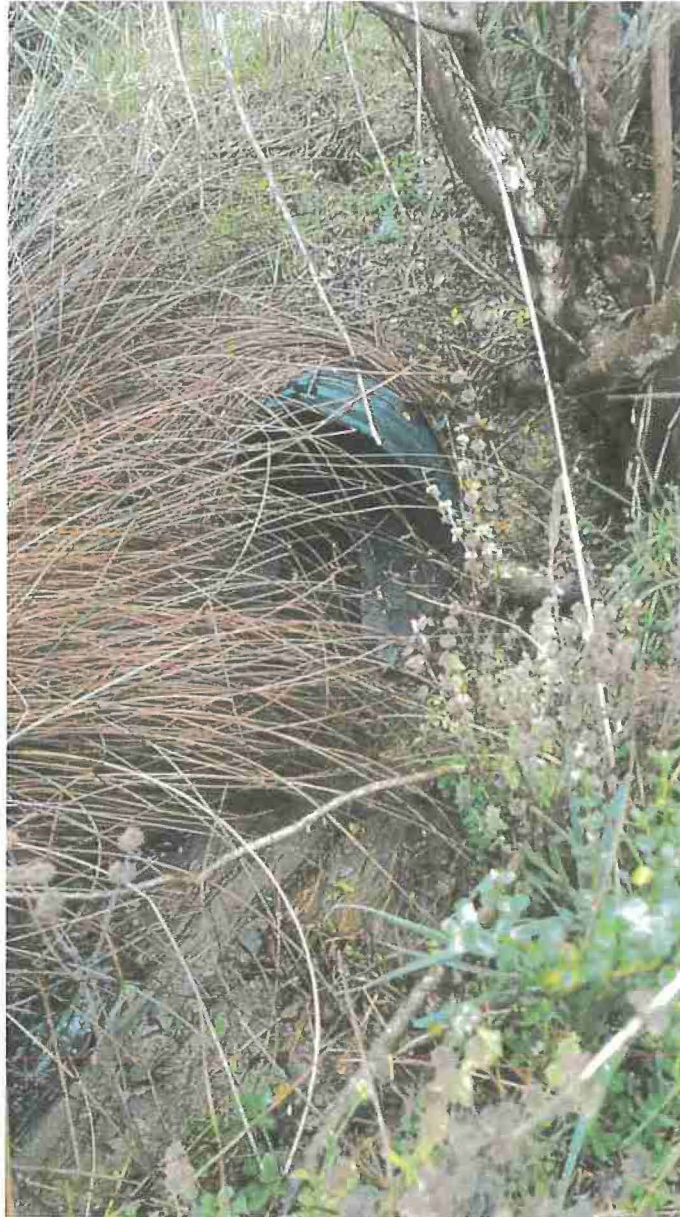
Picture 3: This is a photograph of the inlet to the existing 12" diameter CMP located at SC #1. This culvert facilitates the crossing of an unnamed Class III watercourse under a seasonal road. The Discharger shall upgrade this location to a minimum 18" diameter culvert per specifications attached. Photo date: 11/15/2016

Photographs



Picture 4: This is a photograph of the outlet of the existing 12" diameter CMP located at SC #1. The Discharger shall install a minimum 18" diameter culvert per specifications attached with this document. Photo date: 11/15/2016

Photographs



Picture 5: This is a photograph of the inlet of the 18" diameter CPP located at SC #2. Gradual scouring can be seen in the bottom of the photo right before the inlet. The Discharger shall install adequate rock armoring to protect the fill prism of the crossing. Photo date: 11/15/2016

Photographs



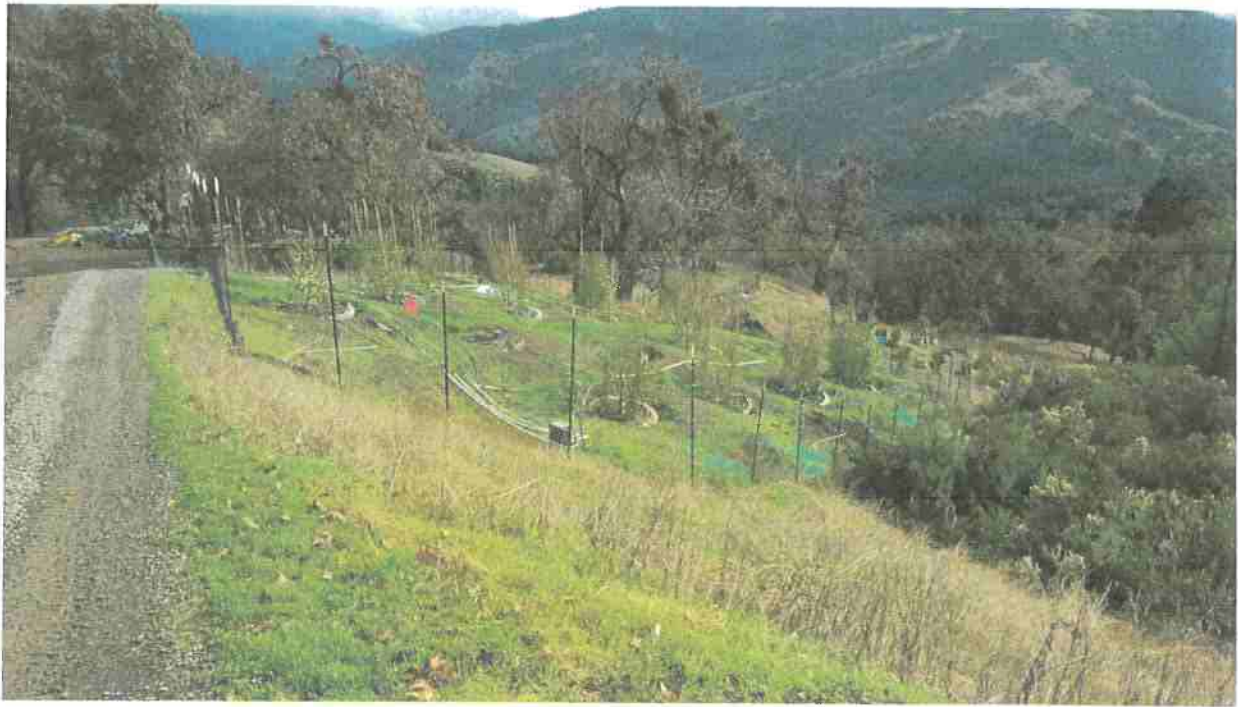
Picture 6: This is a photograph of the outlet of the 18" diameter CPP located at SC #2. The Discharger has removed the plastic garbage shown in this picture. Photo date: 11/15/2016

Photographs



Picture 7: This is a picture of Cultivation Site #1. This site consists of 18 plants within 400 gallon pots sunken into the ground. A Class III watercourse begins just below the large oak tree in the right hand side of this photograph. While the perimeter fence is 18' away the nearest potted plant is 33' away from the watercourse. The Discharger shall remove all cultivation from the riparian buffer as well as all related materials. The Discharger shall also restore the riparian buffer by returning all disturbed slopes to native grade, applying temporary erosion control to prevent sediment transportation and reestablishing native riparian vegetation. Photo date: 11/15/2016.

Photographs



Picture 8: This is a photograph of Cultivation Site #2. This site contains 18 plants within 400 gallon pots sunk into the ground. The fenced area equals 4,600 square feet. Photo date: 11/15/2016

Photographs



Picture 9: This is a photograph of Cultivation Site #3. This site contains 6 plants within 400 gallon pots sunk into the ground. The fenced area equals 1,200 square feet. Photo date 11/15/2016

Photographs



Picture 10: This is a picture of Cultivation Site #4. This site contains 27 plants within 400 gallon pots. The western perimeter fence of this site is approximately 36' from a Class III watercourse. The Discharger shall remove all cultivation from within the 50' riparian buffer as well as returning all disturbed slopes to native grade, applying temporary erosion control to prevent sediment transportation and reestablishing native riparian vegetation. Photo date: 11/15/2016

Photographs



Picture 11: This is a picture of the Class III watercourse approximately 36' from the fence line. The Class III channel runs along the fallen oak in the right side of the photograph. Photo date: 11/15/2016

Photographs



Picture 12: This is a photograph of Cultivation Site #5. This site contains 57 plants within 400 gallon pots sunk into the ground. This picture was taken shortly after harvest was completed. The temporary piles of stems have yet to be aggregated at the landing containing the burn pit. Photo date: 11/15/2016

Photographs



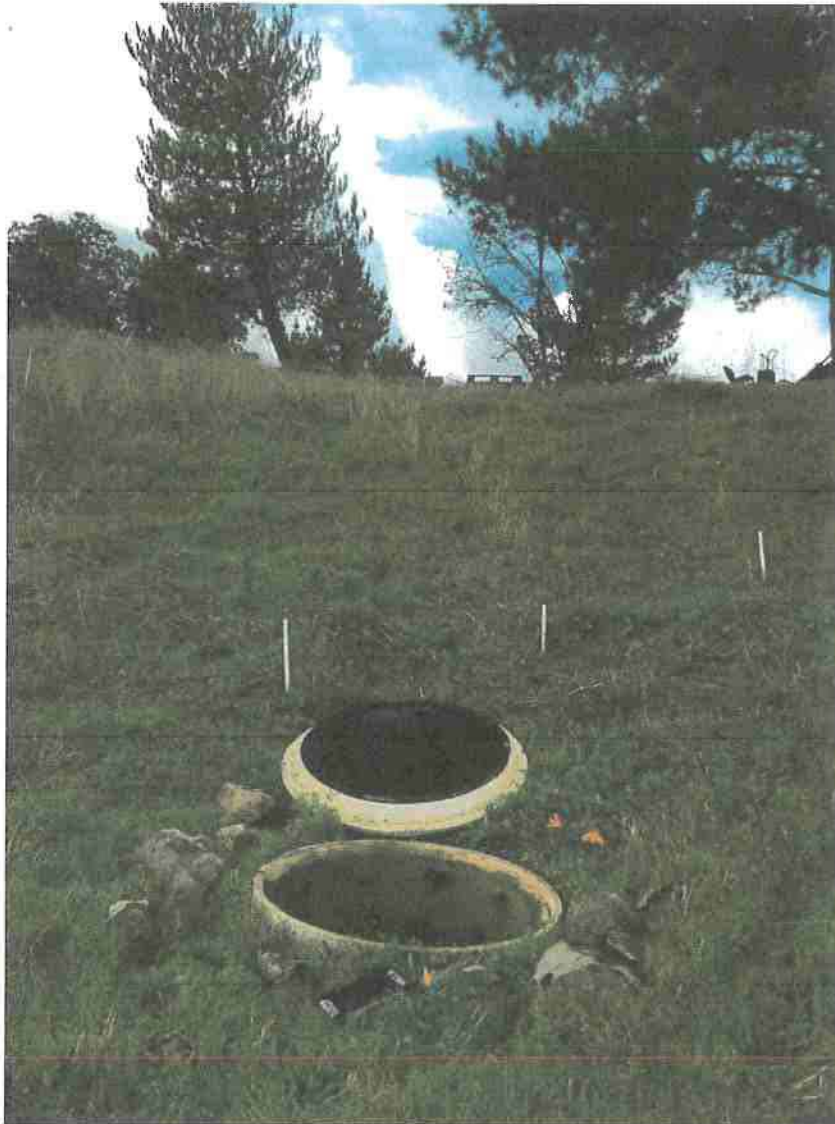
Picture 13: This is a photograph of the off-stream pond on the property, POD #2. This location is utilized as a source of irrigation water. The pond measures 222' long, 188' wide and 20' at its deepest point. The estimated pond volume is approximately 1.5 million gallons and the Discharger uses approximately 40% of the volume for irrigation. Photo date: 11/15/2016

Photographs



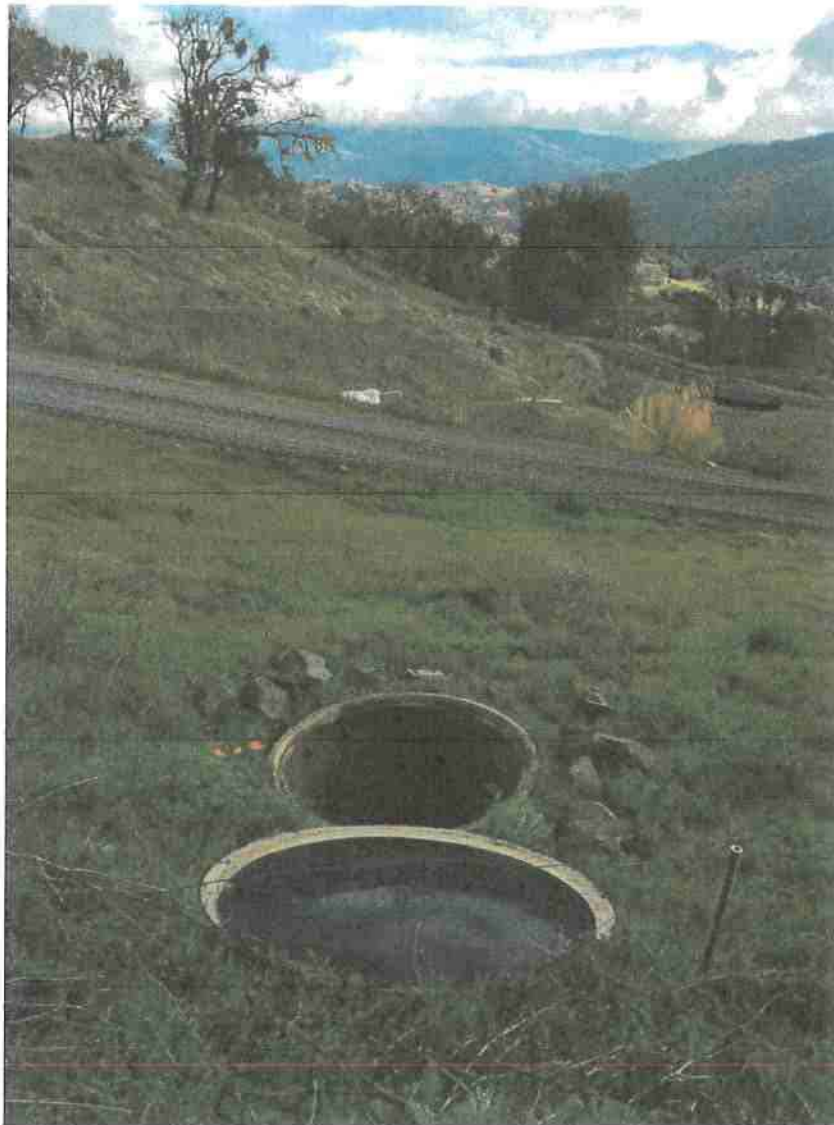
Picture 14: This is a photograph of the existing point of diversion (POD #1) located on a grassy hillside. The structure consists of a perforated 3' diameter by 4' deep concrete cistern. This structure diverts a combination of surface water and shallow ground water for domestic use. Photo date: 12/06/2016

Photographs



Picture 15: This is a photograph looking uphill from POD #1. Photo date: 12/06/2016

Photographs



Picture 16: This is a photograph looking downhill from POD #1. Photo date: 12/06/2016

Photographs

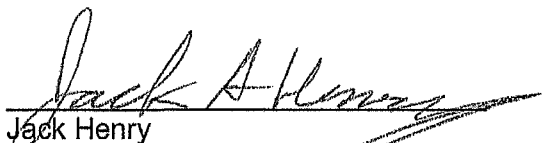


Picture 17: This is a photograph of the developed landing north of CS #5. This landing contains the 30' by 30' storage structure as well as a spoils pile and the burn pit. Photo date: 11/15/2016

STATEMENT OF CONTINGENT AND LIMITING CONDITIONS CONCERNING THE PREPARATION AND USE OF WATER RESOURCE PROTECTION PLAN

Prepared by Timberland Resource Consultants

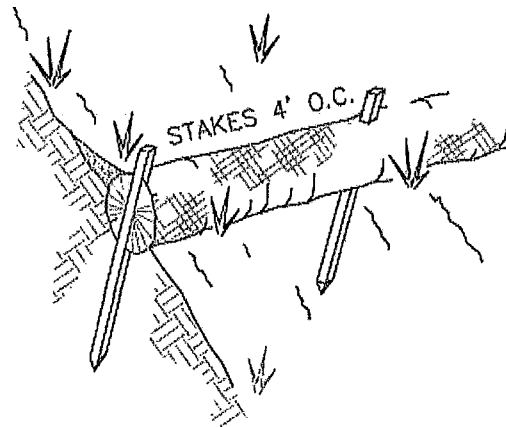
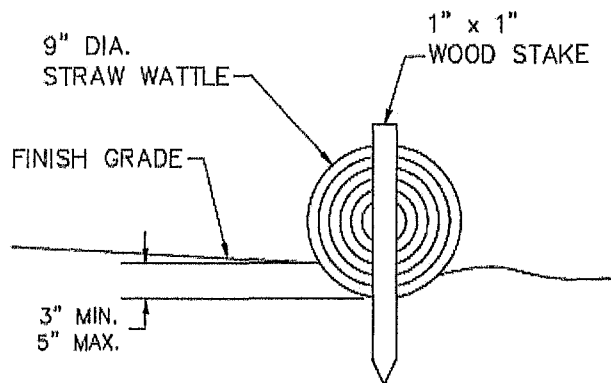
1. This Water Resource Protection Plan has been prepared for the property within APN 218-091-009 in Humboldt County, at the request of the Client.
2. Timberland Resource Consultants does not assume any liability for the use or misuse of the information in this Water Resource Protection Plan.
3. The information is based upon conditions apparent to Timberland Resource Consultants at the time the inspection was conducted, and as disclosed to Timberland Resource Consultants by the Discharger and/or Landowner. Changes due to land use activities or environmental factors occurring after this inspection, have not been considered in this Water Resource Protection Plan.
4. Maps, photos, and any other graphical information presented in this report are for illustrative purposes. Their scales are approximate, and they are not to be used for locating and establishing boundary lines.
5. The conditions presented in this Water Resource Protection Plan may differ from those made by others or from changes on the property occurring after the inspection was conducted. Timberland Resource Consultants does not guarantee this work against such differences.
6. Timberland Resource Consultants did not conduct an investigation on a legal survey of the property.
7. Persons using this Water Resource Protection Plan are advised to contact Timberland Resource Consultants prior to such use.
8. Timberland Resource Consultants will not discuss this report or reproduce it for anyone other than the Client named in this report without authorization from the Client.


Jack Henry
Timberland Resource Consultants

Attachments

BMP: Erosion Control

- Erosion control and sediment detention devices and materials shall be incorporated into the cleanup/restoration work design and installed prior to the end of project work and before the beginning of the rainy season. Any continuing, approved project work conducted after October 15 shall have erosion control works completed up-to-date and daily.
- Erosion control materials shall be, at minimum, stored on-site at all times during approved project work between May 1 and October 15.
- Approved project work within the 5-year flood plain shall not begin until all temporary erosion controls (straw bales or silt fences that are effectively keyed-in) are installed downslope of cleanup/restoration activities.
- Non-invasive, non-persistent grass species (e.g., barley grass) may be used for their temporary erosion control benefits to stabilize disturbed slopes and prevent exposure of disturbed soils to rainfall.
- Upon work completion, all exposed soil present in and around the cleanup/restoration sites shall be stabilized within 7 days.
- Soils exposed by cleanup/restoration operations shall be seeded and mulched to prevent sediment runoff and transport.
- Straw Wattles (if used) shall be installed with 18 or 24 inch wood stakes at four feet on center. The ends of adjacent straw wattles shall be abutted to each other snugly or overlapped by six inches. Wattles shall be installed so that the wattle is in firm contact with the ground surface.



BMP: Permanent Culvert Crossing

- New culvert installations shall be sized to accommodate flows associated with a 100-year storm event.
- If the new culvert is replacing a poorly installed old culvert, the crossing may need to be abandoned to the following standard:
 - When fills are removed they shall be excavated to form a channel that is as close as feasible to natural watercourse grade and orientation, and that is wider than the natural channel.
 - Excavated banks shall be laid back to a 2:1 (50%) or natural slope.
- New culverts shall be placed at stream gradient, or have downspouts, or have energy dissipaters at outfall.
 - Align culverts with the natural stream channel orientation to ensure proper function, prevent bank erosion, and minimize debris plugging. See Figure 97 below.
 - Place culverts at the base of the fill and at the grade of the original streambed or install a downspout past the base of the fill. Downspouts should only be installed if there are no other options.
 - Culverts should be set slightly below the original stream grade so that the water drops several inches as it enters the pipe.
 - Culvert beds should be composed of rock-free soil or gravel, evenly distributed under the length of the pipe.
 - Compact the base and sidewall material before placing the pipe in its bed.
 - Lay the pipe on a well-compacted base. Poor basal compaction will cause settling or deflection in the pipe and can result in separation at a coupling or rupture in the pipe wall.
 - Backfill material should be free of rocks, limbs, or other debris that could dent or puncture the pipe or allow water to seep around the pipe.
 - Cover one end of the culvert pipe, then the other end. Once the ends are secure, cover the center.
 - Tamp and compact backfill material throughout the entire process, using water as necessary for compaction.
 - Backfill compacting will be done in 0.5 – 1.0 foot lifts until 1/3 of the diameter of the culvert has been covered.
 - Push layers of fill over the crossing to achieve the final design road grade, road fill above the culvert should be no less than one-third to one-half the culvert diameter at any point on the drivable surface.
- Critical dips shall be installed on culvert crossings to eliminate diversion potential. Refer to Figure 84 below.
- Road approaches to crossings shall be treated out to the first drainage structure (i.e. waterbar, rolling dip, or hydrologic divide) to prevent transport of sediment.
- Road surfaces and ditches shall be disconnected from streams and stream crossings to the greatest extent feasible. Ditches and road surfaces that cannot be feasible disconnected from streams or stream crossings shall be treated to reduce sediment transport to streams.
- If downspouts are used, they shall be secured to the culvert outlet and shall be secure on fill slopes.
- Culverts shall be long enough so that road fill does not extend or slough past the culvert ends.
- Inlet of culverts, and associate fill, shall be protected with appropriate measures that extend at least as high as the top of the culvert.
- Outlet of culverts shall be armored with rock if road fill sloughing into channel can occur.
- Armor inlets and outlets with rock, or mulch and seed with grass as needed (not all stream crossings need to be armored).
- Where debris loads could endanger the crossing, a debris catchment structure shall be constructed upstream of the culvert inlet.
- Bank and channel armoring may occur, when appropriate, to provide channel and bank stabilization.

BMP: Permanent Culvert Crossing (Cont.)

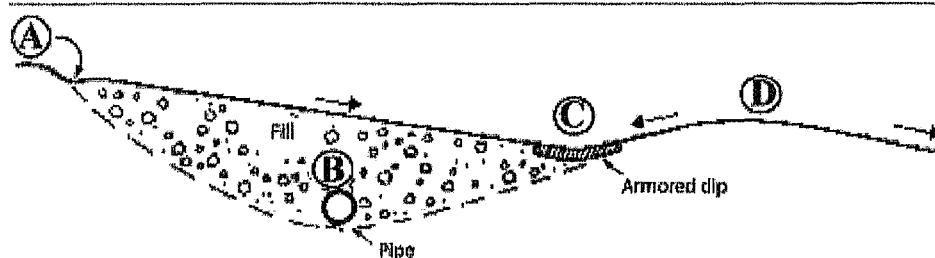
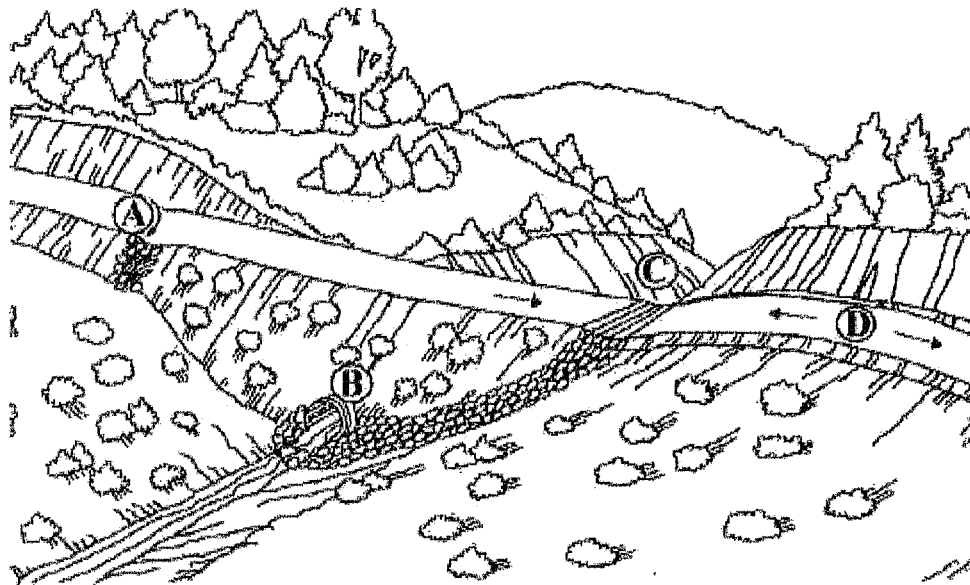


FIGURE 94. Critical dips or dipped crossing fills should be centered near a stream crossing's down-road hinge line, not over the centerline of the crossing where overtopping could cause washout or severe erosion of the fill. If the stream crossing culvert (B) plugs, water will pond behind the fill until reaching the critical dip or low point in the crossing (C) and flowing back down into the natural stream channel. The down-road ditch must be plugged to prevent streamflow from diverting down the ditch line. For extra protection in this sketch, riprap armor has been placed at the critical dip outfall and extending downslope to the stream channel. This is only required or suggested on stream crossings where the culvert is highly likely to plug and the crossing fill overtopped. The dip at the hinge line is usually sufficient to limit erosional damage during an overtopping event. Road surface and ditch runoff is disconnected from the stream crossing by installing a rolling dip and ditch relief culvert just up-road from the crossing (A) (Keller and Sherar, 2003).

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

BMP: Permanent Culvert Crossing (Cont.)

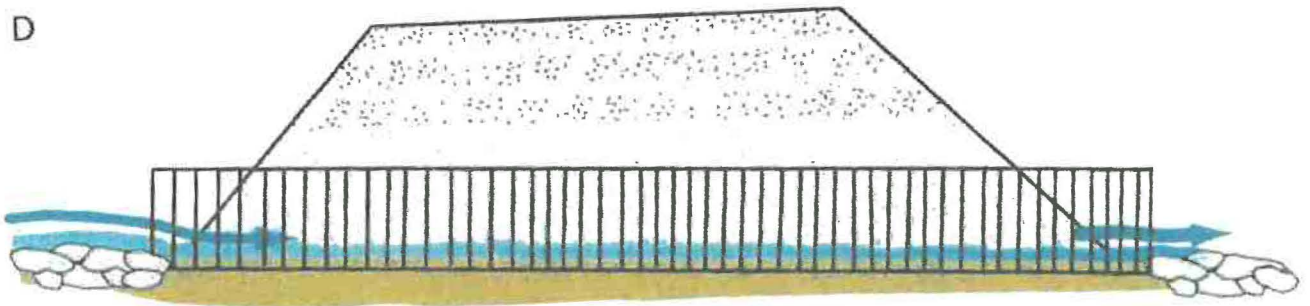
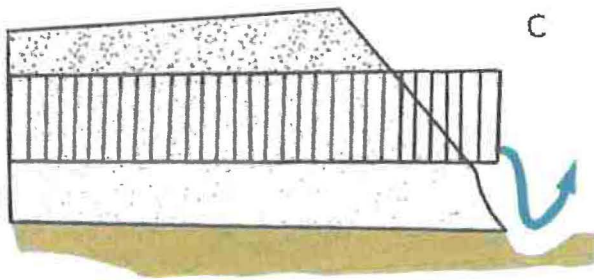
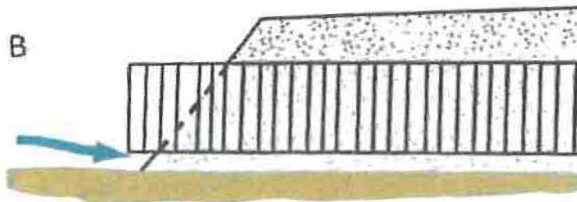
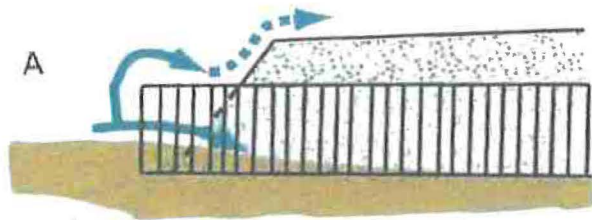


FIGURE 155. Proper culvert installation involves correct culvert orientation, setting the pipe slightly below the bed of the original stream, and backfilling and compacting the fill as it is placed over the culvert. Installing the inlet too low in the stream (A) can lead to culvert plugging, yet if set too high (B) flow can undercut the inlet. If the culvert is placed too high in the fill (C), flow at the outfall will erode the fill. Placed correctly (D), the culvert is set slightly below the original stream grade and protected with armor at the inlet and outlet. Culverts installed in fish-bearing stream channels must be inset into the streambed sufficiently (>25% embedded) to have a natural gravel bottom throughout the culvert (Modified from: MDSL, 1991).

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

BMP: Inlet and Outlet Armoring

- Inlets of culverts and associate fills shall be protected with rock armoring that extends at least as high as the top of the culvert.
- Outlets of culverts shall be provided a rock energy dissipater at the outfall of the culvert.
- Outlets of culverts and associate fills shall be protected with rock armoring that extends at least as high as the top of the culvert if road fill sloughing into channel can occur.
- Prior to inlet and outlet rocking, the inlet and outlets shall be prepared. Preparation will include removal of vegetation and stored materials from the inlet and outlet.
- Inlets may require construction of an inlet basin.
- Slopes at the outlet should be shaped to a 2:1 or natural slope prior to placing rock armor.
- Rock used at culvert inlets and outlets should be a matrix of various sized rocks and rip-rap that range from a 3" dia. to a 2' dia.
- The largest rocks should be places at the base of the culvert or fill. Incrementally smaller rocks shall be placed over the larger rocks at the armoring extend up the slope. Voids and spaces shall be back filed with smaller gravels and rocks.

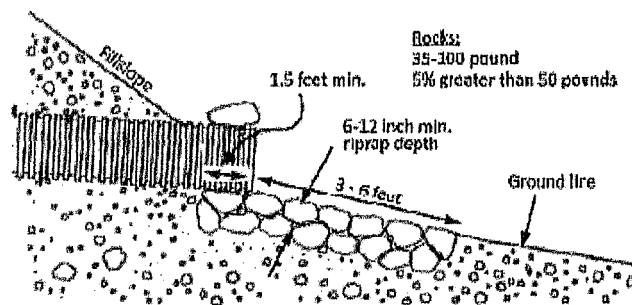


FIGURE 107A. Riprap armor at culvert outlet (Modified from: Keller et al., 2011).

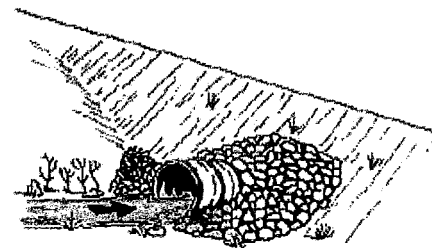


FIGURE 107B. Riprap armor at culvert inlet (Keller and Sherar, 2003).

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

BMP: Cultivation Site Restoration

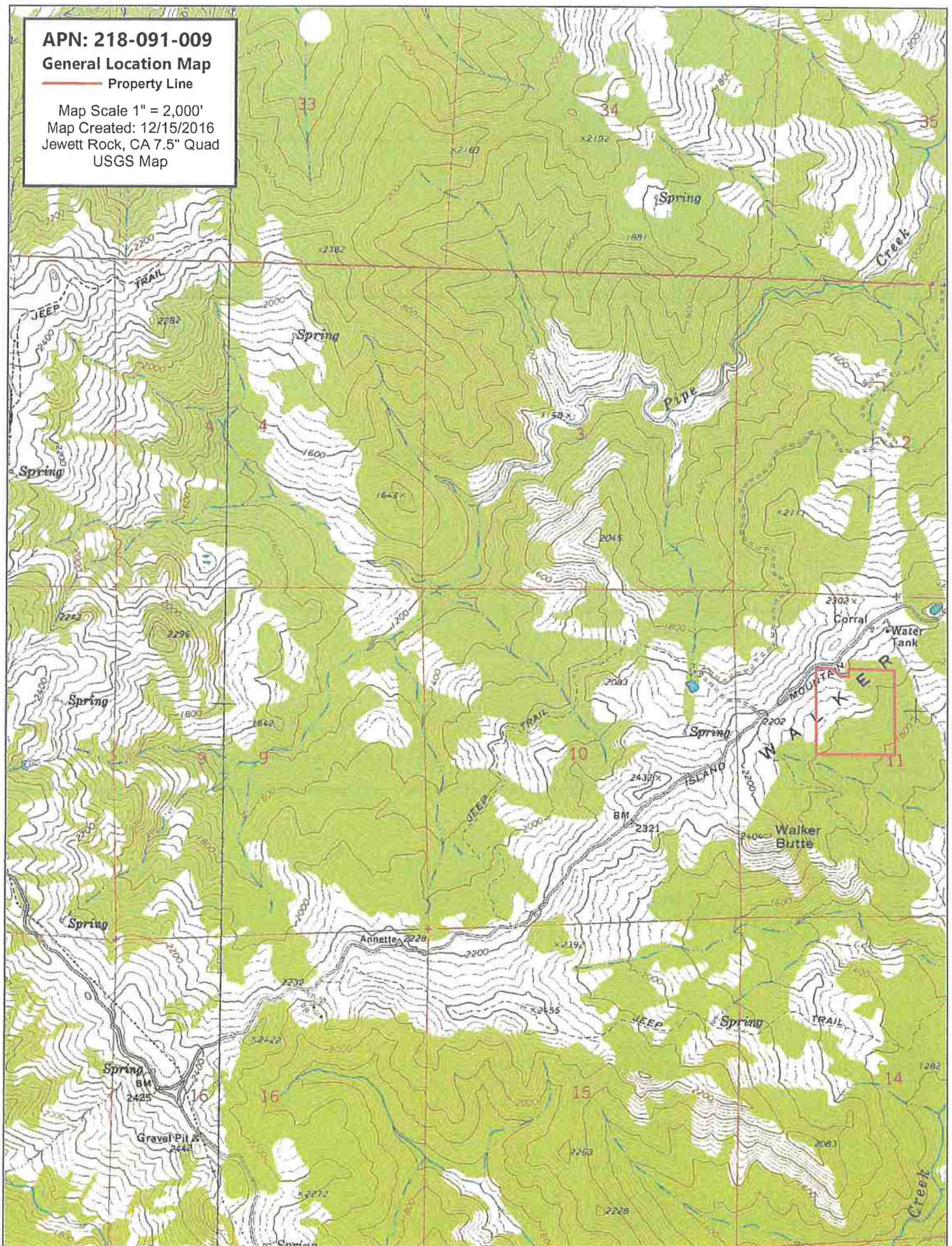
- Remove all cultivation and associated materials from designated cultivation site.
 - This includes plant mass, root balls, potting containers, cultivation medium and any materials associated with the preparation, cultivation, and harvest of commercial cannabis.
 - Cultivation medium removed from the site shall be stored/disposed of in compliance with Order conditions related to spoils management.
- All disturbed and/or unstable slopes shall be stabilized and returned to pre-project conditions.
 - Slopes shall be contoured as close as feasible to natural grade and aspect.
 - Temporary erosion control shall be applied to prevent sediment run-off.
- Soil exposed as a result of project work, soil above rock riprap, and interstitial spaces between rocks shall be revegetated with native species by live planting, seed casting, or hydroseeding prior to the rainy season of the year work is completed.
 - Native plants characteristic of the local habitat shall be used for revegetation when implementing and maintaining cleanup/restoration work in riparian and other sensitive areas.
 - Native forbes and gramminoids shall be planted to replace sediment stabilization, sediment filtration and nutrient filtration
 - Native trees and shrubs shall be planted to replace bank stabilization, inputs of large woody debris and temperature control within riparian areas.
 - Restoration of the quality/health of the riparian stand shall promote: 1) shade and microclimate controls; 2) delivery of wood to channels, 3) slope stability and erosion control, 4) ground cover, and 5) removal of excess nutrients.

APN: 218-091-009

General Location Map

Property Line

Map Scale 1" = 2,000'
Map Created: 12/15/2016
Jewett Rock, CA 7.5" Quad
USGS Map



WRPP Site Map

APN: 218-091-009

Property_Line

Island Mountain Road

Seasonal Road

ATV/Foot Path



House



Storage Structure



Class III Watercourse



Emergent Groundwater



Pond Overflow



Off-stream Pond



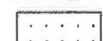
Ditch Relief Culvert



Stream Crossing



Filled Pond



Developed Area



Proposed Collection Structure



Proposed Bypass Pipe



Point of Diversion



Storage Tank



Cultivation Site



Burn Pit



Spoils Pile

Map Scale 1" = 175'

Map Created: 01/06/2016

Jewett Rock, CA 7.5" Quad

2016 NAIP DOQ



