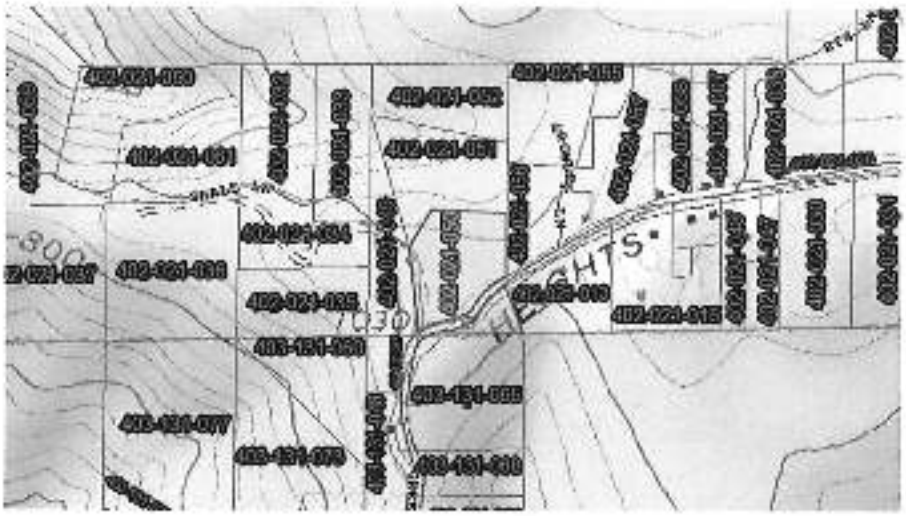
GREEN ROAD CONSULTING

Water Resource Protection Plan (WRPP)

APN: 402-021-050

WDID: 1B170053CHUM



Prepared for:
North Coast Regional Water Quality Control Board (NCRWQCB)

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Date of completion:
10/19/2017

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LIST OF ATTACHMENTS

Client: Nature's Health Group

Land Owner: Phuoc Truong

Site Address: 2498 Greenwood Heights Drive, Kneeland, CA

Mailing Address: 9315 Bolsa Ave #580, Westminster CA 92683

Parcel Number: 402-021-050

General Plan: AR(FWCP)

Zone: AG

Parcel Size: 5.79

HUC12 Watershed: 180101020605

1 INTRODUCTION

The attached report is a Water Resource Protection Plan (WRPP), designed by Green Road Consulting (GRC) for Nature's Health Group; parcel number 402-021-050. The purpose of this plan is to report on the current conditions of said parcel, in order to enroll and comply with the Waiver of Waste Discharge Requirements and the General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region (Order No. 2015- 0023). The purpose of the order is to provide a water quality regulatory structure and thereby prevent/address poor water quality and other conditions that may have an adverse impact to water resources.

The Water Resource Protection Plan is designed to meet or exceed the requirements of Order No. 2015-0023. Specifically, the plan outlines the remediation measures needed to bring the parcel into compliance with the standard conditions specified within the order. Green Road Consulting (GRC) is working with Blair Forestry Consulting (BFC) to assess parcel for erosion and water quality issues. Information about the parcel and surrounding areas was collected through a series of site visits as well as through a variety of county, state, and private websites (USDA web soil survey, USGS stream stats program, Google Earth, Humboldt County Web GIS). The site maps were created using ArcMap and surveyed with a GPS unit (2 to 4-meter accuracy) to document roads, building, cultivation perimeters, and areas of improvement.

2 BACKGROUND

The site is located in Eastern Humboldt County approximately 5 miles north of the City of Kneeland which can be accessed from Greenwood Heights Road. The elevation of the site is approximately 1,000-ft above sea level. The parcel is located on a ridge with no drainages, however the site is located in the Fay Slough watershed. The hillslopes in the region are known to have high instability. The site geology is part of the Franciscan Complex which is primarily composed of Cretaceous and Jurassic sandstone with smaller amounts of shale, chert, limestone and conglomerate. Unstable areas found during site investigation are delineated on the Site Overview Map.

3 SITE OVERVIEW

The parcel has one (1) single-family residence, storage shed and a pump house. Current cultivation consists of 10,000 square feet and takes place in one (1) location east of the residence. The cultivation area is more than 800 feet from the nearest drainage. The residence has a permitted septic installed. The septic leach fields are in locations permittable by the county and show no signs of failure. There is PG&E hook up located on the parcel. Water storage consists of six (6) 4,600-gallon rain catchment tanks and one (1) 2,500-gallon feed tank totaling to 30,100-gallons (see Water Storage and Use Map). The parcel uses rainwater catchment tanks as its water source and has community shared water for domestic use. The permanent roads are in good condition, but the short (~150 feet), seasonal road on the site will require surface rocking for basic maintenance. The roads are not hydrologically connected to streams. The property was purchased around 2016, in very poor condition. The site had previously been cultivated and trash was likely piled in the yard for several years. The Registrant has removed dozens of trailers full of trash to Humboldt Waste Management.

Overall the site is in good condition with minimal potential to impact stream systems. The processing and transportation of the Cannabis is specified in the Humboldt County Commercial Medical Marijuana Land Use Ordinance (CMMLUO).

4 ASSESSMENT OF STANDARD CONDITIONS

Below is a site assessment of each Standard Condition for the said parcel. This includes a description and summary of the parcel's required remediation measures with respect to each condition. The required remediation is summarized with expected completion dates in a Table 4. Locations of erosion control and sediment delivery areas are denoted as Map Points **(MP)** in the Site Overview Map.

4.1 Site Maintenance, Erosion Control and Drainage Features

Seasonal roads on the site were short (~150-ft) and in ok condition. The access road will require basic maintenance and surface rocking for stabilization (**MP1**). Additionally, there is a small vehicle parking area located at the end of the access road, in front of the residence. It is currently composed of bare soil and will require surface rocking as basic maintenance as well. Around the cultivation area, there are areas on bare soil that will be stabilized with straw seed (**MP2**).

4.2 Stream Crossing Maintenance

There are no stream crossings on the site (see Site Overview Map). **No remediation is required.**

4.3 Riparian and Wetland Protection and Management

There are no watercourses on the site. Total cultivation on the site totals 10,000-ft^2 and all cultivation takes place in one area east of the residence (CA1). It sits on a 9-12% slope and is more than 800-ft from the nearest watercourse (class III). Cultivation has minimal potential to impact any watercourses. **No remediation is required.**

Table 1. Cultivation Area summary in respect to natural slope, distance to water body, and water body classification.

Cultivation Area (CA)	Cultivation Area (ft^2)	Natural Slope (%)	Distance to Water Body (ft)	Water Body Classification
CA1	10,000	10-15%	~800	Class III drainage

4.4 Spoils Management

There were no spoils from grading observed during the site inspection. **No remediation is required.**

4.5 Water Storage and Use

The site does not have sufficient water storage to forbear from May 15-October 31. There are seven (7) High-Density Polyethylene (HDPE) water tanks, six (6) 4,600-gallon tanks, and one (1) 2,500-gallon tank on the site. Total water storage on the site is 30,100-gallons. Water is sourced via rainwater catchment tanks and an off-site stream diversion. The rainwater is collected from roof runoff. The diversion is permissible through the enrollee's Quitclaim deed filed with the Department and Environmental Health. An Initial Statement of Diversion and Use has been filed, reviewed, and processed with the California State Water Resources Control Board, identification number S027163. However, an appropriated water right has not been obtained for the diversion. The enrollee will need to attain the Small Irrigation Use Registration (SIUR) for the diversion when available. Estimated water diversion and use for 2016 is summarized in Table 2.

Table 2. Summary of Water Diversion and Use for 2016.

Source	Use	Start Date	End Date	To Storage (gallons)	To Use (gallons)
Rain Catchment	Cannabis	Feb. 1	Jun. 1	30,100	
Rain Catchment	Cannabis	Jun. 1	Oct. 31		30,100
Spring Diversion	Cannabis	Apr. 1	May. 31		11,360
Spring Diversion	Domestic	Apr. 1	Oct. 31		23, 100

The site has 30,100-gallons of water storage available which is summarized in Table 3. Water meters will be installed to monitor use and create a water budget to determine the volume of water needed for cultivation during the forbearance period. Cannabis is currently hand-watered. To conserve water, a straw or mulch ground cover will be applied to reduce water evaporation. Water conservation methods such as micro spray or drip irrigation should be considered, and timing should be employed to ensure water is applied at agronomic rates.

Table 3. Summary of Water Storage.

Water Storage Type	Size (gallons)	Number	Total (gallons)
HDPE Tanks	4,600	6	27,600
HDPE Tank	2,500	1	2,500
Total			**30,100**

4.6 Irrigation Runoff

There were no signs of irrigation runoff during the site investigation. The Registrant uses a hand watering system. **No remediation is required.**

4.7 Fertilizers and Soil Amendments

Currently, all fertilizers and soil amendments are stored under the house but will require secondary containment bins. All labels are kept and directions are followed when amendments and fertilizers are applied. Fertilizer shall be applied at agronomic rates. The Registrant will keep a log of their fertilizer and amendment use for annual reporting. Amendments and potting soil will be stored in a manner that prevents transport to surface or groundwater.

4.8 Pesticides/Herbicides

Currently the registrant does not use any pesticides or herbicides. Any future pesticide, herbicide, fungicide used will be those which are accepted under the Legal Pest Management Practices for Marijuana Growers in California (see Chemical Use Attachment). Future pesticides, herbicides, or fungicides will also be stored in secondary containment bins in the attached garage with other chemicals. The registrant will keep a log of their pesticides, herbicides, or fungicides use for annual reporting. **No remediation is required.**

4.9 Petroleum Products and Other Chemicals

The site is grid tied and does not use generators for power. This considered, there were no fuel canisters observed during the initial assessment. In the future, if generators are employed for operations, any associated chemicals and fuel must be stored in secondary containments bins to prevent the potential of spills or leakage. Storage tanks over 110 gallons need to be registered with the County Health Department. Spill cleanup kits must be kept in the chemical storage area. The registrant must keep a log of their chemical use for annual reporting (see Chemical Use Form). **No remediation is required.**

4.10 Cultivation-Related Wastes

There is one large cultivation soil pile on the site near the cultivation area (**MP3**). The soil pile will require wattle perimeter control and covering during winter. This will ensure that any runoff from the pile will not make it to any watercourse. Cultivation related wastes such as stems, and leaves are composted on site. Composting and soil piles must be limited to 100 cubic yards or 250 ft^2. Any soil to be disposed of should be brought to Wes Green in Arcata for disposal. Any compost should be stored in a location and manner to ensure pollutants and residuals do not migrate or leach in to surface waters or ground water. Vegetation waste, stems, and root balls should be burned during burn season with a valid permit or otherwise appropriately disposed of. For information contact the North Coast Unified Air Quality Management District (707-443-3093). All cultivation related wastes must be collected and stored daily in suitable water tight containers. **No remediation is required.**

4.11 Refuse and Human Waste

Trash piles are inappropriately stored throughout the site. However, the site was purchased in "as is" condition with years of trash left behind and piled throughout the property. The new owner has been making considerable efforts and has removed dozens of trailer loads of trash to Humboldt Waste Management. Once the site is fully cleaned, all trash and recyclables should be stored in water tight containers with a lid. Recycling must be stored separate from trash and all waste material must be removed on a weekly basis to maintain a clean and sanitary site. There is a permitted septic on site which is used seasonally during operations.

5. SUMMARY OF REQUIRED REMEDIATION

The following is a summary of the remediation measures required to become fully compliant with the Standard Conditions. A more detailed description of the issues and remediation measures is included in the previous section.

Table 4: Required Remediation Summary and Schedule.

Map Point (MP)	Standard Condition	Issue	Remediation Measure	Treatment Priority	Expected Completion Date	Actual Completion Date
MP1	Site Maintenance, Erosion Control, and Drainage Features	Roads and parking area lack erosion control features.	All will require maintenance and rock armoring	Moderate	October 2019	
MP2	Site Maintenance, Erosion Control, and Drainage Features	Bare soil in areas around the cultivation area.	Cover bare soil with straw and seed for stabilization.	Low	October 2019	
MP3	Cultivation Related Wastes	Cultivation soil pile without appropriate cover and stabilization.	The Cultivation soil pile will require a wattle perimeter and to be covered during winter.	High	May 2018	
NA	Water storage and use	Appropriated water rights have yet to be obtained for the diversion.	The enrollee will attain the SIUR for the diversion when available.	High	April 1st, 2018	
NA	Fertilizers and Soil Amendments	All fertilizers and soil amendments are stored under the house but lack secondary containment.	Fertilizers and soil amendments will require secondary containment bins.	Low	October 2018	
NA	Refuse and Human Waste	Trash throughout the site from previous land owner.	Remove the remainder of the trash on property.	Moderate	October 2019	

6. MONITORING

Sites shall be inspected periodically to ensure conformance with the standard conditions. Inspections should include examining all remediation measures to ensure they are functioning as expected. Inspections should involve photographic documentation of any controllable sediment discharge sites as identified on the site map. Additionally, care should be taken to identify if uncontained pollutants or runoff from roads or developed areas drains into or towards surface water. Monitoring forms will be kept in Attachment B. Monitoring will be performed by the registrant unless contracted by Green Road Consulting, Inc. to do the monitoring. At a minimum, sites shall be inspected at the following times to ensure timely identification of changed site conditions and to determine whether implementation of additional remediation measures is necessary to prevent or minimize discharges of waste to surface water:

1. Before and after any significant alteration or upgrade to a given stream crossing, road segment, or other controllable sediment discharge site. Inspection should include photographic documentation, with photo records to be kept on site.
2. Prior to October 15 to evaluate site preparedness for storm events and stormwater runoff.
3. Prior to December 15 to evaluate effectiveness of erosion control features.
4. Following any rainfall event with an intensity of 3-inch precipitation in 24 hours. Precipitation data can be obtained from the NWS by entering the site zip code at http://www.srh.noaa.gov/forecast.

7. REPORTING

Annual reporting for the preceding year will be submitted to the NCRWQCB by March 31st. Reported information shall be reflective of site conditions. Registrant shall submit this information either directly to the Regional Water Board or through an approved third party program.

The Annual reporting is now available online at the following North Coast Regional Water Quality and Control Board website:

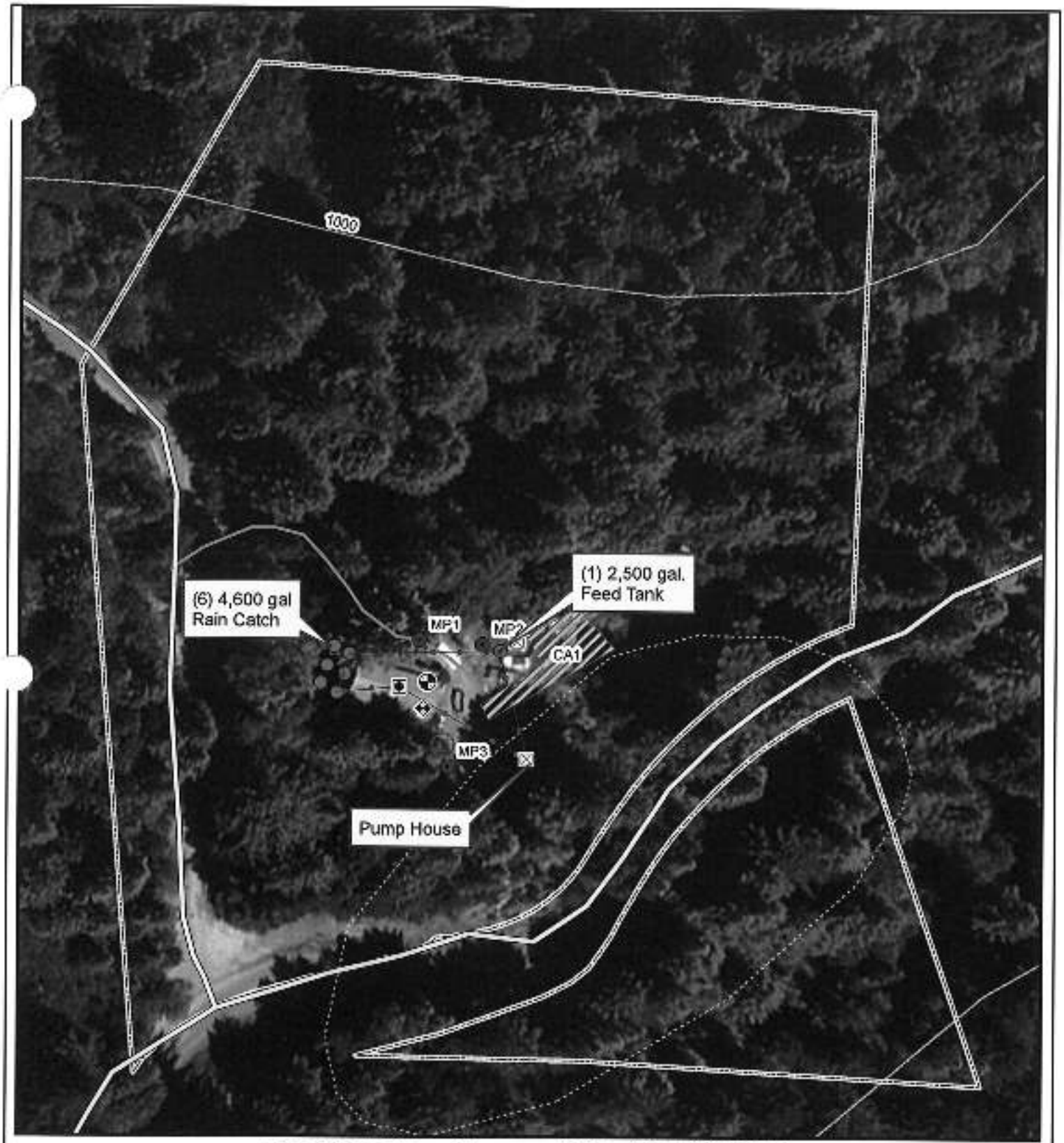
https://www.waterboards.ca.gov/northcoast/water_issues/programs/cannabis/

Documents to be submitted for annual reporting are kept in Attachment A.1, A.2, and A3. Initial enrollment and reporting forms are exhibited in the following pages. The annual reporting will include:

1. Reporting Form (Appendix C of Order 2015-0023)
2. Annual Chemical Use Form (Fertilizer, Petroleum, Pesticides...)
3. Water use and Cultivation Form
4. Re-Enrollment fees (Based off Tier)

8. MAPS

Please refer to the following page for Site Overview Map.



Site Overview Map APN: 402-021-050

- Parcel Boundary
- Cultivation Area (CA)
- Permanent Road
- Seasonal Road
- Map Point (MP)
- Residence
- Storage Shed
- Fuel Storage
- Fertilizer Storage

Water Line

- Domestic
- Irrigation
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Spoils
- Water Tank

N
W E
S

Contour Interval: 40ft
Imagery: 2016 NAIP

0 50 100 200 Feet

California Regional Water Quality Control Board
North Coast Region

Order No. 2015-0023

Waiver of Waste Discharge Requirements
and
General Water Quality Certification
for
Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities
or Operations with Similar Environmental Effects
In the
North Coast Region

The California Regional Water Quality Control Board, North Coast Region, (hereinafter Regional Water Board) finds that:

Overview

1. The North Coast Region is inundated with cannabis cultivation in headwaters and main river systems, with active, developed sites in steep and rugged terrain. With the increase in use and cultivation of cannabis since the voters' passage of the Compassionate Use Act (Prop 215) and the legislature's passage of AB 420, the unregulated activity of cannabis cultivation has grown increasingly year by year, with land area under cultivation increasing exponentially over the past decade. The increased cultivation throughout the North Coast Region has resulted in significant waste discharges and a loss of instream flows associated with improper development of rural landscapes on privately-owned parcels, and the diversion of springs and streams, to the cumulative detriment of beneficial uses of water.

2. The purpose of this Order is to provide a water quality regulatory structure to prevent and/or address poor water quality conditions and adverse impacts to water resources associated with cannabis cultivation on private land. Under this Order, any landowner or operator cultivating cannabis that results in a discharge of waste to an area that could affect waters of the State (including groundwater) will fall within one of three tiers depending on the nature of their operation and risk to water quality.[1] Properties with site characteristics or development that have impacts that cannot be ultimately mitigated to less than significant levels require regulation under a separate and individual order.

3. This Order applies to any person engaged in cultivating cannabis and associated activities, on private land, that discharge waste to any area that could affect waters of

[1] This Order does not apply to any parcel with a cumulative area of cannabis cultivation or operations with similar environmental effects of less than 2,000 square feet where there is no potential for discharge of waste.

the state including landowners, operators, lessees, tenants and occupiers[2] (hereinafter referred to as "Dischargers"). Subject to approval from the Executive Officer, Dischargers with similar operations to cannabis cultivation[3] may also elect to enroll and comply with this Order to ensure their discharges are authorized. Landowners are responsible for the conditions, activities, and operations occurring on properties that they own. These activities have the potential to result in impacts to water resources, including discharges of waste to receiving waters. Landowners are responsible for discharges of waste and water resource impacts both from recent site development and activities underway, as well as discharges of waste from past or legacy development/features[4] on the properties that they own. Cannabis cultivators, whether landowners or tenants, are also responsible for water resource and water quality impacts associated with their occupancy of and activities on a property. Compliance with this Order may require information from or cooperation between both landowners and their tenants.

4. Discharges and related controllable water quality factors from the following activities covered under this Order include:

   a. Maintenance of developed areas and drainage features.

   b. Stream crossing maintenance and improvement, including culvert sizing and installation, non-culverted stream crossing installation, culvert cleaning, culvert improvement and repair, and culvert and non-culverted stream crossing replacement.

   c. Activities within and adjacent to wetlands and riparian zones.

   d. Spoil storage and disposal.

   e. Water diversion, storage, and use.

   f. Irrigation runoff from cannabis cultivation and other similar growing operations.

   g. Fertilizer, soil amendments, petroleum products, biodiesel, and pesticide/herbicide/rodenticide storage, use, and waste disposal.

   h. Waste handling and disposal, including empty soil/soil amendment/ fertilizer/pesticide bags and containers, empty plant pots or containers, dead or harvested plant waste, spent growth medium, and other cultivation-associated wastes.

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[2] A lessee/occupier has primary responsibility for compliance; however, if the lessee/occupier fails to clean up or comply and/or cannot be reached, the landowner must assume responsibility (see Vallco Park, State Water Board WQO 86-18).

[3] Operations with similar environmental effects do not include agricultural operations otherwise subject to existing agricultural permits or those in development.

[4] Legacy features are considered controllable sediment delivery sites as defined in footnote 25.

i. Household refuse, human waste and domestic wastewater.

j. Site remediation/cleanup/restoration activities including, but 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 or maintaining water bars, ditch relief culverts and overside drains, removing berms, stabilizing unstable areas, reshaping cutbanks, and rocking native-surfaced roads.

5. This Order authorizes discharges of waste from cannabis cultivation sites and associated activities listed above. Most of the potential water quality impacts from the listed activities are associated with erosion and sediment delivery[5] and/or changes to riparian systems that may reduce shade and affect water temperatures, over allocation of water sources, and chemical/pollutant discharges from areas under cultivation or material/waste storage areas. This Order contains requirements that eliminate, minimize, or mitigate these impacts to protect and/or restore water quality. Listed activities that also require water quality certification are subject to additional requirements described in findings 28-31 and General Water Quality Certification. This Order does not authorize dredge and fill activities that result in a permanent loss of wetlands and other waters.

6. This Order does not preclude the need for permits that may be required by other governmental agencies for the activities listed in finding 4, nor does it supersede any requirements, ordinances, or regulations of any other regulatory agency, including necessary certification and permitting for the application of pesticides and herbicides and proper handling and disposal of solid and domestic wastes.

7. This Order does not apply to land use activities subject to other permitting programs (e.g., industrial activities, animal waste, mining, forestry), and hazardous waste cleanup.

8. This Order does not authorize discharges of waste associated with any new development of sites for cannabis cultivation or related activities. Dischargers must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ) for construction projects (individual or part of a common development) that disturb one or more acres of land surface, specifically for new site preparation and development.[6] Timberland conversion requires permitting through CalFIRE and subsequent enrollment under Order No. R1-2004-0030, General Waste Discharge Requirements for Discharges Related to Timber Activities on Non-Federal Lands in the North Coast Region. In addition, any new site development involving dredge or fill in waters of the

[5] Fine sediment waste discharges into surface waters impact many beneficial uses including those associated with fish habitat and health, domestic, municipal, and agricultural water supplies, and recreation.
[6] Construction activities subject to the Construction General Permit include clearing, grading and disturbances to the land surface such as stockpiling, or excavation, but do not include regular maintenance activities performed to repair roads and related facilities.

United States must apply for and receive coverage under Clean Water Act section 401 water quality certification. Many sites in the North Coast include steep slopes, highly erodible soils, or unstable areas. Land development on sites with these characteristics often requires design and oversight by a licensed engineer, geologist, or other appropriate California-licensed individual during construction to ensure that constructed features on the site are stable and do not represent a threat to the beneficial uses of water or public health and safety.

9. This Order does not in any way authorize, endorse, sanction, permit or approve the cultivation, possession, use, sale or other activities associated with cannabis. Individuals engaging in cannabis cultivation and other activities risk prosecution under federal, state, or local law.

Water Quality Regulation

10. Water Code section 13260(a) 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. This Order conditionally waives the requirement to file a ROWD for discharges and associated activities described in finding 4.

11. The *Water Quality Control Plan for the North Coast Region* (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives to protect waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. Economic considerations were evaluated as required by law during the development of these objectives. Compliance with the conditions, prohibitions, and provisions contained in this Order will implement these previously-developed water quality objectives and protect beneficial uses.

12. Activities described in finding 4 that involve construction and other work in waters of the United States may require a federal permit pursuant to section 404 of the Clean Water Act. Section 401 of the Clean Water Act (33 U.S.C. §1341) requires every applicant for a federal license or permit to apply for and receive water quality certification from the state. State water quality certification conditions shall become conditions of any federal license or permit for the project. This Order includes a Section 401 General Water Quality Certification for activities and associated discharges described in finding 4.

13. The federal Clean Water Act section 303(d) requires the states to determine waterbody compliance with water quality objectives and to develop a list of impaired waterbodies.

Federal regulations require that a Total Maximum Daily Load (TMDL) be developed for 303(d)-listed waterbodies for each pollutant of concern. The US Environmental Protection Agency (EPA) has established TMDLs for 25 impaired stream segments in the North Coast Region. The Regional Water Board has adopted five additional TMDLs for impaired stream segments in the North Coast Region with accompanying implementation plans.

14. The majority of the North Coast TMDLs developed to date address sediment and temperature impairments, most with common approaches. The TMDLs typically list COLD[7] as an important beneficial use. While specific load allocations and targets may vary slightly, all address the need to reduce and prevent excess sediment inputs and decrease water temperature by protecting and restoring natural shade or conditions equivalent to natural shade.

15. Implementation of this Order will address sediment and temperature impairments by requiring: 1) the application of Best Management Practices (BMPs) to avoid excess sediment and other waste discharges; 2) the protection and maintenance of riparian conditions and shade; 3) inventories, prioritization and remediation of sediment delivery sites; 4) implementation and effectiveness monitoring of BMPs and documentation of the monitoring results; 5) water conservation and measures to ensure that water diversions do not unreasonably impact beneficial uses; and 6) on-going education and outreach. For activities identified in finding 4, it is anticipated that compliance with the conditions contained in this Order will serve to prevent or minimize a site's contribution to watershed impairments and, thus, represent compliance or progress toward compliance with applicable sediment and temperature TMDLs, subject to periodic review, monitoring and reassessment.

16. It is evident that the over-diversion of surface water for cannabis cultivation continues to impact instream beneficial uses. The impacts are compounded by the cumulative effect of many dischargers drawing on the same water source, which is often the biggest problem in regulating nonpoint sources. The State Water Board, Division of Water Rights is the agency with authority to oversee and regulate water rights. The Regional Water Board does not have jurisdiction to determine the scope and extent of any water right, or grant or make changes to water rights permits and licenses; however, it may request that the State Water Board consider various water right actions and refer cases to the Office of Enforcement. Additionally, the Regional Water Board may require information pursuant to Water Code section 13267.

    Under Water Code 174, "[i]t is also the intention of the Legislature to combine the water rights, water quality, and drinking water functions of the state government to provide for coordinated consideration of water rights, water quality, and safe and reliable drinking water." Accordingly, this Order contains information requirements pursuant to

[7] Cold Freshwater Habitat (COLD): Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Water Code section 13267, and general guidance provisions for water quality as it relates to the diversion and use of surface water.

Program Framework

17. In order to prevent and/or address poor water quality conditions and adverse impacts to beneficial uses associated with cannabis cultivation on private land, any landowner or operator cultivating cannabis that results in a discharge of waste to an area that could affect waters of the state (including groundwater) will fall within one of three tiers depending on the nature of their operation and risk to water quality.

    Tier 1:
    The first tier is for dischargers with low risk to water quality based on certain physical characteristics of the operation such as slope, proximity to surface water, and scale of the operation. Specifically, slopes[8] are no more than 35%; cultivation areas[9] are no more than 5000 square feet; no cultivation areas or associated facilities[10] are located within 200 feet of a surface water (i.e., wetland, Class I, II, or III[11] streams); and Tier 1 Dischargers do not directly divert surface water from May 15 through October 31.[12]

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[8] The Tier 1 slope criteria apply to areas within and adjacent to the cultivation area; if the cultivation area has been terraced, the slope shall be calculated as the average of the up and down gradient slopes.

[9] Cultivation area: The sum of the area(s) of cannabis cultivation and/or operations with similar environmental effects as measured around the perimeter of each discrete cultivation area on a single parcel of land.

[10] Associated facilities include those constructed or placed features that facilitate plant cultivation (including, but not limited to storage buildings, material and water storage areas, and irrigation systems).

[11] A wetland is: An area that is covered by shallow water or where the surface soil is saturated, either year round or during periods of the year; where that water coverage has caused a lack of oxygen in the surface soil; and has either no vegetation or plants of a type that have adapted to shallow water or saturated soil. Some examples are fresh water marshes, bogs, riparian areas, vernal pools, coastal mud flats and salt marshes.
California Forest Practice Rules define a Class I watercourse as 1) a watercourse providing habitat for fish always or seasonally, and/or 2) providing a domestic water source; a Class II watercourse is 1) a watercourse capable of supporting non-fish aquatic species, or 2) a watercourse within 1000 feet of a watercourse that seasonally or always has fish present; and a Class III watercourse is a watercourse with no aquatic life present, and that shows evidence of being capable of transporting sediment to Class I and Class II waters during high water flow conditions after completion of timber operations.

[12] Persons who are diverting water pursuant to a riparian water right, and move to storage for the purpose of meeting Tier 1 characteristics or for any other reason, must apply for and obtain an appropriative water right. The Department of Fish and Wildlife, in collaboration with the State Water Resources Control Board, has developed an expedited process for applying conditions to Small Domestic Use registrations for diversions that meet certain criteria. Registrations that meet these criteria are known as Emergency Tank Storage Registrations. A "small irrigation" registration process is also available in certain locations for water diversions not associated with the primary dwelling (i.e. commercial crop). Additional information on these programs is provided here (as of the date of the Order):
http://www.swrcb.ca.gov/waterrights/water_issues/programs/registrations/index.shtml Others may need to file an application for a water right under the regular permitting process. (See generally http://www.swrcb.ca.gov/waterrights/board_info/faqs.shtml.)

Dischargers in this tier must adhere to certain standard conditions contained in this Order at section I.A. Dischargers must certify that their site meets Tier 1 characteristics and standard conditions. (See Appendix C.)

A copy of the self-certification and this Order must be retained on site and shown to Regional Water Board staff on request. Enrollment, annual fee, and annual reporting are required for Tier 1, and dischargers are subject to civil liabilities and other formal enforcement actions if standard conditions are not met. If a site meets Tier 1 characteristics but does not meet standard conditions, the discharger must enroll under Tier 2 and follow Tier 2 requirements. Once standard conditions are met, (by development and full implementation of a water resource protection plan), a discharger may re-enroll under Tier 1.

Tier 2:
Tier 2 is for dischargers with operations that present a higher threat to water quality and water resources. The site does not meet the characteristics of Tier 1, or the site meets the Tier 1 characteristics but does not meet standard conditions. Tier 2 Dischargers must develop and implement a water resource protection plan that includes management measures to be implemented to meet standard conditions. Required components of the water resource protection plan are detailed in this Order at section I.B. A copy of the water resource protection plan and this Order must be retained on site and shown to Regional Water Board staff on request. Enrollment, an annual fee, and annual reporting are required for Tier 2, and dischargers are subject to civil liabilities and other formal enforcement actions if standard conditions are not met and/or a water resource protection plan is not prepared or implemented according to schedules established in the water resource protection plan.

Dischargers with cultivation areas less than 10,000 square feet that have fully implemented a water resource protection plan and are determined by Staff or an approved third party to pose a low threat to water quality based on full compliance with standard conditions qualify for star status (Tier 2*). This includes sites that may be over 5,000 square feet, but otherwise meet Tier 1 site characteristics. Tier 2* Dischargers may be subject to a lower fee requirement.

Tier 3:
The third tier is for dischargers with sites requiring cleanup, restoration, and/or remediation based on current or past land development/management activities that have resulted in a discharge or threatened discharge in violation of water quality standards. Such conditions may include, but are not limited to, filled watercourses or wetlands, perched fill, steep cut slopes, roads, or fill prisms that cannot be stabilized sufficiently to prevent erosion and sediment delivery to surface waters (either on or off site). Tier 3 Dischargers must develop and implement a cleanup and restoration plan as detailed in this Order at section I.C., and comply with applicable standard conditions. Enrollment and annual fee through the life of cleanup activities is required for Tier 3, and dischargers are subject to civil liabilities and other formal enforcement actions if applicable standard conditions are not met and a cleanup plan is not developed or implemented. Tier 3 Dischargers who are cultivating cannabis concurrent with or

following site cleanup activities must adhere to all standard conditions and develop and implement a water resource protection plan for cannabis cultivation activities. Tier 3 Dischargers who are cultivating cannabis concurrent with site cleanup are also subject to Tier 2 annual fees and annual reporting, and are subject to civil liabilities and other formal enforcement actions if standard conditions are not met or a water resource protection plan is not prepared and implemented according to schedules established in the water resource protection plan.

18. Dischargers fall within one of the above three tiers. Dischargers shall be in the tier that covers the most impactful part of the operations (i.e., different sections of property are not divided among the tiers). All sites, regardless of size or tier, are subject to the standard conditions in section I.A. Tier 2 Dischargers are also subject to section I.B.; Tier 3 Dischargers are subject to sections I.A. and I.C. and, if cultivating cannabis before, during, or following cleanup activities, are also subject to section I.B.

    Some site-specific characteristics or cultivation operation characteristics may represent a higher threat to water quality than suggested by tier characteristic description, warranting regulation under higher tier requirements. Such sites will typically be identified by staff based on field inspection observations, or by recommendations made by approved third parties. Subject to approval from the Executive Officer, dischargers with operations that are similar to or whose potential impacts to water resources are similar to those posed by cannabis cultivation may also elect to enroll and comply with this Order to ensure their discharges are authorized.

19. This Order requires control of erosion and drainage features, proper soil disposal, proper stream crossing maintenance and improvements, water conservation, proper storage and handling of fertilizers and soil amendments, refuse and human waste, and petroleum products and other chemicals, and riparian management and protection. Standard conditions I.A. further describe the required site conditions. All Tier 1 Dischargers are responsible for ensuring that standard conditions are met. For more complex properties, 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. Plans can range from a simple description of the management practices to be implemented, to comprehensive descriptions of existing sources of waste discharge and elevated water temperatures, management practices employed to control the sources, and a monitoring and reporting program to document actions taken to control the sources and the effectiveness of such actions. The level of detail required in a plan will be dependent on the site-specific characteristics of an activity/operation. Plans must be kept available on the site and subject to inspection.

20. Appendix B provides best management practices (BMPs) that may be applicable to prevent, minimize, control and mitigate the discharge of waste and other controllable water quality factors. All BMPs in Appendix B are considered enforceable conditions under the Order as applicable to a given site. Some or all may be added to the Order as mandatory BMPs for all sites.

21. Third party programs – Tiers 1 and 2 Dischargers have the option to enroll, participate and comply with this Order through an approved, third party program. Third party programs can increase the program effectiveness and administrative efficiency of the Order, provided that the program meets certain elements (including sufficient feedback mechanisms to Regional Water Board). Third party programs can help meet some or all of the following:

    - Tracking names of enrolled (and non-enrolled) dischargers.[13] This includes data entry in the California Integrated Water Quality System (CIWQS), using a unique and secure identifier and providing a framework for annual compliance reporting to CIWQS or other program as approved by the Executive Officer.
    - Collecting and submitting required fees.[14]
    - Managing communication and notifications between enrolled dischargers and the Regional Water Board, including informing growers of the program and status of implementation.
    - Assisting dischargers with identifying the proper tier for a specific site.
    - Assisting self-certification requirements for dischargers meeting Tier 1 characteristics.
    - For Tier 2 Dischargers, developing sample water resource protection plans, helping individual dischargers to develop individual plans, and/or developing a more comprehensive community plan which individual dischargers agree to abide by. Plans must include a timeline for implementation as appropriate.
    - Assisting dischargers in implementing water resource protection plans. This must include site inspections and documentation of timely implementation or installation of management measures per schedule in the water resource protection plan, and evaluation of their effectiveness in meeting intended objectives.
    - Monitoring and reporting to Regional Water Board, including compliance with the Order, and effectiveness of management measures.

Compliance Assistance and Enforcement

22. Tier 1 Dischargers are required to meet standard conditions. Regional Water Board staff will be available to assist dischargers with complying with standard conditions, upon request. If standard conditions cannot be met, discharger must enroll under Tier 2 and develop and implement a water resource protection plan until standard conditions can be met. Once standard conditions are met, discharger may move to Tier 1. Tier 1 Dischargers must complete a self-certification (see Appendix C), indicating that the site meets Tier 1 characteristics and standard conditions, and retain the self-certification

[13] Tracking individual enrollments is a basic function that third parties must perform to facilitate implementation of the conditions of this Order and to provide the basic spatial information for watershed-scale program effectiveness reporting.

[14] A third party must collect fees from enrollees, in accordance with the State Water Board fee schedule contained in title 23 of the California Code of Regulations, and submit them to the State Water Board. The fees invoiced by the State Water Board will be based on each enrollee's tier status.

and this Order on site. The self-certification must be made available to Regional Water Board staff upon request. Tier 2 Dischargers and Tier 3 Dischargers (who are cultivating cannabis) are required to keep on the site a water resource protection plan, and implement the plan. Tier 3 Dischargers are also required to develop, submit and implement a cleanup and restoration plan. Staff may either confirm the adequacy of a water resource protection plan, or require that improvements be made. Similarly, staff may confirm that a site is Tier 3 and require cleanup and abatement actions and/or issue a separate cleanup and abatement order under Water Code section 13304.

23. Staff may conduct onsite inspections to assess compliance with conditions, and provide technical assistance or guidance, where necessary. Staff will conduct a certain number of routine inspections on a yearly rotation. Individual sites to inspect are prioritized based on threat to water quality (i.e. amount of land disturbance, proximity to watercourses and wetlands, etc.), and level of individual or third party program participation under the Order. Watershed or subwatershed areas may also be selected based on observable density or number of developed cultivation sites, or significant observed or reported instream impacts. Inspections allow Regional Water Board staff to confirm that dischargers have correctly identified their appropriate tier for coverage under this Order and are complying with applicable conditions and requirements. Inspections also serve to validate third-party program efficacy.

24. The Regional Water Board participates in environmental crimes and other multi-agency task forces in several counties, as well as a statewide and a federal task force. Some task force activities include identifying cultivation sites through various methods including, but not limited to, aerial surveillance, satellite imagery, and complaints received from the public or from other law enforcement agencies. It is the Regional Water Board's intent to coordinate environmental task force activities with this Order to the extent possible.

25. Dischargers who failed to enroll in this Order but can demonstrate compliance with the substantive requirements of this Order (including plans, schedule, and reasonable progress in bringing conditions on the site into compliance with the Order) may be subject to any additional enforcement response for failure to enroll and at a minimum must subsequently enroll and pay applicable fees for the time they should have been enrolled. Dischargers may be referred to organizations or groups that can provide technical assistance or support. The Regional Water Board prefers that water quality impacts be regulated under this Order to the extent possible. However, the Executive Officer reserves the right to require the discharger to submit a Report of Waste Discharge (ROWD) and/or to take other actions, including enforcement, as appropriate.

26. If water quality violations or impacts are confirmed, enforcement response may include requirements to clean up and abate violation conditions, restore impacted watercourses, remove and properly dispose of waste earthen material and other wastes, repair or remove stream crossings, upgrade roads, improve site drainage, and/or stabilize bare, erodible soils. If already enrolled under this Order, dischargers with cleanup obligations will need to comply with Tier 3 requirements of this Order. If not enrolled, dischargers must enroll and comply with this Order, and pay all applicable

fees for the time that they should have been enrolled, or otherwise be subject to an individual order. Enforcement response may also include assessment of penalties for violations, discharges of waste, or failure to comply with cleanup orders.

27. Nothing in this Order precludes actions to enforce any directly applicable requirements, prohibitions, or provisions, or to require cleanup and abatement of existing sources of pollution, where appropriate.

General Water Quality Certification

28. Remediation/cleanup/restoration activities described in finding 4 that involve construction and other work in waters of the United States may require a permit from the Army Corps of Engineers pursuant to section 404 of the Clean Water Act. Section 401 of the Clean Water Act (33 U.S.C. §1341) requires every applicant for a federal license or permit to provide the licensing or permitting federal agency with section 401 certification that the project will be in compliance with state water quality standards and implementation plans promulgated pursuant to section 303 of the Clean Water Act, and other appropriate requirements of state law (33 U.S.C. § 1313). The Regional Water Board Executive Officer may issue a decision on a water quality certification application. (Cal. Code Regs., tit. 23, § 3838, subd. (b).) State water quality certification conditions shall become conditions of any federal license or permit for the project.

29. The Regional Water Board may issue a general water quality certification for a class or classes of activities that are the same or similar, or involve the same or similar types of discharges and possible adverse impacts to water quality if it determines that these activities are more appropriately regulated under a general certification rather than individual certifications. (Cal. Code Regs., tit. 23, §3861.) General certifications apply for a fixed term not to exceed five years, must be conditioned to require notice to the Regional Water Board prior to commencement of the activity, and include appropriate monitoring and reporting requirements. A fee is also required pursuant to California Code of Regulations, title 23, section 3833, sub.(b)(3).

30. The General Water Quality Certification contained in this Order shall not apply to activities that will: 1) result in significant unavoidable environmental impacts including permanent impacts to wetlands and other waters from dredge and fill activities, and/or violation of water quality standards; 2) result in the direct or indirect take of any listed species; or 3) expose people and/or structures to potential adverse effects from flooding, landslides or soil erosion. (Cal. Code Regs., tit. 23, §3861, subd. (d).)

31. This Order includes a General Water Quality Certification for activities covered under this Order that may require a federal permit. General certification conditions in addition to waiver conditions are provided for in section V. General 401 Water Quality Certification of this Order. A discharger seeking Clean Water Act section 401 certification for a project shall notify the Regional Water Board 60 days prior to the proposed commencement of the activity and submit information regarding the construction schedule and other relevant information including an appropriate fee. Unless the Regional Water Board determines that the project or activity does not meet

the specified criteria for coverage under the General Water Quality Certification, this Order will provide Clean Water Act section 401 certification for the federal permit required for that project. The discharger may not commence the activity until the Regional Water Board notifies the discharger that the work is authorized. A list of projects authorized by this General Water Quality Certification will be posted on the Regional Water Board's website and shall serve as notice to the Army Corps of Engineers of project coverage. Projects that do not meet the criteria for coverage under the general certification must apply for individual certification.

Procedure

32. Tier 1 Dischargers shall complete and submit the applicable Tier 1 section of the Notice of Intent (NOI) form (Appendix A) and monitoring report self-certification (Appendix C) and retain a copy of the completed forms on-site with a copy of this Order. Tier 1 Dischargers may demonstrate enrollment and certification of compliance via alternative communication by participating in an approved third party program. The self-certification is meant to confirm that the site falls within Tier 1 scope and is meeting standard conditions. The self-certification must be provided for review upon request of Regional Water Board staff. Dischargers are encouraged to request a site inspection by an approved third party or Regional Water Board staff to confirm Tier 1 status. Tier 2 Dischargers shall complete and submit an NOI Form, and monitoring report (Appendix C). Tier 2 Dischargers must retain on site a copy of their NOI, monitoring reports, water resource protection plan and a copy of this Order. These documents must be provided for review upon request of Regional Water Board staff. Tier 3 Dischargers must complete and submit NOI Form, monitoring report, and submit a cleanup and restoration plan to the Regional Water Board for review and approval. Once a cleanup and restoration plan has been fully implemented, Tier 3 Dischargers submit a Notice of Completion and upon approval by the Executive Officer, may move out of Tier 3. If any Discharger ceases operations and wants to terminate permit coverage, the Discharger shall notify the Regional Water Board or an approved third party. The Discharger must demonstrate compliance with standard conditions and water resource protection plans and cleanup and restoration plans, as applicable.

    The timeframe for compliance with this Order, including filing NOI forms, water resource protection plans, and cleanup and restoration plans, is described in section II.

33. A third party program seeking approval from the Executive Officer to fulfill some or all of the elements listed in finding 21 must submit a proposal to the Regional Water Board (see Order at II.B). The proposal must demonstrate the substantive and procedural mechanisms to serve the function it is applying for. Third Parties are encouraged to work with Regional Water Board staff as early as possible (even prior to order adoption) to calibrate their program to the requirements of this Order

Fees

34. Under Water Code section 13269 subdivision (a)(4), a regional water board may include as a condition of a waiver the payment of an annual fee. Annual fees are

established by the State Water Board in accordance with Water Code section 13260 subdivisions (d) and (f). A discharger seeking coverage under this Order in Tiers 1, 2 or 3 will be required to pay an annual fee as set forth in California Code of Regulations title 23, section 2200.

Monitoring and Reporting

35. Water Code section 13267, subdivision (a), authorizes the Regional Water Board to investigate the quality of any waters of the state within its region in connection with any action relating to the Basin Plan. Water Code section 13267, subdivision (b) provides that the Regional Water Board, in conducting an investigation, may require Dischargers to furnish, under penalty of perjury, technical or monitoring program reports. A technical report, and restoration and monitoring work plan required by this Order, pursuant to Water Code section 13267, is necessary to ensure that the prior harm and future threat to water quality created by the discharges described above are properly assessed, abated, and controlled.

    The Monitoring and Reporting Program (MRP) is detailed in this Order at section I.D and Appendix C. Tier 1 Dischargers must inspect their site periodically and re-certify that it meets Tier 1 characteristics and standard conditions annually. Annual updates to the certification shall be maintained on site with the initial self-certification and copy of the Order.

    Tier 2 Dischargers must 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 must submit annual reports that document implementation and effectiveness of management measures. Tier 2 annual reporting is a function that may be provided through an approved third party program. Tier 3 Dischargers must incorporate monitoring and reporting elements into their cleanup and restoration plans for approval by the Executive Officer. At a minimum, the monitoring and reporting must document completion and effectiveness of the specified cleanup and restoration actions in the plan.

    Anticipating that this program will result in an increased rate of site restoration and stream crossing replacement on sites across the region following Order adoption, Regional Water Board staff will implement comprehensive activity tracking by mapping Tier 3 cleanup and restoration sites and individual instream work proposed under Tier 2 water resource protection plans, including those covered under the provisions of this Order or through other individual or general orders issued by the Regional or State Water Board. Staff may draw information from Geotracker and SMARTS, the Regional Water Board's timber tracking database, and other available sources to help correlate cleanups and activities or restoration or remediation work in streams or wetlands that are proposed and underway in individual watersheds and subwatersheds. Comprehensive activity tracking will enable the Regional Water Board to direct activity timing under this Order as necessary to limit the number of individual potential construction-related impacts occurring at any given time in any given

watershed. Specifically, where cleanup activities or restoration or remediation work in streams or wetlands are proposed to be implemented on several properties within a subwatershed, staff will consult with project consultants and other sources to stagger the timing of implementation.

Additional Findings

36. State Water Board Resolution No. 68-16 Statement of Policy with Respect to Maintaining High Quality of Waters in California (Resolution No. 68-16) requires that regional water boards, in regulating the discharge of waste, to maintain high quality waters of the state, require that any discharge not unreasonably affect beneficial uses, and not result in water quality less than that described in regional water board's policies. This order is addressing an existing, previously unregulated discharge, and water quality impacts have already occurred. With the exception of certain cleanup activities, the order is not anticipated to result in new discharges. Compliance with the terms of this order should result in an improvement in water quality at and downstream of these sites. Any increase in further degradation to water quality as a result of this Order is not anticipated. This Order is consistent with Resolution No. 68-16 because it will result in a net benefit to water quality by improving existing environmental conditions currently impacted by this activity. The Order is designed to protect or recover instream beneficial uses and does not promote or authorize the permanent lowering of high quality waters. Mitigation measures are available and will be required to reduce to less-than-significant levels any potentially significant water quality impacts from cleanup/remediation and restoration activities. Implementation of this Order is a good first step toward bringing this largely un-regulated activity into compliance with the Basin Plan.

37. As lead agency under the California Environmental Quality Act (CEQA), the Regional Water Board provided notice of intent to adopt a mitigated negative declaration (SCH No. 2015042074) for this Order on April 24, 2015(Cal. Code Regs., tit. 14, § 15072). The mitigated negative declaration reflects the Regional Water Board's independent judgment and analysis. After considering the document and comments received during the public review process, the Regional Water Board hereby determines that the proposed project, with mitigation measures, will not have a significant effect on the environment. The documents or other materials, which constitute the record, are located at 5550 Skylane Blvd, Suite A, Santa Rosa, CA 95403. The Regional Water Board will file a Notice of Determination within five days from the issuance of this order. Mitigation measures necessary to reduce or eliminate significant impacts on the environment and monitoring and reporting are incorporated as conditions of approval below.

38. The Regional Water Board has reviewed the contents of this Order, its accompanying Initial Study and Mitigated Negative Declaration, written public comments and testimony provided after notice and hearing and finds that the adoption of this Order is consistent with the Basin Plan, and is in the public interest.

THEREFORE, IT IS HEREBY ORDERED that pursuant to Water Code sections 13263, subdivision (a), 13267, and 13269, the Regional Water Board waives the requirement to submit a report of waste discharge and the requirement to establish waste discharge requirements [WDRs] for activities described in finding 4. Dischargers shall comply with the following:

I. As described in the findings above, dischargers will fall within one of three tiers. Discharger shall be in the tier that covers the most impactful part of the operations (i.e., different sections of a property cannot be divided among the tiers). All dischargers, regardless of Tier are subject to the standard conditions in section I.A, MRP section I.D., and General Terms, Provisions and Prohibitions. Tier 2 Dischargers are also subject to section I.B., and Tier 3 Dischargers are subject to sections I.A., I.B.(if cultivating cannabis), and I.C.
The Executive Officer has sole discretion to determine that a given site belongs in a specific tier, or to require the submittal of an individual report of waste discharge under Water Code section 13260.

A. Standard Conditions, Applicable to All Dischargers

1. Site maintenance, erosion control and drainage features

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

   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.

   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.

   d. Roads, clearings, fill prisms, and terraced areas (cleared/developed areas with the potential for sediment erosion and transport) shall be maintained so that they are hydrologically disconnected[15], as feasible,

[15] 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)

from surface waters, including wetlands, ephemeral, intermittent and perennial streams.

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.

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

2. Stream Crossing Maintenance

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.

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.[16]

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.[17]

3. Riparian and Wetland Protection and Management

a. For Tier 1 Dischargers, cultivation areas or associated facilities shall not be located within 200 feet of surface waters. While 200 foot buffers are preferred for Tier 2 sites, at 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.

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[16] 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.

[17] If infeasible to install a critical dip, an alternative solution may be chosen.

The Regional Water Board or its Executive Officer may apply additional or alternative[18] conditions on enrollment, including site-specific riparian buffers and other BMPs beyond those identified in water resource protection plans to ensure water quality protection.

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

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

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

4. Spoils Management

a. Spoils[19] shall not be stored or placed in or where they can enter any surface water.

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

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.

5. Water Storage and Use:

a. Size and scope of an operation shall be such that the amount of water used shall not adversely impact water quality and/or beneficial uses, including and in consideration with other water use by operations, instream flow requirements and/or needs in the watershed, defined at the scale of a HUC-12[20] watershed or at a smaller hydrologic watershed as determined necessary by the Regional Water Board Executive Officer.

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[18] 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.
[19] Spoils are waste earthen or organic materials generated through grading or excavation, or waste plant growth media or soil amendments. Spoils include but are not limited to soils, slash, bark, sawdust, potting soils, rock, and fertilizers.
[20] See definition and link to maps at: http://water.usgs.gov/GIS/huc.html

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.

c. For Tier 2 Dischargers, if possible, develop off-stream storage facilities to minimize surface water diversion during low flow periods (see also footnote 11).

d. Water is applied using no more than agronomic rates.[21]

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.

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.

6. Irrigation Runoff

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.

[21] "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.

7. Fertilizers and Soil Amendments

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

   b. Fertilizers and soil amendments shall be applied and used per packaging instructions and/or at proper agronomic rates (see footnote on previous page).

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

8. Pesticides/Herbicides

   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 labelling 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. (See also Appendix E.)

9. Petroleum products and other chemicals

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

   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.

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

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

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.

10. Cultivation-related wastes

Cultivation-related wastes including, but not limited to, empty soil/soil amendment/ fertilizer/pesticide bags and containers, empty plant pots or containers, dead or harvested plant waste, and spent growth medium shall, for as long as they remain on the site, be stored[22] 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.

11. Refuse and human waste

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

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.

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

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, removing berms, stabilizing unstable areas, reshaping cutbanks, and rocking native-surfaced roads. Restoration and cleanup conditions and provisions generally apply to

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

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.

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

B. Water Resource Protection Plan

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 below. Dischargers must keep this plan on site, and produce it upon request by Regional Water Board staff. Dischargers shall implement plans, including the identified management practices in a manner that is protective of water quality. If time is needed to meet standard conditions, the plan must include a timeline with measurable milestones.[23] 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.

Any proposed work in streams and wetlands, as described in 3-5 below shall be submitted to the Regional Water Board for review and authorization 60 days prior to commencement. (See Appendix D.) In the alternative, dischargers may opt to seek authorization for instream work through other individual or general orders.[24]

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[23] Generally, compliance with standard conditions is expected in the shortest time possible, and no later than the expiration of this Order (five years). However, in recognizing the challenges associated cumulative water use and cleanup of legacy conditions (available resources, studies, additional permitting, etc.), compliance schedules for standard condition I.5.a, and standards for which corrective work is needed under Order section II.5.c may extend beyond Order expiration and continue through any reissuance of the Order.

[24] See e.g. http://www.waterboards.ca.gov/northcoast/water_issues/programs/water_quality_certification.shtml

1. Map of property including areas of operations, roads, water bodies, all cleared/developed areas, and including general drainage patterns and directions.

2. Applicable design drawings and schematics for watercourse structures, fish passages, roads, septic tanks, fill prisms, pads, ponds, or any other constructed feature that has been designed or engineered.

3. Assessment of current conditions and identification of any features needing improvements to correct the function of any roads or developed areas, drainage features or measures, encroachments into riparian buffer areas, controllable sediment delivery sites,[25] including stream crossings in need of correction (undersized, improperly installed, improperly maintained, or otherwise substandard).

4. Detailed list of specific management practices designed to meet standard conditions in I.A., above, incorporating applicable standard BMPs from Appendix B, and any improvement work needed to bring site features into compliance with the standard conditions. Management practices must address erosion control/stability, stream crossing construction/maintenance, riparian protection, road construction and maintenance, spoils storage and disposal, chemical handling and management, waste handling and disposal, irrigation runoff, and water storage and use.

5. If site problems are identified, include a prioritization and implementation schedule for corrective action based on potential impacts to the beneficial uses of water, and a plan to inspect the site to evaluate the effectiveness of corrective action and identify where additional work may be needed. Proposed work in streams and wetlands shall be designed by a qualified registered professional and shall incorporate applicable standard BMPs from Appendix B.

6. List of chemicals stored onsite, and information about use (e.g., quantities used and frequency applied).

7. Monitoring element (see discussion at section I.D.) to ensure that BMPs are being implemented and to evaluate their effectiveness.

8. Water Use: Plan shall record water source, relevant water right documentation, and amount used monthly.[26] Plan must describe water conservation measures and document approach to ensure that the quantity and timing of water use is not impacting water quality objectives and beneficial uses (including cumulative

[25] Controllable sediment delivery sites are generally areas that are discharging or have the potential to discharge sediment to waters of the state, that are caused or affected by human activity, and may feasibly and reasonably respond to prevention and minimization management measures.

[26] All water sources shall be recorded, including alternative sources such as rain catchment and groundwater, and/or hauled water. Hauled water shall be documented as specified in the MRP.

impacts based on other operations using water in the same watershed). Water use will be presumed to not adversely impact water quality under one of the following scenarios:

- No surface water diversions from May 15-Oct 31.
- Water diversion pursuant to a local plan that is protective of instream beneficial uses.
- Other options: (e.g., % of flow present in stream; riffle depth; gage at bottom of Class I stream; AB2121 equations; DFW flow recommendations; promulgated flow objective in Basin Plan).

C. Cleanup and Restoration Plan

Pursuant to Water Code section 13304, Tier 3 Dischargers shall submit to the Regional Water Board a cleanup and restoration plan, prepared by a California registered civil engineer or professional geologist, that contains the elements listed below. Once the cleanup and restoration plan is approved by the Executive Officer, the Discharger shall implement the plan, incorporating any additional conditions or monitoring and reporting provision included in the Executive Officer's approval.

1. Map of property including areas of operations, roads, water bodies, all cleared/developed areas, all structures, and general drainage patterns and directions.

2. Design drawings at 1:12000 or larger scale (e.g., 1:6000) that delineate existing site conditions including existing and buried surface waters , projected restored slopes and surface waters, restoration plan work points, spoil disposal sites, re-vegetation planting areas, and any other features or site construction details to complete the scope of work; design and construction standards for earthen material compaction and stabilization and for re-planting of exposed soils with native vegetation; and erosion control methods and standards for unanticipated precipitation during remediation.

3. Plan and Schedule to accomplish the following:

   a. Remove all earthen material and other discharged or placed debris from surface waters, including instream dams.

   b. Restore the vegetative and hydrological functions of the damaged streams wetlands, and drainages to ensure the long term recovery of the affected surface waters.

   c. Provide for free-draining, dispersed runoff from all disturbed surfaces, such that hydrologic connectivity is eliminated, gullying is prevented, and water is directed to stable slope areas. Unstable sidecast spoil materials shall be removed or stabilized so they do not fail and deliver sediment to a nearby watercourse.

d. Replant the slopes and streamside areas with native vegetation to increase shading, prevent erosion and provide streamside protection.

e. Control erosion and sediment delivery prior to, during, and following site restoration efforts, until vegetation is established.

4. To the extent possible, all work shall be completed prior to the first winter after plan approval. Depending on the extent of the work, the timing of plan submittal and approval, need for permits by other agencies, or other restrictions, it may require more than one construction season to complete work. The plan shall provide details and specifications, both in the narrative plan and as applicable in design drawings, for site winterization as needed to minimize and control erosion and sediment delivery over winter periods while construction is underway.

5. Monitoring and reporting element to document timely completion and effectiveness of specified cleanup actions in the plan, including the implementation and effectiveness of management measures, according to the schedule approved in the plan.

6. The cleanup and restoration plan shall incorporate all applicable management measures identified in the accompanying CEQA document and Appendix B.

7. Development of the cleanup and restoration plan shall include consideration of (and make appropriate provision for) site-specific conditions or features that may warrant additional special BMPs, such as presence of expansive soils, presence of landslides and unstable features, proximity to earthquake faults or 100-year floodplains, or other unique geological or paleontological features. If the cleanup site is located in an Alquist-Priolo Earthquake Fault Zone or an area with substantial evidence of a known fault, the cleanup and restoration plan will consider fault rupture hazard during the siting, design, and monitoring of applicable site features in order to minimize the impact to public safety. The cleanup and restoration plan shall also consider hazards associated with strong seismic ground shaking and seismic-related ground failure, including liquefaction, during the siting, design, and monitoring of applicable site features in order to minimize the impact to public safety.

8. Any hazardous waste generated from the demolition of structures or impoundments shall be disposed of in designated hazardous waste landfills.

D. Monitoring and Reporting Program

Tier 1 Dischargers shall inspect their site periodically and re-certify that it meets Tier 1 characteristics and standard conditions annually (Appendix C). Annual updates to the certification shall be maintained on site with the initial certification and copy of the Order.

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.

Under an approved third party program, watershed-scale program effectiveness shall be reported in a consistent/compatible manner (i.e., consistent with how other approved third party programs assisting with implementation of this Order are reporting) that enables region-wide comparison of subwatershed reports. The required summary information includes the following information:

- Number of enrollees in each tier category, by subwatershed;
- Total fees charged;
- Compliance status (for example, how many Tier 2 Dischargers are either in the process of developing water resource protection plans, how many have developed and are implementing plans, how many are in compliance with standard conditions, how effective are BMPs, what changes or improvements are proposed to improve program effectiveness or compliance rate); and
- Monitoring information for each of the parameters listed in the MRP.

Tier 3 Dischargers shall incorporate a monitoring and reporting element into their cleanup and restoration plans for approval by the Executive Officer. At a minimum, the monitoring and reporting must document completion and effectiveness of the specified cleanup actions in the plan. Tier 3 Dischargers shall also submit an annual report (Appendix C) by March 31 of each year.

Regional Water Board staff will develop and implement comprehensive activity tracking by mapping Tier 3 cleanup sites and individual stream crossings proposed for replacement under Tier 2 water resource protection plans. Staff may draw information from Geotracker and SMARTS, the North Coast Region's timber tracking database, and other available sources to help correlate cleanups activities or restoration or remediation work in streams or wetlands that are proposed and underway in individual watersheds and subwatersheds. Regional Water Board staff will direct activity timing under this Order as necessary to limit the number of individual potential construction-related impacts occurring at any given time in any given watershed. Specifically, where cleanup activities or restoration or remediation work in streams or wetlands are proposed to be implemented on several properties within a subwatershed, staff will consult with project consultants and other sources to stagger the timing of implementation.

II. Procedure

A. Tier 1, 2, and 3 Dischargers shall apply for coverage by submitting a completed Notice of Intent (NOI) Form (Appendix A) and monitoring report (Appendix C) by February 15, 2016 (~180 days from adoption of the Order) or upon 30 days of notification from the Regional Water Board staff to comply with requirements of this Order. Dischargers who begin operations after the effective date of this Order must file an NOI prior to commencement of cultivation operations. Tier 1 and 2 Dischargers may enroll through an approved third party program stating their commitment to comply with the conditions of the Order. The submission of the NOI, either directly to the Regional Water Board or an approved third party program constitutes notice that the Discharger requests and receives authorization to discharge pursuant to this Order. If a Discharger ceases operations and wants to terminate permit coverage, the Discharger shall notify the Regional Water Board or an approved third party. The Discharger must demonstrate compliance with standard conditions and water resource protection plans and cleanup and restoration plans, as applicable.

Completed forms shall be signed and sent to the Regional Water Board, to the following address:

Northcoast@waterboards.ca.gov (preferable)

or signed and certified to:

North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Dischargers under Tier 2 shall develop and begin implementing a water resource protection plan by 180 days from the submittal date of the NOI. Dischargers under Tier 3 shall develop and submit to the Regional Water Board a cleanup and restoration plan by 45 days from the submittal date of the NOI. Dischargers under Tier 3 shall begin implementation of the cleanup and restoration plan no later than 30 days from the Executive Officer's approval of the plan (unless the approved cleanup plan provides alternative timelines) and complete the cleanup and restoration work consistent with the approved timelines. The Executive Officer has discretion to require plan submittals earlier or later, and may grant a time extension for plan submittal or deadlines in the cleanup and restoration plan for good cause shown.

B. Any third party program must receive approval by the Regional Water Board Executive Officer in order to serve individual dischargers under the Order. The Executive Officer has the authority to deny a third party application based on lack of experience/qualifications, incomplete applications, insufficient detail/scope of proposed work, or at their discretion. To ensure that a third party program is qualified to assist with implementation of this Order for Tier 1

and/or Tier 2 enrollees, third parties must submit a proposal to the Regional Water Board. Third party proposals shall include the following as applicable:

1. Program Purpose: Statement of the functions listed in Order finding 21 which the third party proposes to fulfill, including procedures to implement the proposed functions/roles.

2. Technical experience and qualifications of the third party program necessary for implementation of technical functions/roles.

3. Demonstration of organizational capacity and funding mechanisms to administer the program.

4. Sample water resource protection plan.

5. Framework for annual compliance reporting to CIWQS or other program, as approved by the Executive Officer.

6. Sample liability waiver that demonstrates that the responsibility falls to the landowner/operator of the site to meet the stated terms and conditions of this Order.

7. Framework for confirmation of compliance with standard conditions and developed plans and addressing non-compliance by individual third party enrollees.

C. If a third party proposal is approved, the Executive Officer will send an approval letter that will identify the third party's geographic boundaries and/or applicable responsibilities for coverage of selected Tier(s). All approved third party programs will be listed on the North Coast Regional Water Board website. The approval is conditional and subject to a probationary period.

III. General Terms and Provisions

A. Dischargers shall comply with all mitigation measures identified in the accompanying mitigated negative declaration. CEQA mitigation measures shall constitute enforceable conditions under this Order.

B. All erosion and sediment control devices, management measures and mitigations prescribed in a water resource protection plan shall be maintained in good working order.

C. Compliance with Order conditions will ensure that no significant environmental impact to water quality occurs from an activity covered by this Order. Activities that have potentially significant impacts to water quality that cannot be reduced

to less than significant levels are not eligible for coverage under this Order and the Discharger(s) will need to submit a Report of Waste Discharge to the Regional Water Board and obtain individual authorization for that activity.

D. Dischargers shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ) for construction projects that disturb one or more acres of soil, specifically for new site preparation and development. Dischargers shall submit to Regional Water Board staff a copy of the Stormwater Pollution Prevention Plan (SWPPP) developed for the site in compliance with that Permit.[27]

E. This Order shall not apply to any discharges for which a WDR or waiver of WDR is issued under a separate action of the state or Regional Water Board.

F. Dischargers shall allow Regional Water Board staff entry onto the affected property, for the purposes of observing, inspecting, and/or collecting samples or other monitoring information to document compliance with this Order.

G. Dischargers shall comply with all applicable water quality standards, requirements, and prohibitions specified in the Basin Plan, and policies adopted by the State Water Board.

H. Projects covered under this Order shall not discharge substances in concentrations toxic to human, plant, animal or aquatic life. Projects covered under this Order shall not discharge waste classified as "hazardous" as defined in California Code of Regulations, title 22, section 66261 and Water Code section 13173.

I. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). Dischargers are responsible for meeting all other applicable requirements of local, state, and federal regulations and/or required permits.

J. Operations shall not occur within 250 feet of: 1) public, preschool, and K-12 facilities; 2) federal or state parks; 3) military bases; and 4) Native American cultural sites.

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[27] Construction activities subject to the Construction General Permit include clearing, grading and disturbances to the ground such as stockpiling, or excavation, but do not include regular maintenance activities performed to repair roads and related facilities.

K. Dischargers shall not cause a pollution, contamination, or nuisance as defined by Water Code section 13050.

L. This Order does not preclude the need for permits that may be required by other governmental agencies, including necessary certification and permitting for the application of pesticides and herbicides.

M. Nothing in this Order shall be construed to mean that the Regional Water Board is authorizing, permitting, endorsing, or approving the cultivation of cannabis. This Order only places restrictions on waste discharges and other controllable water quality factors from the activity to the extent that the activity is occurring.

N. Subject to approval from the Executive Officer, Dischargers with operations that are similar to or whose potential impacts to water resources are similar to those posed by cannabis cultivation may also elect to enroll and comply with this Order to ensure their discharges are authorized.

O. This Order shall not create a vested right and all such discharges shall be considered a privilege, as provided for in Water Code section 13268.

P. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state law, including but not limited to administrative civil penalties under Water Code section 13350.

Q. Nothing in this Order precludes actions to enforce any directly applicable prohibition or provisions found in the Basin Plan, or to require independent clean up and abatement of existing sources of pollution, where appropriate.

R. This Order expires upon Regional Water Board adoption of a superseding regulatory action or after five years, whichever occurs first. This Order is conditional and may be terminated at any time by the State Water Resources Control Board or Regional Water Board.

S. Appendices A, C, D, and E to this Order are procedural elements that may be updated by Executive Officer at any time.

IV. General Prohibitions

A. The placement or disposal of earthen materials, soil, silt, plant waste, slash, or other organic, or inorganic refuse, rubbish, and solid waste, bio-stimulatory substances and/or water containing elevated temperatures above background conditions, and/or chemicals, such as but not limited to pesticides, fertilizers, or other substances into any stream or watercourse is prohibited .

B. The placing or disposal of earthen materials, soil, silt, plant waste, slash, or other organic, or inorganic refuse, rubbish, and solid waste, water containing elevated temperatures above background conditions, chemicals, bio-stimulatory substances, and/or chemicals such as but not limited to pesticides, fertilizers or other substances in a location where such may discharge into streams or watercourses is prohibited.

C. The discharge of any waste not specifically regulated by this order is prohibited.

V. General 401 Water Quality Certification

THE REGIONAL WATER BOARD HEREBY CERTIFIES that projects in compliance with the conditions of the Order above will comply with sections 301, 302, 303, 306, and 307 of the Clean Water Act, and with applicable provisions of State law, subject to the following additional terms and conditions:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and title 23, California Code of Regulations, section 3867.

2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to title 23, California Code of Regulations, section 3855, subdivision (b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. Certification is conditioned upon total payment of any fee required under California Code of Regulations, title 23, section 3833, subdivision (b)(3). Annual Fee Schedules are detailed in the California Code of Regulation, title 23, section 2200.

4. This general certification applies only to projects subject to the waiver. Dischargers may seek coverage under this Order for similar activities subject to public notice and approval by the Regional Water Board Executive Officer.

5. A Discharger seeking water quality certification coverage for stream crossing replacements or for proposed remediation/cleanup/restoration activities in surface waters shall notify the Regional Water Board 60 days prior to commencement of the activity and submit information regarding the construction schedule and other relevant information including an appropriate fee. Work may not commence until the discharger is provided authorization by the Executive Officer of the Regional Water Board either through coverage under this Order or through another individual or general water quality certification.

6. The authorization of this certification for any General Water Quality Certification or dredge and fill activities expires five (5) years from the date the activity commences.

7. Upon completion of the project, Discharger shall submit a Notice of Completion certifying that all the conditions and monitoring and reporting requirements of this Order have been met.

8. All Order requirements, standard conditions, general terms and provisions, and prohibitions are enforceable conditions of this General Water Quality Certification.

9. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state law. For purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

10. This General Water Quality Certification portion of the Order may be modified as needed by the Executive Officer of the Regional Water Board.

I, Matthias St. John, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region on August 13, 2015.

Matthias St John 2015.08.20 10:41:41 -07'00'

Water Boards

Matthias St. John
Executive Officer

15_0023_Cannabis_Order

Appendices

Appendix A: Enrollment Form
Appendix B: Best Management Practices
Appendix C: Monitoring and Reporting Program
Appendix D: Surface Water Correction Workplan Requirements
Appendix E1: Department of Pesticide Regulation Document – Legal Pest Management Practices for Marijuana Growers in California
Appendix E2: Department of Pesticide Regulation Informational Document - Pesticide Use on Marijuana

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

I. Introduction

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

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

II. Standard BMPs for Construction

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

A. General BMPs to Avoid or Minimize Adverse Impacts

Temporal Limitations on Construction

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

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

Limitation on Earthmoving

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

Limitations on Construction Equipment

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

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

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

Revegetation and Removal of Exotic Plants

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

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

Erosion Control

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

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

Miscellaneous

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

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

B. BMPs for Specific Activities

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

The following measures shall be employed:

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

Structure for Water Control and Stream Crossings

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

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

Limitations on Work in Streams and Permanently Ponded Areas

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

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

Temporary Stream Diversion and Dewatering: All Live Streams

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

Protection of Sensitive Species

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

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

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

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

A. Site Maintenance, Erosion Control, Drainage Features

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

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

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

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

B. Stream Crossing Maintenance

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

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

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

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

86. The roadway adjacent to and over the crossing is an area of potential discharge. All road surfaces approaching a crossing shall be drained before the crossing, adequately filtered through vegetation or other material, and not discharged to a watercourse. If turbid water is discharged at a stream crossing, additional measures to control erosion at the source(s) or to remove sediment prior to discharge shall be implemented. Road surfaces shall be of rock, pavement, or other material appropriate for type and level of use.

87. If a culvert is used, the approaches and fill slopes shall be properly compacted during installation and shall be stabilized with rock or other appropriate surface protection to minimize surface erosion and slumping to the receiving waters. If possible, the road surface over the culvert shall have a critical-dip to ensure that if the culvert becomes plugged, water can flow over the road surface without washing away the fill prism. If site-specific conditions do not allow for a critical dip, alternatives such as emergency overflow culverts, oversized culvers, flared inlets, and debris racks may be warranted.

C. Riparian and Wetland Protection and Management:

88. Buffer width will be in compliance with Tier category.

89. Trees within riparian areas shall be retained for natural recruitment to streams. Large woody debris (LWD) shall be retained in stream or within riparian areas. The size of wood that can be beneficial to the stream will vary depending on the size of the stream (i.e., larger pieces of wood are necessary to withstand flows in large streams). In the event that LWD or trees are disturbed during excavation, care shall be taken to separate the LWD from soil. The pieces shall be stockpiled separately until they can be replaced in appropriate locations to enhance instream or riparian conditions. Placement of instream wood for habitat enhancement should be done under the consultation of a qualified professional and in conformance with applicable regulatory permits.

90. Avoidance of disturbance in riparian areas (within 200 feet of a watercourse) should result in protection and restoration of the quality/health of the riparian stand so as to promote: 1) shade and microclimate controls; 2) delivery of wood to channels, 3) slope stability and erosion control, 4) ground cover, and 5) removal of excess nutrients. This recognizes the importance of the riparian zone

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

D. Spoils Management

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

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

E. Water Storage and Use

WATER USE

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

WATER STORAGE

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

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

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

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

F. Irrigation Runoff

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

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

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

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

H. Cultivation-Related Wastes

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

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

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

I. Refuse and Human Waste

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

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

IV. References

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

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

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

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

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

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

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

Sanctuary Forest Water Storage Guide
http://agwaterstewards.org/images/uploads/docs/1213661598_Water_Storage_Guide.pdf

Natural Resources Conservation Service-USDA, "Ponds – Planning, Design, Construction", Agriculture Handbook
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_030362.pdf

Division of Safety of Dams size requirements
http://www.water.ca.gov/damsafety/jurischart/

Water Tanks: Guidelines for Installation and Use
http://dnn7.snydernet.com/_pdf/_septic/Septic%20Catalog%202010.pdf

BEST MANAGEMENT PRACTICES (BMP's) University of California Cooperative Extension
http://www.waterboards.ca.gov/sandiego/water_issues/programs/wine_country/docs/updates081910/ucce_bmps.pdf

California Stormwater Quality Association
Section 4: Source Control BMPs
https://www.casqa.org/sites/default/files/BMPHandbooks/sd-12.pdf

CA DOT Solid Waste Management Plan
http://www.dot.ca.gov/hq/construc/stormwater/WM-05.pdf

State Water Resources Control Board Onsite Wastewater Treatment System (OWTS) policy
http://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf

California Stormwater Quality Association
Section 4: Source Control BMPs
https://www.casqa.org/sites/default/files/BMPHandbooks/sd-32.pdf

California Riparian Habitat Restoration Handbook
http://www.conservation.ca.gov/dlrp/watershedportal/InformationResources/Documents/Restoration_Handbook_Final_Dec09.pdf

The Practical Streambank Bioengineering Guide
http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/idpmcpu116.pdf

150728_KVG_ef_AppendixB_BMP

LEGAL PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWERS IN CALIFORNIA

PESTS OF MARIJUANA IN CALIFORNIA

Marijuana pests vary according to cultivar (variety), whether the plants are grown indoors or outdoors, and where the plants are grown geographically. The pests included in this review are based on two sources: a presentation given in 2013 by Whitney Cranshaw, an extension entomologist at Colorado State University, and a review article by John M. McPartland, a professor of family medicine at the University of Vermont.

HOW TO INTERPRET THE TABLES

Table 1 lists active ingredients not illegal to use on marijuana and the pests that these active ingredients target.

These active ingredients are exempt from **residue tolerance requirements**[1] *and* either exempt from **registration requirements**[2] or registered for a use that's broad enough to include use on marijuana. Residue tolerance requirements are set by U.S. EPA for each pesticide on each food crop and is the amount of pesticide residue allowed to remain in or on each treated crop with "reasonable certainty of no harm." Some pesticides are exempted from the tolerance requirement when they're found to be safe. Some of these pesticides are bacterial-based insect pathogens (e.g., *Bacillus thuringiensis*) or biofungicides (e.g., *Bacillus subtilis*, *Gliocladium virens*).

Active ingredients exempt from registration requirements are mostly food-grade essential oils such as peppermint oil or rosemary oil.

Tables 2 and 3 list pests of marijuana grown outdoors and indoors, and **Table 3** shows pests arranged by the portion of the plant they attack. An explanation of the column labels for Tables 2 and 3 follow.

PESTS. The tables show the most likely pests in California based on Cranshaw's presentation and McPartland's list and gleaned from California-based web sites and blogs. Some pests that drew attention on several blogs (e.g., hemp russet mite) may be worse during drought years. Many have cyclic population fluctuations and others are mainstays of general greenhouse cultivation (e.g., whiteflies, thrips, and fungus gnats). We'll add weeds to this compendium when we have more information.

DAMAGE. For damage caused by greenhouse pests, we derived information from Cranshaw's presentation; for that of outdoor pests when there wasn't any overlap, McPartland's list was used and information from UC IPM for various crops. Accounts of damage by rodents is anecdotal.

IPM PRACTICES. Most of these are standard practices for pests on hosts other than marijuana. For more detailed explanations, see information compiled by the University of California Statewide IPM Program (UC IPM) at www.ipm.ucdavis.edu. You can enter a pest name in the search box (e.g., cutworm) and read about IPM practices for the pest on crops other than marijuana. For marijuana grown indoors, go to the UC IPM home page, click on Agricultural Pests and scroll down the alphabetical list until you reach ornamental nurseries.

Some practices were excluded because they apply to nearly all of the pests. For example, when targeting aphids, whiteflies, and thrips, growers can attract predaceous and parasitic arthropods by planting cover crops (e.g., California buckwheat) and insectary plants—especially those in the carrot, mustard, and sunflower families.

LEGAL PESTICIDES. These are covered above in the Table 1 description and are exempt from **residue tolerance requirements** *and* either exempt from **registration requirements** or registered for a use that is broad enough to include use on marijuana.

Table 4 shows marijuana pests by plant part. Not all of these pests are important, but their collective damage may affect the overall health of the plant.

REFERENCES

Cranshaw, Whitney. 2013. Challenges and opportunities for pest management of medical marijuana in Colorado. Presentation.

McPartland, J.M. 1996. *Cannabis* pests. J. Internatl. Hemp Assoc. 3(2): 49, 52–55.

[1] 40 CFR (Code of Federal Regulations)
[2] under FIFRA section 25(b) and 3 CCR section 6147

Table 1. Active ingredients that are exempt from residue tolerance requirements[a] and either exempt from registration requirements[b] or registered for a use broad enough to include use on marijuana.

ACTIVE INGREDIENT	PEST OR DISEASE
azadirachtin[4]	aphids, whiteflies, fungus gnats, leafminers, cutworms
Bacillus subtilis QST[#1]	root diseases, powdery mildew
Bacillus thuringiensis[#2] subsp. *aizawai* or *kurstaki*	moth larvae (e.g., cutworms, budworms, hemp borer)
Bacillus thuringiensis[#2] subsp. *israelensis*	fly larvae (e.g., fungus gnats)
Beauveria bassiana[#3]	whiteflies, aphids, thrips
cinnamon oil[b]	whiteflies
Gliocladium virens[#1]	root diseases
horticultural oils[4] (petroleum oil)	mites, aphids, whiteflies, thrips; powdery mildew
insecticidal soaps[4] (potassium salts of fatty acids)	aphids, whiteflies, cutworms, budworms
iron phosphate[a]; sodium ferric EDTA[a]	slugs and snails
neem oil[4]	mites; powdery mildew
potassium bicarbonate[a]; sodium bicarbonate[a]	powdery mildew
predatory nematodes[4]	fungus gnats
rosemary + peppermint essential oils[b]	whiteflies
sulfur[4]	mites, hemp flea beetles
Trichoderma harzianum[#1]	root diseases

[a] 40 CFR (Code of Federal Regulations)

[b] FIFRA §25(b) and 3 CCR §6147 [FIFRA = the Federal Insecticide, Fungicide, and Rodenticide Act; CCR = California Code of Regulations]

[1] Biofungicides

[2] Bacterial-based insect pathogen

[3] Fungal-based insect pathogen

Table 2. PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWN OUTDOORS

PEST	DAMAGE	IPM PRACTICES (monitoring; cultural, physical, mechanical, biological)	PESTICIDES
MITES & INSECTS			
two-spotted spider mites *Tetranychus urticae*	Suck plant sap; stipple **leaves**	▪ Keep dust down by hosing off plants (if dust is a problem) ▪ Release predatory mites	neem oil, horticultural oil, sulfur
hemp russet mites *Aculops cannabicola*	Suck plant sap; kill **leaves** and **flowers**	▪ Release predatory mites	neem oil, horticultural oil, sulfur
crickets (field & house) *Gryllus desertus, G. chinensis, Acheta domesticus*	Eat **seedlings**	▪ Use floating row covers or cones on individual plants	—
termites	Eat **roots**	▪ Flood nests	—
leafhoppers	Suck plant sap; weaken plants	▪ Encourage natural enemies by planting nectar sources	horticultural oil or insecticidal soaps for nymphs
aphids *Phorodon cannabis, Myzus persicae, Aphis fabae*	Suck plant sap; weaken plants *P. cannabis* (bhang aphid) vectors tobacco mosaic virus	▪ Hang up yellow sticky cards (alates) ▪ Hose off plants	azadirachtin, horticultural oil, insecticidal soaps, *Beauveria bassiana*
whiteflies *Trialeurodes vaporariorum, Bemisia tabaci, B. argentifolii*	Suck plant sap; weaken plants	▪ Hang up yellow sticky cards ▪ Reflective plastic mulch	azadirachtin, horticultural oil, insecticidal soaps, rosemary + peppermint oils, *Beauveria bassiana*
leafminers *Liriomyza* spp.	Bore into **roots** and **leaves**	▪ Remove older infested leaves ▪ Use biocontrol: release *Diglyphus* parasitoids	azadirachtin

PEST		DAMAGE	IPM PRACTICES (monitoring; cultural, physical, mechanical, biological)	PESTICIDES
LEPIDOPTERA	**cutworms** *Agrotis ipsilon, A. segetum, Spodoptera litura, S. exigua, Mamestra brassicae* (Noctuidae)	Eat seedlings	▪ Use pheromone traps to detect adults. ▪ Remove weeds, which serve as a reservoir for cutworms and other noctuids	Vegetative stage only: Use *Bacillus thuringiensis kurstaki* if egg-laying adults found, insecticidal soap; azadirachtin
	budworms *Helicoverpa armigera, H. zea* (Noctuidae)	Eat flowering buds	▪ Shake plants to dislodge larvae ▪ Remove infested buds ▪ Plant corn as trap crop	Vegetative stage only: Use *Bacillus thuringiensis kurstaki*, insecticidal soap
	hemp borers (= hemp moth) *Grapholita delineana* (Tortricidae)	Bore through stalks (caterpillars)	▪ Plow crop under in fall; remove plants still standing; remove nearby hemp and hop plants ▪ Use light traps at night for monitoring ▪ Use biocontrol: *Trichogramma*	*Bacillus thuringiensis kurstaki*
COLEOPTERA	**hemp flea beetles** *Psylliodes attenuata* (Chrysomelidae)	Bore into stems (grubs); feed on seedlings and leaves of larger plants (beetles)	▪ Use reflective mulches ▪ Plant trap crops (e.g., radish or Chinese mustard)	sulfur
	scarab grubs (possibly other beetles)	Bore into stems	▪ Use parasitic nematodes	—
MAMMALS				
mice (e.g., house mice)		Eat young sprouts and seeds	▪ Double wrap a 3'-tall chicken wire fence around plants ▪ Trap (minus rodenticides) ▪ Mount barn owl boxes	Rodenticides (see footnote below)
roof rats, *Rattus rattus* **wood rats**, *Neotoma* spp.		Strip bark from stems to build nests		
pocket gophers, *Thomomys* spp.		Tunnel through planting areas; feed on plants; gnaw on irrigation lines	▪ Install underground fencing (hardware cloth or ¾" mesh poultry wire) ▪ Mount barn owl boxes	
Columbian black-tailed deer, *Odocoileus hemionus columbianus*		Knock over plants; leave dander, droppings, and ticks behind	▪ Install deer fencing	—
black bears, *Ursus americana*		Knock over plants	▪ Install electric fencing	—

Rodenticides that are not DPR-restricted materials or federally restricted use pesticides *and* are registered for a broad enough use to include use in or around marijuana cultivation sites. If using a rodenticide always read and follow the label and check to make sure that the target rodent is listed. Second-generation anticoagulant products are DPR-restricted materials not labeled for field use and as such, should never be used in or around marijuana cultivation sites.

Table 3. PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWN INDOORS
(e.g., greenhouses, sheds, and grow rooms)

PEST	DAMAGE	IPM PRACTICES (monitoring; cultural, physical, mechanical, biological)	PESTICIDES
DISEASES			
powdery mildew *Sphaerotheca macularis*	Grow on leaves as white and gray powdery patches	▪ Use fans to improve air circulation	horticultural oil; neem oil; sodium bicarbonate, potassium bicarbonate; *Bacillus subtilis*
pythium root rots *Pythium* spp.	Attack root tips and worsens when plants grow in wet soil	▪ Avoid hydroponic production or wet soil conditions	Incorporate biocontrol agents into root-growing media (e.g., *Gliocladium virens, Trichoderma harzianum, Bacillus subtilis*)
MITES & INSECTS			
two-spotted spider mite *Tetranychus urticae*	Suck plant sap; stipple leaves	▪ DisInfest cuttings before introducing to growing area ▪ Release predatory mites	neem oil, horticultural oil, sulfur
leafhoppers	Suck plant sap; weaken plants	▪ Encourage natural enemies by planting nectar sources	horticultural oil or insecticidal soaps for nymphs
whiteflies *Trialeurodes vaporariorum, Bemisia tabaci, B. argentifolii*	Suck plant sap; weaken plants	▪ Hang up yellow sticky cards ▪ Use biocontrol: *Encarsia formosa*	azadirachtin, *Beauveria bassiana*, cinnamon oil, horticultural oil
thrips *Hellothrips haemorrhoidalis, Frankliniella occidentalis, Thrips tabaci*	Stipple leaves and vector viruses	▪ Hang up yellow or blue sticky cards	
dark-winged fungus gnats (Diptera: Sciaridae) *Bradysia* spp.	Damage roots and stunt plant growth	▪ Avoid overwatering ▪ Use growing media that deters gnat development ▪ Hang up yellow sticky cards ▪ Use biocontrol: soil-dwelling predatory mites	*Bacillus thuringiensis israelensis* (BTI); predatory nematodes; azadirachtin soil drenches

Table 4. PESTS OF MARIJUANA BY PLANT PART

Seedlings	Flower & Leaf (grown outdoors)	Flower & Leaf (grown indoors)	Stalk & Stem	Root
cutworms	**hemp flea beetle**	**spider mites**	**hemp borer**	**hemp flea beetle**
birds	**hemp borer**	**aphids**	**rats**	**white root grubs**
hemp flea beetle	**budworms**	**whiteflies**		root maggots
crickets	**leafminers**	**thrips**		**termites** & ants
slugs		leafhoppers		**fungus gnats**
rodents				wireworms

PESTICIDE USE ON MARIJUANA

The following is being provided for informational purposes only and does not authorize, permit, endorse, or in any way approve the use, sale, cultivation, or any other activity associated with marijuana. Any such activity is subject to prosecution under federal law.

PESTICIDE REGISTRATION REQUIREMENTS

- Pesticides must be registered by both the U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Pesticide Regulation (DPR) before they can be sold and used in California.
- There are no pesticides registered specifically for use directly on marijuana and the use of pesticides on marijuana plants has not been reviewed for safety or human health effects.
- Under California law, the only pesticide products not illegal to use on marijuana are those that contain an active ingredient that is exempt from residue-tolerance requirements (*See* Attachment); and
  - Registered and labeled for a use that is broad enough to include use on marijuana (e.g. unspecified green plants); or
  - Exempt from registration requirements as a minimum risk pesticide under FIFRA section 25(b) and 3 CCR § 6147. (FAC §§ 12973, 12995; 3 CCR § 6490.)

PESTICIDE USE REQUIRMENTS

- Before using any pesticide, ALWAYS read and follow the pesticide label. **The label is the law**
- If you apply pesticides to a field, you must obtain an operator identification number from the County Agricultural Commissioner and submit monthly pesticide use reports to that office. (FAC § 11408; 3 CCR § 6622; 3 CCR § 6627.) Note: No operator identification number will be issued in any local jurisdiction that prohibits marijuana cultivation.
- U.S. EPA designates certain pesticide products as federally "Restricted Use" products when they determine those products may cause unreasonable adverse effects even when used as directed on the product labeling. Restricted Use pesticides are limited to use by certified applicators, or to those under the supervision of a certified applicator.
- DPR designates certain pesticide active ingredients as California "Restricted Materials" when they determine those pesticides are especially hazardous to human health or the environment. Restricted Materials require a permit issued by the County Agricultural Commissioner. Permits will not be issued for marijuana cultivation sites. (FAC § 14001, et seq.; 3 CCR § 6400.)
- Employers must protect their workers from exposure to pesticides. State law requires that employers follow the pesticide label and:
  - Provide required personal protective equipment;
  - Provide required training and access to pesticide labels and safety information; and
  - Properly store, handle, and dispose of pesticides.

  (*See* Compliance Assistance Booklet; 3 CCR § 6670, et seq.; 3 CCR § 6700, et seq.; < http://www.cdpr.ca.gov/docs/enforce/cmpliast/bkltmenu.htm >.)

RODENTICIDE USE

- Rodenticides that are designated as California Restricted Materials cannot be used; and those that are only designated as federally Restricted Use products can only be used by a certified commercial applicator. See Above.
- There are some rodenticides labeled for below ground applications that are not designated as California Restricted Materials or federally Restricted Use pesticides that can be used if consistent with the label.
- The following rodent repellants may be used in and around marijuana cultivation sites consistent with the label:
  - Capiscum Oleoresin
  - Garlic
  - Putrescent Whole Egg Solids

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

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

To obtain authorization, dischargers must complete and submit this NOI form, encompassing sections I and II, complete and submit the reporting information required in Appendix C of the Order, and submit the appropriate fee. The reporting form in Appendix C must be submitted annually by March 31 thereafter and an annual fee is subject to a separate invoicing from the State Water Board. Any additional documentation required by the Order, such as a water resource protection plan, site map, and monitoring records must be completed and secured on-site, to be made available upon request by the Regional Water Board. This NOI form must be submitted upon enrollment and the discharger shall amend and resubmit the NOI within 30 days of changed site conditions that result in a change in Tier status.

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

Forms submitted to the Regional Water Board shall be submitted electronically to NorthCoast@waterboards.ca.gov or, 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.

Fee payments shall be made payable either to an approved third party or the State Water Resource Control Board (SWRCB) according to the schedule in section 2200.7 of the Water Code. Approved third parties that collect fees from their enrollees are required to submit the fees to the Regional Water Board. Initial payments shall be submitted to: North Coast Regional Water Quality Control Board 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403. Invoices will be issued annually, thereafter.

I. Discharger Information

First Name, Middle Initial: Phuoc

Last Name: Truong

Mailing Address:

Street: 9315 Bolsa Ave. #580

City: Westminster

State: CA ZIP: 92683 Phone Number: 310-666-9658

Email: jimmyca714@gmail.com

II. Site Information

Site Address:

Street: 2498 Greenwood Heights Dr.

City: Knelland

State: CA ZIP: 95549

Subwatershed (HUC-12)

*12-digit HUC-12 code available at http://laspub.epa.gov/apex/grts/f?p=110:95:::NO::APP_SHOW_HIDE:

180101020605

Assessor's Parcel Number (APN)

402-021-050

Please check one of the following boxes to indicate which Tier you are enrolling under:

☐ Tier 1 ☑ Tier 2 ☐ Tier 3

Under Tier 2, water resource protection plans must be developed within 180 days of submittal of this NOI form. Under Tier 3, cleanup and restoration plans must be submitted to the Regional Water Board within 45 days of submittal of this NOI form. Tier 3 enrollees that are cultivating must also be enrolled and comply with Tier 2 conditions.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. The information contained in this document and all attachments is, to the best of my knowledge and belief, true, accurate, and complete. I agree to monitor and report on my site in compliance with the Order, including the Monitoring and Reporting Program (Appendix C) truthfully, accurately, and completely; complete Sections I and II, above; keep a copy of the Order, this NOI, the annual monitoring and reporting documents and, if applicable, the water resource protection plan and cleanup and restoration plan document(s) on site, and make them available to Water Board staff upon request. If there is a change in Tier status based on changed site conditions, the changes must be documented, appended to this document, and resubmitted to either the Regional Water Board or, if applicable, an approved third party.

Print name: Phuoc Truong

Signature: _____ **Date:** _____

Order No. R1-2015-0023
REPORTING FORM

A. Site WDID: TBD

B. Subwatershed (HUC-12)[2]: 180101020605

C. Enrollment date: 6/30/2017

D. Reporting date: 6/30/2017

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

☐ Tier 1 ■ Tier 2 ☐ Tier 3

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

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

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

ii. Tier 2 sites:

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

If NO, expected date when plan will be ready and implementation will begin: 12/30/2017

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

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

REPORTING FORM
Page 2/5

II. Tier 2 sites continued:

b. Check below as to whether or not the site meets Standard Conditions under Order R1-2015-0023, section I.A. If a standard condition is not yet met, please indicate the expected date of compliance as identified in the Water Resource Protection Plan. Upon initial enrollment, provide an estimated expected date of compliance.

Standard Condition Met	If NO, expected date of compliance
1. Site maintenance, erosion control, and drainage features Y☐/N■	October 15, 2018
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■	October 15, 2018
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■	October 15, 20218

c. All management measures are being implemented as part of the Water Resource Protection Plan? Y☐/N■

If YES, do management measures appear to be effective in preventing and minimizing discharges of waste to surface water? Y☐/N☐

If management measures do not appear to be effective, are additional measures being implemented iteratively to prevent and minimize discharges of waste to surface water? Y☐/N☐

If NO, describe management measures or practices that have not been effective in preventing and minimizing discharges of waste to surface water, if applicable. Describe plans for new or additional management measures to prevent and minimize discharges of waste, if applicable. Attach additional sheets as necessary.

The Water Resource Protection Plan is in the process of being written.

REPORTING FORM
Page 3/5

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

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

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

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

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

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

_____

☐ Instream work anticipated to occur between the following dates: _____

iii. Tier 2* sites:

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

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

All Standard Conditions met? Y☐/N☐

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

iv. Tier 3 Sites:

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

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

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

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

Instream work anticipated to occur between the following dates:_____

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

REPORTING FORM
Page 4/5

v. For All Sites:

Annual Reporting Period (Calendar Year), or CHECK HERE ■ if this is the report accompanying initial enrollment.

0	1	0	1			TO	1	2	3	1		
Month/Day/Year							Month/Day/Year					

(See Order at page 6 for details regarding cultivation area and slope measurements, and watercourse definitions).

Total cultivation area (square feet)	10,000 SQ.FT
Distance to surface waters (feet) from nearest edge of each cultivation area or associated facility. Provide distance measurement for each cultivated area separately, as appropriate.	870-FT
Average slope (percent slope) of each cultivated area List each cultivated area separately, as appropriate.	9-12%
Total number of road crossings of surface waters Surface waters include wetlands and Class I, II, or III watercourses.	0
Annual soil amendment and chemical use (pounds or gallons). Total mass and/or volume of soil amendment and/or chemical usage by type, product name, and nutrient content such as N-P-K ratio, if applicable.*	See Attached
Total water storage capacity (gallons or acre feet)	See Attached

Total surface water diversion by month (gallons or acre feet)*

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
See	Attached										

Water input to storage by source and month (gallons or acre-feet) Report water volume input to storage, listing each source separately. This may include inputs from rainfall catchment, surface water diversions, groundwater pumping, or water delivery. If water is delivered, list delivery date, delivery volume, and name and address of water purveyor.*

Source	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
See Attached												

Water use by source and month (gallons or acre feet) Report water volume used, listing each source separately. This may include use of stored water, immediate use of pumped groundwater, diverted surface water, or delivered water. If water is delivered, list delivery date, delivery volume, and name and address of water purveyor*

Source	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
See Attached												

* Upon initial enrollment only, a best estimate is acceptable for reporting annual soil amendment and chemical use, monthly water stored, and monthly water use. Attach additional sheets if more space is needed for your responses.

REPORTING FORM
Page 5/5

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

Print name: Matti Nylander

Signature: Matt Nylander Digitally signed by Matt Nylander Date: 2017.07.05 11:55:17 -07'00' **Date:** _____

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

Organization Name (if applicable):
Green Road Consulting

Prepared by:
First Name, Middle Initial
Matti A

Last Name
Nylander

Preparer Address:
Street
1650 Central Ave Suite C

City
Mcxinleyville

State CA ZIP 95519

Phone Number:
707 630 5041

Email:
Mattigreenroadconsulting.com

Water Use and Cultivation Form

GREEN ROAD CONSULTING

Name:	Phuoc Truong
APN:	403-021-050
WDID:	TBD
Reporting Year:	2017
Storage (Gallons):	39,300
Total Cultivation (ft²):	10,000

Cultivation Information				
Cultivation Area	Distance to Watercourse (ft)	Watercourse Classification	Average Slope	Area (ft²)
Area 1	500	Class II	6-12%	10,000

Total Water Surface Diversion (Gallons)													
Source	January	February	March	April	May	June	July	August	September	October	November	December	Total
Spring	-	-	-	8,625	9,645	5,500	5,300	5,300	3,300	3,300	-		40,493

Water Input to Storage by Source (Gallons)													
Source to Storage	January	February	March	April	May	June	July	August	September	October	November	December	Total
Rain Catch - Tanks*	13,000	30,000	6,400									10,000	59,500

Water Use by Source (Gallons)													
Use from Source	January	February	March	April	May	June	July	August	September	October	November	December	Total
Domestic - Spring*				3,300	3,300	3,300	3,400	3,400	4,400	5,500			22,100
Cultivation - Storage*						2,500	8,165	8,570	7,810	6,745			[illegible]
Cultivation - Spring*				5,325	6,645								11,970

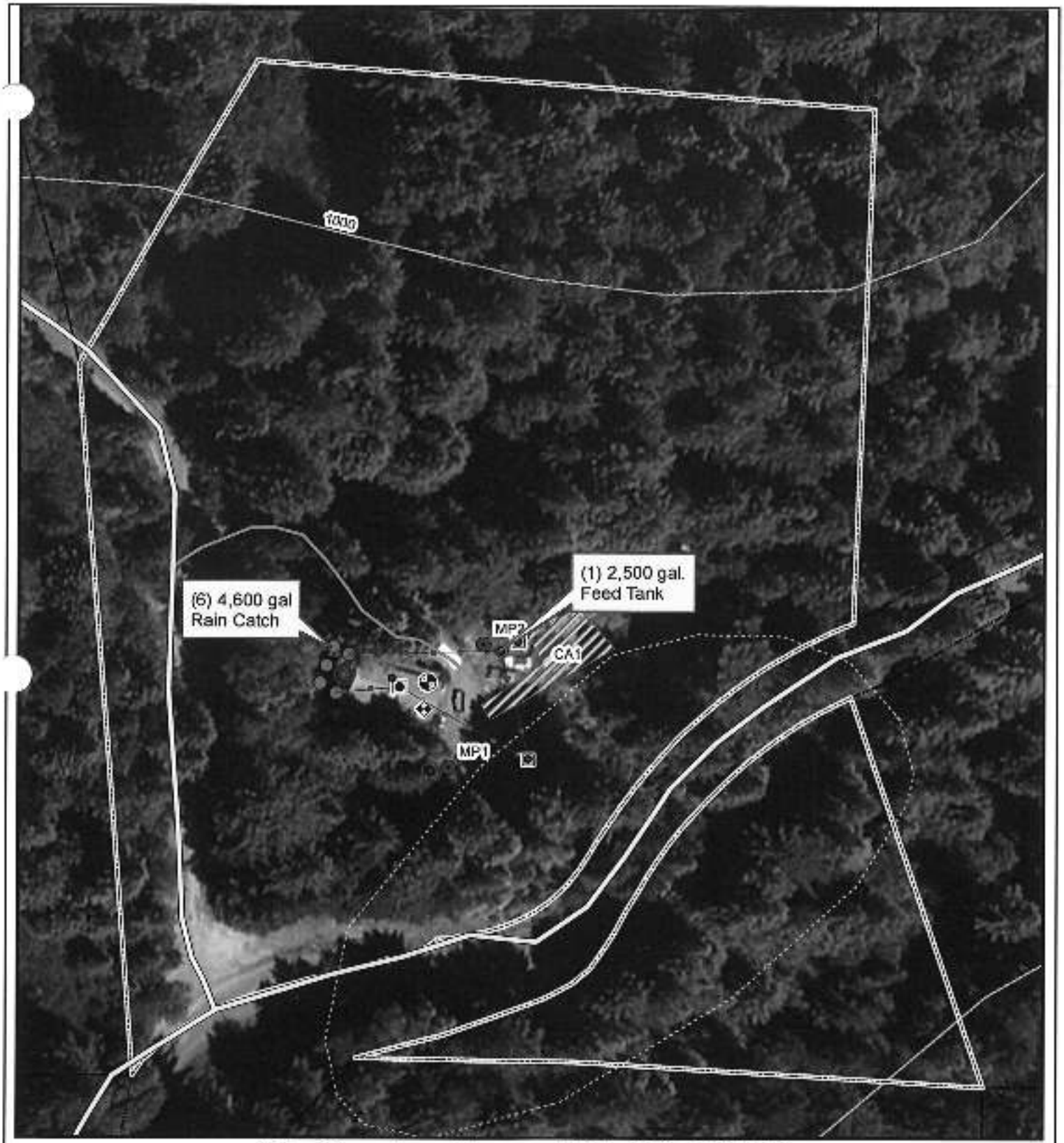
* Water use is estimated from the best information available, if water meters are not installed.

Standard Conditions to Address	Brief Description
Site Maintenance, Erosion Control, and Drainage Features	The access road on the site is very short (~150 ft) and will need to be maintained and rocked. Also the vehicle parking area was bare soil and will need to be rocked.
Water Storage and Use	The Registrant utilizes a rain catchment system to fill the 49,400 gallons of water storage for cultivation. The parcel also uses a spring water source that is located on the property for domestic uses and cannabis. Appropriated water rights have not been obtained for the diversion and the Registrant will obtain the proper water rights for the diversion when available.
Refuse and Human Waste	The site was purchased in as is condition with many years of trash piled up in the yard. The new owner has been making a considerable effort in removing the trash. There is still trash through out the site and it will need to be brought to the proper waste disposal center.

Name:	Phuoc Truong
APN:	402-021-050
Reporting Year:	2017
WDID #:	TBD

GREEN ROAD CONSULTING

Chemical Use			
Product Name	Chemical Type *(Petroudeum, Fertilizer, Fungicide,...)*	N-P-K or Active Ingredient	Annual Use (lbs or gallons)
CES Micro	Fertilizer	6-0-0	15 Gallons
Earth Juice Hybrix	Fertilizer	Molasses	20 Gallons
CES Bloom	Fertilizer	0-6-5	25 Gallons
Maxsee	Fertilizer	16-16-16	30 lbs
Royal Gold	Amendment	NA	200 lbs



Site Overview Map APN: 402-021-050

- Parcel Boundary
- Cultivation Area (CA)
- Permanent Road
- Seasonal Road
- Map Point (MP)
- Residence
- Storage Shed
- Fuel Storage
- Fertilizer Storage

Water Line

- Domestic
- Irrigation
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Spoils
- Water Tank

N W E S

Contour Interval: 40ft
Imagery: 2016 NAIP

0 50 100 200 Feet

Site Monitoring Form

Name:	Nature's Health Group
APN:	402-021-050
Reporting Year:	
WDID#:	1B170053CHUM
Person Inspecting:	

Reporting Type (circle one): **Before Oct. 15** **Before Dec. 15** **After a 3" Rain Event in 24-hr**

Map Point (MP)	Standard Condition	Issue	Remediation Measure	Installed *(Yes or No)*	Description *(How does it look? Does the remediation measure appear to be effective in minimizing waste discharge to surface water?)*
MP1	**Site Maintenance, Erosion Control, and Drainage Features**	Roads and parking area lack erosion control features.	All will require maintenance and rock armoring		
MP2	**Site Maintenance, Erosion Control, and Drainage Features**	Bare soil in areas around the cultivation area.	Cover bare soil with straw and seed for stabilization.		
MP3	**Cultivation Related Wastes**	Cultivation soil pile without appropriate cover and stabilization.	The Cultivation soil pile will require a wattle perimeter and to be covered during winter.		
NA	**Water storage and use**	Appropriated water rights have yet to be obtained for the diversion.	The enrollee will attain the SIUR for the diversion when available.		

Site Monitoring Form

Map Point (MP)	Standard Condition	Issue	Remediation Measure	Installed *(Yes or No)*	Description *(How does it look? Does the remediation measure appear to be effective in minimizing waste discharge to surface water?)*
NA	**Fertilizers and Soil Amendments**	All fertilizers and soil amendments are stored under the house buck lack secondary containment.	Fertilizers and soil amendments will require secondary containment bins.		
NA	**Refuse and Human Waste**	Trash throughout the site from previous land owner.	Remove the remainder of the trash on property.		

Site Monitoring Form

Name:	Nature's Health Group
APN:	402-021-050
Reporting Year:	
WDID#:	1B170053CHUM
Person Inspecting:	

Reporting Type (circle one): **Before Oct. 15** **Before Dec. 15** **After a 3" Rain Event in 24-hr**

Map Point (MP)	Standard Condition	Issue	Remediation Measure	Installed *(Yes or No)*	Description *(How does it look? Does the remediation measure appear to be effective in minimizing waste discharge to surface water?)*
MP1	Site Maintenance, Erosion Control, and Drainage Features	Roads and parking area lack erosion control features.	All will require maintenance and rock armoring		
MP2	Site Maintenance, Erosion Control, and Drainage Features	Bare soil in areas around the cultivation area.	Cover bare soil with straw and seed for stabilization.		
MP3	Cultivation Related Wastes	Cultivation soil pile without appropriate cover and stabilization.	The Cultivation soil pile will require a wattle perimeter and to be covered during winter.		
NA	Water storage and use	Appropriated water rights have yet to be obtained for the diversion.	The enrollee will attain the SIUR for the diversion when available.		

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NA	Fertilizers and Soil Amendments	All fertilizers and soil amendments are stored under the house buck lack secondary containment.	Fertilizers and soil amendments will require secondary containment bins.		
NA	Refuse and Human Waste	Trash throughout the site from previous land owner.	Remove the remainder of the trash on property.		

Site Monitoring Form

Name:	Nature's Health Group
APN:	402-021-050
Reporting Year:	
WDID#:	1B170053CHUM
Person Inspecting:	

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