Water Resource Protection Plan (WRPP)

for

APN 107-091-003

Located at
905 Lindley Rd.
Honeydew, California

June, 2016

Prepared for:
WD ID# 1B16498CHUM
PWA ID# PWA180101070209-5118
905 Lindley Road, Honeydew, CA

Prepared by:
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1.0 PROJECT SUMMARY

This report documents Pacific Watershed Associate's (PWA)[1] Water Resource Protection Plan (WRPP) for APN 107-091-003 located at 905 Lindley Road, Honeydew, CA, as shown on Figure 1. This property is located approximately 1.9 miles north of Honeydew, Humboldt County, CA, and hereinafter is referred to as the "Project Site." Based on either site conditions and/or total cultivation area, this property falls within **Tier 2** of the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023, Waiver of Waste Discharge and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects ("Order"). Properties that fall into Tier 2 of the Order are required to develop a WRPP. Therefore, as required, this WRPP has been developed for you based on site inspections made by PWA on your property. PWA's recommendations for any remediation or corrective actions are a result of water quality requirements under the Order, including Best Management Practices (BMPs) designed to meet those requirements (Appendix A). This WRPP documents the findings of a site visit conducted on March 29, 2016 by PWA geologists Thomas H. Leroy and Joel Flynn, when a reconnaissance level investigation of the property was conducted and the conditions of the property noted.

2.0 CERTIFICATIONS, LIMITATIONS AND CONDITIONS

This WRPP has been prepared by, or under the responsible charge of, a California licensed professional geologist or engineer at PWA and all information herein, including treatment recommendations, are based on observations, data and information collected by PWA staff.

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

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

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

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

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

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

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

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

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

activities. Additionally, PWA is not responsible for changes in applicable or appropriate standards beyond our control, such as those arising from changes in legislation or regulations, or the broadening of knowledge which may invalidate or alter any of our findings or recommended actions.

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

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

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

Prepared by:

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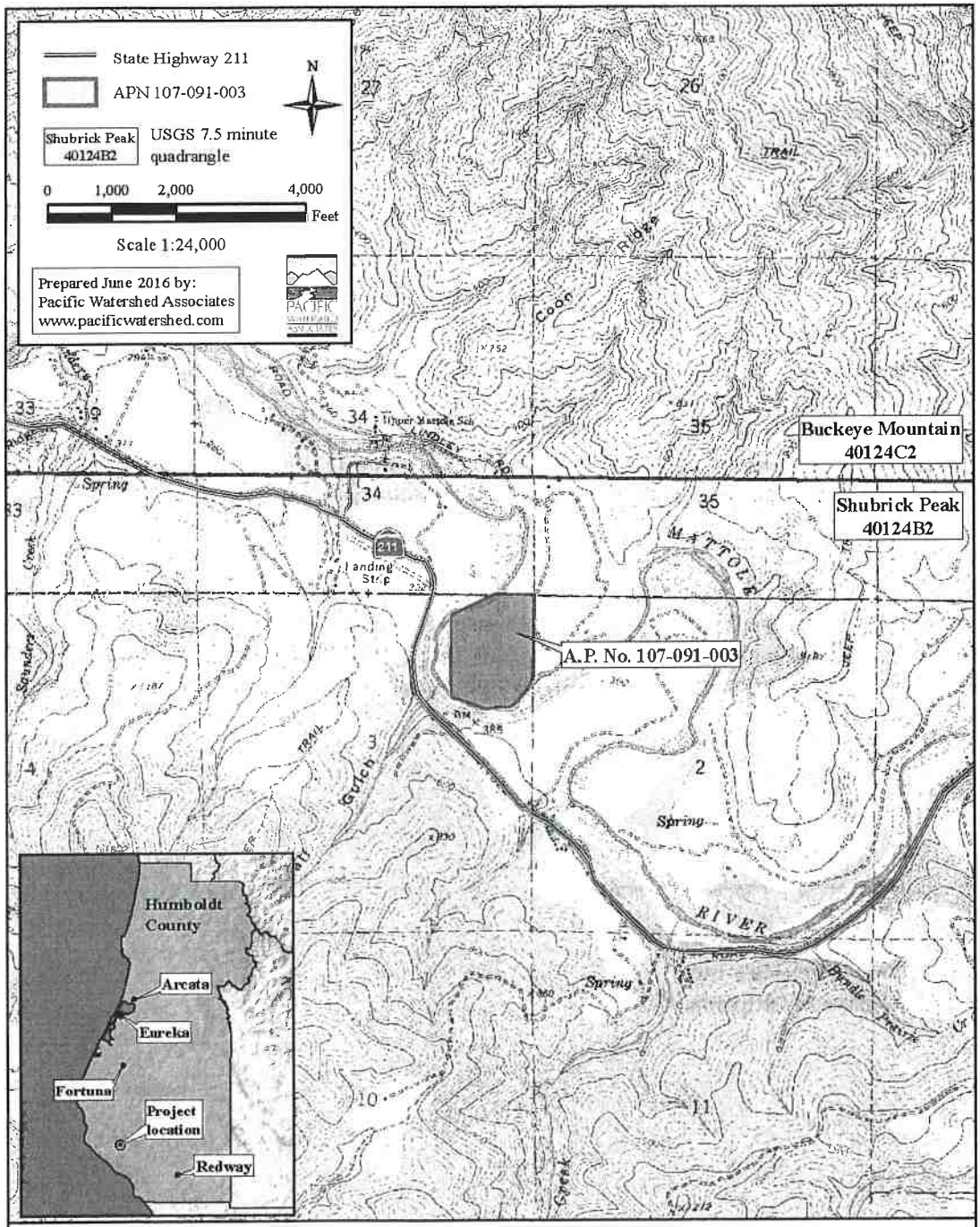

Figure 1. Location map for Water Resource Protection Plan (WRPP), APN 107-091-003, Mattole River, Humboldt County, California.

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3.0 INTRODUCTION

This Water Resources Protection Plan (WRPP) summarizes the results of Pacific Watershed Associate's (PWA) site visit and subsequent analysis and documentation of site conditions on APN 107-091-003 located at 905 Lindley Road, Honeydew, California, as shown on Figure 1 and hereinafter referred to as the "Project Site." The WRPP describes and addresses the required elements and compliance with the 12 Standard Conditions established by the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023 to protect water quality from cannabis cultivation and related activities (Order). PWA has identified certain areas where the Project Site does not fully meet all 12 of the Standard Conditions of the Order. Section 4, below, identifies and discusses each of the 12 Standard Conditions as related to your property with regard to compliance with the NCRWQCB's Order.

The WRPP contains the following required sections:

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

4.0 STANDARD CONDITIONS CHECKLIST FOR APN 107-091-003 as of 3/29/2016

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

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

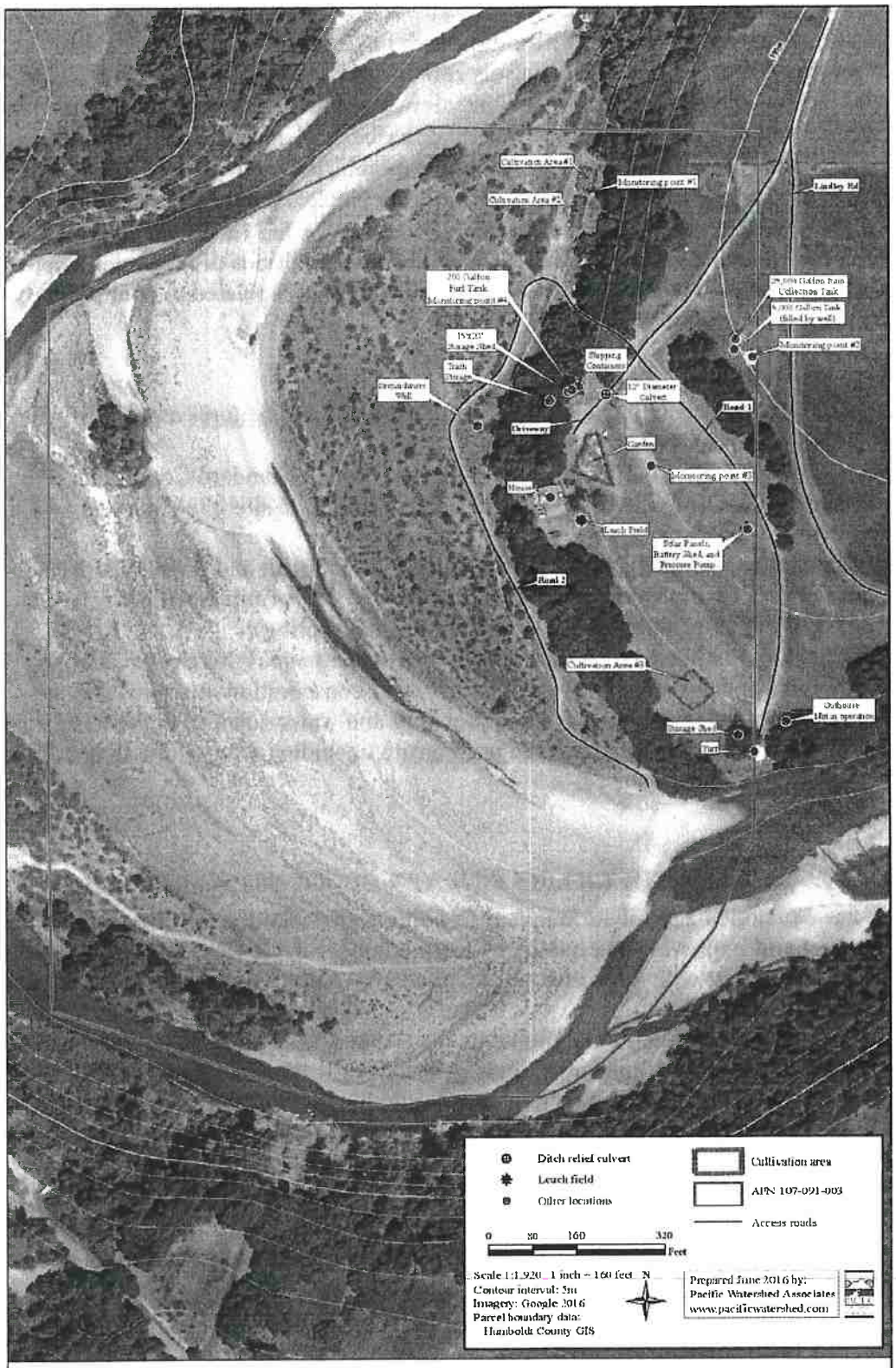

Figure 2. Site map for Water Resource Protection Plan (WRPP), APN 107-091-003, located off Lindley Road, Honeydew, Humboldt County, California.

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

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

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

Meets condition? Yes
Observations/Comments: Based on field observations the roads within this property are generally well surfaced with only minor surface erosion issues. The main driveway (the only actual cut and fill road) is short (0.12 mi) with no associated sediment delivery. All our field observations indicate the road runoff flows onto a well vegetated fluvial floodplain/river bar where it disperses and infiltrates over a hundred feet from the Mattole River. The steepest parts of the road are heavily rocked and maintained. A few other ranch roads exist on the fluvial terrace that the main ranch occupies. These are mostly grass-covered, low use roads that do not exhibit erosional features and do not deliver runoff or sediment to any watercourses.
Photos: No
Corrective or remedial actions needed: None
Optional improvements: Maintain rocked road surfaces as needed. Maintain grassy buffers between the road and Mattole River.

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

Meets condition? Yes
Observations: All of the observed ranch roads exhibit adequate road drainage features and minimal surface erosion along the flow paths.
Photos: No
Corrective or remedial actions needed: None
Optional improvements: None

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

Meets condition? Yes
Observations/Comments: There are no roads on the Site that drain to unstable slopes or earthen fills.
Photos: No

Corrective or remedial actions needed: None
Optional improvements: None

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

Meets condition? Yes
Observations/Comments: See 1a. Cleared/developed areas at the Site are maintained as grassy pasture. There are no bare areas outside the roads, livestock pens, and foot paths. There are no wetlands or watercourses running through the property, besides the Mattole River which is well protected from ranch activities by distance and vegetation.
Photos: No
Corrective or remedial actions needed: None
Optional improvements: None

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

Meets condition? Yes
Observations/Comments: Road drainage features (ditch relief culverts, rolling dips) and road pad and terrace surfaces are maintained to promote infiltration/dispersal of outflows and currently there is no evidence of erosion or soil transport to a water course.
Photos: No
Corrective or remedial actions needed: None
Optional improvements: None

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

Meets condition? Yes
Observations/Comments: There are currently no stockpiled materials stored on the ranch as the operations are designed to be self-sustaining with little need for additional materials. If in the future new materials are required to continue operations a compliant plan will be developed for the activity.
Photos: No
Corrective or remedial actions needed: None
Optional improvements: None

Standard Condition #1. - General comments and recommendations: In general, the site is well maintained and situated on a fluvial terrace that is flat and grassy. The roads are low use and well maintained. There are no sediment delivery points associated with any of the roads.

4.2 Standard Condition #2. Stream Crossing Maintenance

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

Meets condition? N/A
Observations/Comments: No stream crossings on property.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? N/A
Observations/Comments: No stream crossings on property.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? N/A
Observations/Comments: No stream crossings on property.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? N/A
Observations/Comments: No stream crossings on property.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? N/A
Observations/Comments: No stream crossings on property.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? N/A
Observations/Comments: No stream crossings on property.
Photos: No
Corrective or remedial actions needed: None

Standard Condition #2. - General comments and recommendations: There are no stream crossings on the Project Site.

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

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

Meets condition? No
Observations/Comments: Based on field observations PWA determined that the lowest cultivation area (cultivation areas 1 & 2) are approximately 200 feet from the active channel of the nearest watercourse, the Mattole River. The grade of the ground between the cultivation area and the stream is flat to 1%, maximum. The owner has had CDFW look at the site and determine it is within the riparian corridor of the Mattole River.
Photos: Photo #1
Corrective or remedial actions needed: PWA and the landowner, in coordination with CDFW, has determined the best course of action is to move the cultivation area off of the river bar and up onto the fluvial terrace that the house is located on.

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

Meets condition? Yes
Observations/Comments: The area between cultivation area 1 &2 and the nearest stream is a mostly undisturbed broad natural fluvial river bar with native vegetation. The Garden near the house and the greenhouses near the Yurt are set back over 100' from the right bank of the Mattole River.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? Yes
Observations/Comments: See 3a & b
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? Yes
Observations/Comments: The operation will allow for maintaining of natural biogeomorphic conditions at the site. Little to no disturbance has occurred or will occur in the streamside and riparian areas where the property is maintained in its natural condition.
Photos: No
Corrective or remedial actions needed: None

Standard Condition #3. - General comments and recommendations: The only issue observed related to this general condition are cultivation areas 1 & 2 located on the river bar. In their present location the cultivation areas are not threatening or affecting water quality. However, to be compliant with the Order, PWA, CDFW, and the landowner have agreed to move cultivation areas #1 and #2 to a location farther from the river and higher in elevation. This will occur in fall, 2018.

4.4 Standard Condition #4. Spoils Management

a) *Spoils shall not be stored or placed in or where they can enter any surface water.*
Meets condition? Yes
Observations/Comments: Based on field observations, PWA determined that there are no spoils located on the Site.
Photos: No
Corrective or remedial actions needed: None

b) *Spoils shall be adequately contained or stabilized to prevent sediment delivery to surface waters.*
Meets condition? Yes
Observations/Comments: Based on field observations, PWA determined that there are no spoils located on the Site. PWA has identified several suitable locations within the upper terrace area that could be used for spoils storage or disposal if it was deemed necessary and appropriate BMP's were used to protect water quality.
Photos: No
Corrective or remedial actions needed: None

c) *Spoils generated through development or maintenance of roads, driveways, earthen fill pads, or other cleared or filled areas shall not be sidecast in any location where they can enter or be transported to surface waters.*
Meets condition? Yes
Observations/Comments: Currently there are no spoils of this type, nor is there reason to believe there will be in the foreseeable future. Any future spoils generated from the Project Site shall be stored in a manner consistent with Best Management Practices set forth in Appendix A of this WRPP.
Photos: No
Corrective or remedial actions needed: None

Standard Condition #4 - General comments and recommendations: Based on field observations, it is PWA's opinion that the Project Site is currently compliant with this condition as there were no spoils observed during the Project Site inspection. It appears that recent grading activities at the Project Site are limited to road surface maintenance and drainage work or minor development at the cultivation area.

4.5 Standard Condition #5. Water Storage and Use

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

Meets condition? Yes
Observations/Comments: Currently, the operation is limited in extent. Based on the size of the cultivation area, the Site may not currently contain adequate rainwater catchment storage to forebear during the dry season, from May 15 through October 31 of each year. To bolster the storage as a backup for dryer years and to assure adequate fire protection, an additional 50k gallon rainwater catchment tank is planned to be installed in the fall of 2016, and a pond is planned for development during the summer of 2017. The ranch also has a dug well with a CDFW 1600 Agreement in effect. A forbearance plan aimed at minimizing or completely eliminating groundwater pumping during the dry season has been agreed upon and will be implemented in 2016/2017.
Photos: No
Corrective or remedial actions needed: None
Monitoring actions needed: A Water Budget should be developed to determine sufficient storage volumes needed for water use during the dry season from May 15 through October 31. A Water Monitoring Plan will also need to be developed (see comments below).

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

Meets condition? Yes
Observations/Comments: The site currently has a rainwater catchment tank that fills itself completely during the winter months and the cultivation areas are irrigated by use of a drip system. Furthermore, the owner is meticulous about maintaining a minimal till biodynamic soil which conserves water in itself.
Photos: No
Corrective or remedial actions needed: None
Recommended actions: Other water conservations practices should be investigated, tested and employed (deployed). These include mulching, timed or volume limited drip, early morning or late afternoon watering, etc.

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

Meets condition? No

Observations/Comments: All existing and planned storage facilities are off-stream but they are not sufficient in capacity to allow for forbearance through the summer months. Currently the ranch has 25k gallon water storage capacity with an anticipated annual use of 40k gallons. The landowner would like to have excess capacity, with a total of up to 80k gallons available for all uses during the dry season forbearance period.

Photos: Photo #2

Corrective or remedial actions needed:

Increased water storage is required for the property. Develop a rainwater catchment system to fill the water storage tanks and limit pumping and/or diversion of well water to the winter months. Design (an engineering design is required), obtain county permitting, and install the proposed 50k gallon rainwater collection storage tank. Engineer, obtain permitting, and construct a pond to provide maximum desired water storage capacity.

d) *Water is applied using no more than agronomic rates.*

Meets condition? Yes

Observations/Comments: Use of a timed and regulated drip irrigation system and biodynamic soil on the Site helps ensure that water is applied at no more than agronomic rates. Currently anecdotal information by the owner indicates each plant in the cultivation area uses approximately 0.5 gal/day, well below typical regulatory authority estimates.

Photos: No

Corrective or remedial actions needed: None

Monitoring actions needed: Start measuring and recording your average water usage on a per plant basis, based on type and size of plant pot, full term versus short season (light deprivation) plant, and type of irrigation, in order to develop a Water Budget for your operation. Document the source and amount of water used for each cultivation area.

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

Meets condition? Yes

Observations/Comments: The property currently has a well. No surface water diversions are employed. A Small Domestic Use permit application has been submitted to the State Water Resources Control Board in order to store well water in tanks for domestic purposes. Rainwater is collected for irrigated crops. CDFW has approved the proposed forbearance schedule which will be implemented in 2016/2017.

Photos: No

Corrective or remedial actions needed: None

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

Meets condition? Yes

Observations/Comments: Tanks are located on a stable, flat terrace surface located far from the Mattole River, making it unlikely that a water storage structure failure could result in runoff reaching the river.

Photos: No

Corrective or remedial actions needed: None

Standard Condition #5 - General comments and recommendations: The ranch has two water sources: (1) a permitted well which supplies the domestic water supply and (2) a large scale rainwater catchment system and water storage tank for use with irrigated crops. Currently the storage capacity of the tanks is insufficient to provide for the entire cultivated area and as such the well water is required to supplement the irrigation water under current conditions. Planned installation of a pond and additional water tank will eliminate the need for well water use in the summer months.

PWA highly recommends, and state agencies may require, that you install flow meters on your water tanks and/or on your input and distribution lines, to accurately document your water storage and use volumes and rates. You will need to document the amount of water you are pumping, storing and using through time. PWA has created a simple log sheet to help you monitor your water sources, storage and usage (Appendix D). It is important to document your use at each use cultivation and domestic location and to document that the irrigated crops are only using rainwater.

4.6 Standard Condition #6. Irrigation Runoff

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

Meets condition? Yes

Observations/Comments: The cultivation areas at the Site are currently being irrigated by use of a timed, regulated, and monitored drip system. Water and soil amendments are applied at agronomic rates and are minimized because of the use of the biodynamic soils in the garden. PWA staff observed no evidence of past irrigation

runoff from the cultivation areas. In the event that irrigation runoff occurs, PWA concludes that the natural buffers between the cultivation area and the nearest receiving waters is sufficient to disperse and infiltrate the runoff into managed and natural areas where grasses and cover crops will uptake any nutrients, thereby minimizing the pollutant load entering the nearest watercourse.
Photos: No
Corrective or remedial actions needed: None

Standard Condition #6 - General comments and recommendations:
According to the Order, irrigation and fertilization shall occur at agronomic rates and chemicals shall be applied according to the label instructions and specifications. Agronomic rates are those rates of application of water, fertilizers and other amendments that are sufficient for utilization by the crop being grown, but not at a rate that would result in surface runoff or infiltration below the root zone of the crop being grown.

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

4.7 Standard Condition #7. Fertilizers and Soil Amendments

a) *Fertilizers, potting soils, compost, and other soils and soil amendments shall be stored in locations and in a manner in which they cannot enter or be transported into surface waters and such that nutrients or other pollutants cannot be leached into groundwater.*
Meets condition? Yes
Observations/Comments: Based on field observations PWA noted that all chemical fertilizers and soil amendments are currently being properly stored in a water-proof, animal-proof, metal shipping container on the fluvial terrace occupied by the ranch house.
Photos: No
Corrective or remedial actions needed: None

b) *Fertilizers and soil amendments shall be applied and used per packaging instructions and/or at proper agronomic rates.*
Meets condition? Yes
Observations/Comments: Based on discussions with the landowner, PWA has determined the use of these types of farming activities is minimal as they are generally not required accept during critical time periods. PWA recommends, and the Order requires, any continued use of these products adhere to packaging instructions and do not exceed application beyond agronomic rates. The landowner has committed to this.
Photos: No
Corrective or remedial actions needed: None:

Monitoring actions needed: You must keep detailed records of any fertilizers and/or other soil amendments you use in your operations. They can be recorded on log sheets such as those provided in Appendix E or by using some other record keeping method. Observe and monitor soil moisture so watering, fertilizer and chemical applications are made only when necessary and overwatering and excess infiltration is avoided. Also see general comments and recommendations below.

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

Meets condition? Yes

Observations/Comments: The cultivation area is located on low gradient topography and has a wide vegetative buffer and therefore does not present a significant threat to water quality. Furthermore, the cultivation beds are cover cropped in the winter to maintain biodynamics and use any available residual nutrients in the soil.

Photos: No

Corrective or remedial actions needed: None

Standard Condition #7 - General comments and recommendations: Based on field observations PWA noted that fertilizers and soil amendments were being properly stored. All growing amendments will be located inside a sealed container during both the growing season and off season such that they are protected from the elements and animals. Fertilizers and amendments were reported to be organic and applied according to packaging instructions. Usage is diminished or eliminated toward the end of the growing season. With the closest stream located well away from the cultivation area, any runoff that theoretically might flow off the Project Site would not travel far due to the low gradient topography and wide vegetative buffer between the cultivation area and the river.

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

4.8 Standard Condition #8. Pesticides/Herbicides

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

Meets condition? Yes

Observations/Comments: Based on field observations and discussions with the landowner, PWA noted that chemical pesticides and herbicides are not currently being used as part of this operation. If, in the future, they are deemed necessary, they will be properly stored in the water-proof, animal-proof, metal shipping container along with the nutrients and soil amendments. In order for the Site to be compliant with this condition the use of chemical pesticides and herbicides shall be consistent with product labeling.
Photos: No
Corrective or remedial actions needed: None. In the future, all pesticides, herbicides and related materials (e.g., fungicides) must be used and applied consistent with product labeling. When present, these chemicals should be stored within enclosed buildings in such a way they cannot enter or be released into surface or ground waters.
Monitoring actions needed: Under the Order you are required to keep records (logs) of the timing and volume of pesticides and herbicides used in your operations. This can be done using a simple log form, such as the one included in Appendix D. Additionally, for any pesticide use you must comply with any Pesticide Registration Requirements. See Appendix E2 included in the NCRWQCB Order, or on their web site at:
http://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2015/150728_Appendix_E2_DPR_MJ%20Pesticide%20Handout.pdf

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

For the health of the environment and your workers, you are encouraged to develop an integrated pest management plan which includes using climate controls and organic or biologic controls, rather than highly toxic petro-chemicals, to prevent pest and mildew problems. Several safe alternatives are available.

4.9 Standard Condition #9. Petroleum Products and other Chemicals

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

Meets condition? Yes
Observations/Comments: Based on field observations PWA noted that small volume gas cans are currently being properly stored in a concrete floored storage shed where they are protected from rainfall.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? No

Observations/Comments: PWA observed an uncontained 200 gallon, above-ground gasoline tank. In order to become compliant with this Standard Condition, PWA recommends relocating the tank to a covered area and placing the tank in an approved secondary containment structure that can contain a minimum of 200 gallons in order to ensure prevention of discharge or seepage to a watercourse or groundwater in the event of a primary containment breach.

Photos: Photo #3

Corrective or remedial actions needed: In order to become compliant with this Standard Condition, PWA recommends relocating the tank to a covered area and placing the tank in an approved secondary containment structure that is a minimum of 200 gallons in order to ensure prevention of discharge or seepage to a watercourse or groundwater in the event of a primary containment breach. The landowner has committed to doing this in 2016.

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

Meets condition? N/A

Observations/Comments: N/A

Photos: No

Corrective or remedial actions needed: None

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

Meets condition? No

Observations/Comments: During PWA's initial site visit it was observed that the Project Site does not have proper spill prevention, control and countermeasures (SPCC) in place.

Photos: No

Corrective or remedial actions needed: Have one or more spill prevention cleanup kits onsite at all times to help clean up small spills. Develop a spill response plan and review it annually with the ranch crew.

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

Meets condition? N/A

Observations/Comments: N/A

Photos: No

Corrective or remedial actions needed: None

Standard Condition #9 - General comments and recommendations: Currently there are several small gas cans stored in roofed sheds and an uncontained 200 gallon above ground fuel storage tank.

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

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

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

4.10 Standard Condition #10. Cultivation-Related Wastes

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

Meets condition? Yes
Observations/Comments: At this Project Site empty soil/soil amendment/fertilizer bags or boxes are being stored in an appropriate garbage container and disposed of at an appropriate waste disposal center (see 11b below). Dead and/or harvested plant waste is being composted at a location where it will not enter or be blown into a water course and at a sufficient distance to prevent pollutants within those materials from migrating or leaching into surface or ground waters.
Photos: No
Corrective or remedial actions needed: None

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

We encourage you to chip or shred your plant stalks and compost them after harvest. If you burn the stalks, you must first obtain berm permits from CAL FIRE and the North Coast Unified Air Quality Management District (or other relevant jurisdiction for your area). You can then recycle the ash and add minerals to the soil by mixing the ash into your spent pots and plant holes prior to planting a cover crop at the end of the season. Other cultivation-related waste can be easily contained by keeping soils and garbage greater than 200 feet from drainage areas and on gentle slopes, tarping or otherwise covering soil piles, and/or by placing straw waddles or other containment structures around the perimeter of spoil piles.

4.11 Standard Condition #11. Refuse and Human Waste

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

Meets condition? Yes
Observations/Comments: Based on field observations and discussions with the landowner, it is PWA's opinion that the Project Site is currently compliant with this condition. The Site has a permitted septic system in place.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? Yes
Observations/Comments: The Project Site was clean at the time of PWA's inspection. Based on field observations PWA noted that refuse and garbage are currently being properly stored in a water-proof, animal-proof, metal refuse container.
Photos: No
Corrective or remedial actions needed: None

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

Meets condition? Yes
Observations/Comments: The Project Site was clean at the time of PWA's inspection. The operator periodically hauls refuse offsite and disposes of said refuse at an appropriate waste disposal facility.
Photos: No
Corrective or remedial actions needed: None

Standard Condition #11 - General comments and recommendations: The Project Site currently has a Humboldt County permitted OWTS. All garbage is disposed of at an appropriate waste disposal site.

4.12 Standard Condition #12. Remediation/Cleanup/Restoration

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

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

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

Meets condition? Yes
Observations/Comments: None
Photos: No
Corrective or remedial actions needed: None

Standard Condition #12 - General comments and recommendations: There are no current issues observed at the ranch that would require remediation/cleanup/restoration activities.

5.0 PRIORITIZED CORRECTIVE ACTIONS AND SCHEDULE TO REACH FULL COMPLIANCE

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

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

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations	Map Point and Photo #	Estimated Cost	Date Completed
3 – Riparian and Wetland Protection and Management	3a	Moderate	2018	Move the cultivation area to the upper terrace area and off of the vegetated river bar. Replant the decommissioned cultivation area with native vegetation.	MP#1	$4,000	
5 - Water Storage and Use	5a	High	2016	Develop a water budget and a water monitoring plan for the Project Site.	--	--	
	5b	Moderate	2016 and annually	Investigate, test and deploy addition water conservation techniques and practices to reduce water use on the Project Site.	--	--	
	5c	High	2016/17	Install a 50,000 gallon water storage tank and develop a rainwater catchment system to fill available storage.	MP#2	$50,000	
	5c	Moderate	2016-18, if needed	Design (engineer), permit and install a 250,000 gallon pond on flats near house.	MP#3	$45,000	
	5d	High	2016 and annually	Document the timing and volume of water collection, storage and use on the Project Site on log sheets in Appendix D. Install flow meters as needed to record water storage and use.	--	--	

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

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations	Map Point and Photo #	Estimated Cost	Date Completed
7 – Fertilizers and Soil Amendments	7b	High	2016 and annually	Document the timing and volume of fertilizers and soil amendments applied on the Project Site on log sheets in Appendix E.	--	--	
8 – Pesticides/ Herbicides	8a	High	2016 and annually	Document the timing and volume of pesticides and herbicides applied on the Project Site on log sheets in Appendix F.	--	--	
9 – Petroleum Products and other Chemicals	9b	High	2016	Create a covered shelter for the tank and provide a full volume containment vessel below the tank in case of leaks or tank failure.	MP#4	$3,000	
	9d	Moderate	2016/17	Develop a hazardous materials business plan (HMBP) and file it with the Humboldt County Division of Environmental Health.	--	$5,000	
	9d	High	2016	Purchase one or more spill prevention cleanup kits to have on site where it will be easily accessible in case of small spills.	--	$100	

6.0 MONITORING AND INSPECTION PLAN

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

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

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

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

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

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

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

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

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

7.0 WATER USE PLAN

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

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

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

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

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

Water Storage and Forbearance - The ultimate goal of the applicant is to accumulate enough water storage capacity to forebear the entire period from May 15th to October 31st. This will ensure

the timing of water use is not impacting water quality objectives and beneficial uses. The flat terrace setting provides several stable locations where water tanks may be safely placed and will allow for a larger capacity pond if needed.

Water Conservation - Water conservation measures currently practiced include growing many of the plants in-ground (as compared to above ground pots) and watering late in the afternoon or evening to minimize water loss through evaporation and maximize water up-take by the plants. Furthermore the use of drip irrigation and maintaining biodynamic soils is critical to the ranch water conservation measures. Additional water conservation measures will be investigated, tested and deployed.

Water sources and use – There are two sources of water on the ranch: (1) a well with an approved forbearance schedule from CDFW and (2) a rainwater capture system. In general, the rainwater is used for cultivation purposes and the well water for domestic use, although the well may be required for use in 2016 as the water storage infrastructure is developed and expanded.

Initially, the ranch manager intends to follow a "one and done" approach to production on the property. This equates to a single light deprivation crop conducted in the middle of the growing season. Additional crops may occasionally be grown in the future, depending on ranch operations and water availability. The duration of the cultivation process is a total of 120 days with the first 40 and last 40 exhibiting moderate water use and the middle 40 days being relatively higher use times. During the main growing season, the operator has estimated water use at ~1,000 gallons/every other day on average. Based on a cultivation area, this estimate yields a total water use of 40,000 gal/year. Estimates of future use are as high as 80,000 gallons per year. Current water storage capacity is 25,000 gallons. In 2016/17 the ranch is planning on installing a 50,000 gallon rainwater capture tank and a 100,000-500,000 gallon pond.

Over the course of the current season, water use will be documented using the log forms attached in Appendix D. Water rights notifications and registrations will be submitted to the State Water Resource Control Board (Division of Water Rights) and a Lake and Streambed Alteration Agreement (LSAA), modified as needed, through the California Department of Fish and Wildlife (CDFW). As more accurate water data is gathered, refined targets can be made to ensure adequate storage exists to protect downstream water quality and beneficial uses during the driest time of the year (May 15 through October 31).

8.0 LIST OF CHEMICALS

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

Because this is the first year of enrollment, information regarding chemical use and storage is deficient or anecdotal. Appendixes E and F contain monitoring forms that should be used to list the chemical inventory and use record over time, as supplies are added to the site and used during the growing season. The landowner or operator will use these forms to track the types, storage

volumes, timing of application, and volume of use of these products throughout the year. New beds have been created this year so the initial amendments have been thoroughly documented and are listed below. This initial amendment list includes amendments that may be used and stored onsite in the future:

Fertilizers and amendments:

Alfalfa	256 lbs
Azomite	160 lbs
Bat Guano 9-3-1	129 lbs
Crab shell 4-2-0	97 lbs
Epsom Salt	97 lbs
Fishbone 6-19-0	160 lbs
Gypsum	384 lbs
Kelp Meal	63 lbs
Kickstart 6-1-2	224 lbs
Neem Meal	321 lbs
Seabird Guano 1-11-0	256 lbs
Shrimp Meal 5-9-0	97 lbs
Sulfate of potash	17 lbs
Biochar	5 yds
Compost CC	2.5 yds
Grape Compost	1.5 yds
Worm Castings	2.5 yds

Pesticides, Herbicides, and Fungicides:
None

Petroleum and Other Chemicals:
Gasoline

9.0 LANDOWNER/LESSEE CERTIFICATION/SIGNATURES

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

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

Name of Legally Responsible Person (LRP): Dylan Mattole

Title (owner, lessee, operator, etc.): Owner

Signature: _____ Date: Sept 8, 2016

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

WRPP prepared and finalized on (date): Sept 8 2016

Signature: _____ Date: Sept 8 2016

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

I. Introduction

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

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

II. Standard BMPs for Construction

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

A. General BMPs to Avoid or Minimize Adverse Impacts

Temporal Limitations on Construction

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

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

Limitation on Earthmoving

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

Limitations on Construction Equipment

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

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

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

Revegetation and Removal of Exotic Plants

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

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

Erosion Control

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

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

Miscellaneous

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

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

B. BMPs for Specific Activities

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

The following measures shall be employed:

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

Structure for Water Control and Stream Crossings

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

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

Limitations on Work in Streams and Permanently Ponded Areas

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

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

Temporary Stream Diversion and Dewatering: All Live Streams

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

Protection of Sensitive Species

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

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

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

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

A. Site Maintenance, Erosion Control, Drainage Features

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

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

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

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

B. Stream Crossing Maintenance

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

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

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

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

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

C. Riparian and Wetland Protection and Management:

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

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

D. Spoils Management

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

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

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.

LEGAL PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWERS IN CALIFORNIA

PESTS OF MARIJUANA IN CALIFORNIA

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

HOW TO INTERPRET THE TABLES

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

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

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

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

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

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

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

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

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

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

REFERENCES

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

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

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

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

ACTIVE INGREDIENT	PEST OR DISEASE
azadirachtin[a]	aphids, whiteflies, fungus gnats, leafminers, cutworms
Bacillus subtilis QST[a1]	root diseases, powdery mildew
Bacillus thuringiensis[a2] subsp. *aizawai* or *kurstaki*	moth larvae (e.g., cutworms, budworms, hemp borer)
Bacillus thuringiensis[a2] subsp. *israelensis*	fly larvae (e.g., fungus gnats)
Beauveria bassiana[a3]	whiteflies, aphids, thrips
cinnamon oil[b]	whiteflies
Gliocladium virens[a1]	root diseases
horticultural oils[a] (petroleum oil)	mites, aphids, whiteflies, thrips; powdery mildew
insecticidal soaps[a] (potassium salts of fatty acids)	aphids, whiteflies, cutworms, budworms
iron phosphate[a]; sodium ferric EDTA[a]	slugs and snails
neem oil[a]	mites; powdery mildew
potassium bicarbonate[a]; sodium bicarbonate[a]	powdery mildew
predatory nematodes[a]	fungus gnats
rosemary + peppermint essential oils[b]	whiteflies
sulfur[a]	mites, hemp flea beetles
Trichoderma harzianum[a1]	root diseases

[a] 40 CFR (Code of Federal Regulations)

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

[1] Biofungicides

[2] Bacterial-based insect pathogen

[3] Fungal-based insect pathogen

Pesticide and Herbicide Application Log Sheet

WD ID:	PWA ID:	Watershed:

Location:							Year:	Sheet #: ____of ____	
Product name	Pesticide or Herbicide (circle one)	Product type (circle type)	Recommended application amount from product label (e.g. # of ounces per application)	Application units (grams, ounces, liters, gallons, etc.)	Recommended application schedule (daily, weekly, etc.)	Actual amount (in same units) used per application	Date applied (mo/day)	Initials	Comments
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							

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	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							
	Pest./Herb.	liquid/solid							

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.

Water Use by Source Log Sheet

	WD ID:	PWA ID:	Watershed:
	Location:	Sheet ___ of ___	Year:

Water Source (circle gallons or acre feet)	Amount utilized from storage per month (gallons or acre feet), by type											
	January	February	March	April	May	June	July	August	Sept	October	November	December
Stream diversion 1 (gallons/acre feet)												
Stream diversion 2 (gallons/acre feet)												
Stream diversion 3 (gallons/acre feet)												
Spring 1 (gallons/acre feet)												
Spring 2 (gallons/acre feet)												
Spring 3 (gallons/acre feet))												
Well (gallons/acre feet)												
Rainwater catchment (gallons/acre feet)												
Water truck hauling (gallons/acre feet)												
Monthly Totals												

Comments:

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www.pacificwatershed.com

Fertilizer and Ammendment Application Log Sheet

WD ID:	PWA ID:	Watershed:
	Year:	Sheet #: ____ of ____

Product name	Fertilizer or Ammendment (circle one)	Type (circle type)	Nutrient content (N-P-K ratio)	Recommended application amount from product label (e.g. # of ounces per application)	Application units (grams, ounces, liters, gallons, etc.)	Recommended application schedule (daily, weekly, etc.)	Actual amount applied in this application (same units)	Date applied (Mo/Day)	Location (Cultivation area #, Greenhouse #, Hoophouse #, etc.)	Initials	Comments
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									
	Fert./Amend.	liquid/solid									

Surface Water Diversion Log Sheet	WD ID:	PWA ID:	Watershed:
	Location:	Sheet ___ of ___	Year:

Source Name (circle gallons or acre feet)	Amount diverted per month (gallons or acre feet)											
	January	February	March	April	May	June	July	August	September	October	November	December
Stream diversion 1 (gallons/acre feet)												
Stream diversion 2 (gallons/acre feet)												
Stream diversion 3 (gallons/acre feet)												
Spring 1 (gallons/acre feet)												
Spring 2 (gallons/acre feet)												
Spring 3 (gallons/acre feet))												
Rainwater catchment (gallons/acre feet)												
Monthly Totals												

Comments:

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www.pacificwatershed.com

Water Input to Storage Log Sheet

	WD ID:	PWA ID:	Watershed:
	Location:	Sheet ___ of ___	Year:

Water Source (circle gallons or acre feet)	Amount input to storage per month (gallons or acre feet), by source											
	January	February	March	April	May	June	July	August	September	October	November	December
Stream diversion 1 (gallons/acre feet)												
Stream diversion 2 (gallons/acre feet)												
Stream diversion 3 (gallons/acre feet)												
Spring 1 (gallons/acre feet)												
Spring 2 (gallons/acre feet)												
Spring 3 (gallons/acre feet))												
Well (gallons/acre feet)												
Rainwater catchment (gallons/acre feet)												
Water truck hauling (gallons/acre feet)												
Monthly Totals												

Comments:

APPENDIX B: MONITORING PLAN AND PHOTO LOGS

Monitoring Plan – In general, the entire road network, cultivation area and associated facilities need to be monitored over the year to catch any problems that might arise. Refer to Figure 2 for the location of site specific monitoring points that you are responsible for. For this project site, there are no specific monitoring points to evaluate annually for environmental protection but rather 3 monitoring points to document existing conditions that do not meet one or more of the 12 standard conditions. A photo of future activities will be added to the WRPP to document your good faith effort to comply with the Water Board order.

Photo Log of features of interest and monitoring points before, during, and/or after treatment

Photo #	Monitoring Point	Feature #	Date	Pre-, during, or post-treatment	Description
1	1	Cultivation site	7-19-2016	Pre	View of cultivation area on the back edge of a river bar. This cultivation area is within the bed and banks of the Mattole River. The landowner has agreed with CDFW to move the cultivation area off the river bar in 2016/2017.
2	2	Water storage tanks	3/29/2016	N/A	View of the existing water tanks that have been brought in to minimize summer drafting requirements. Another 50k water tank is on order and a pond is planned for 2017. Note, the bladder in the foreground of the photo has been decommissioned and is no longer in use.
3	3	Fuel tank	3/29/2016	Pre	View of uncontained, unprotected fuel tank
4	4	Proposed pond site	3/29/2016	Pre	View of meadow near the location of the proposed pond

APPENDIX C: PHOTO DOCUMENTATION OF MONITORING POINTS

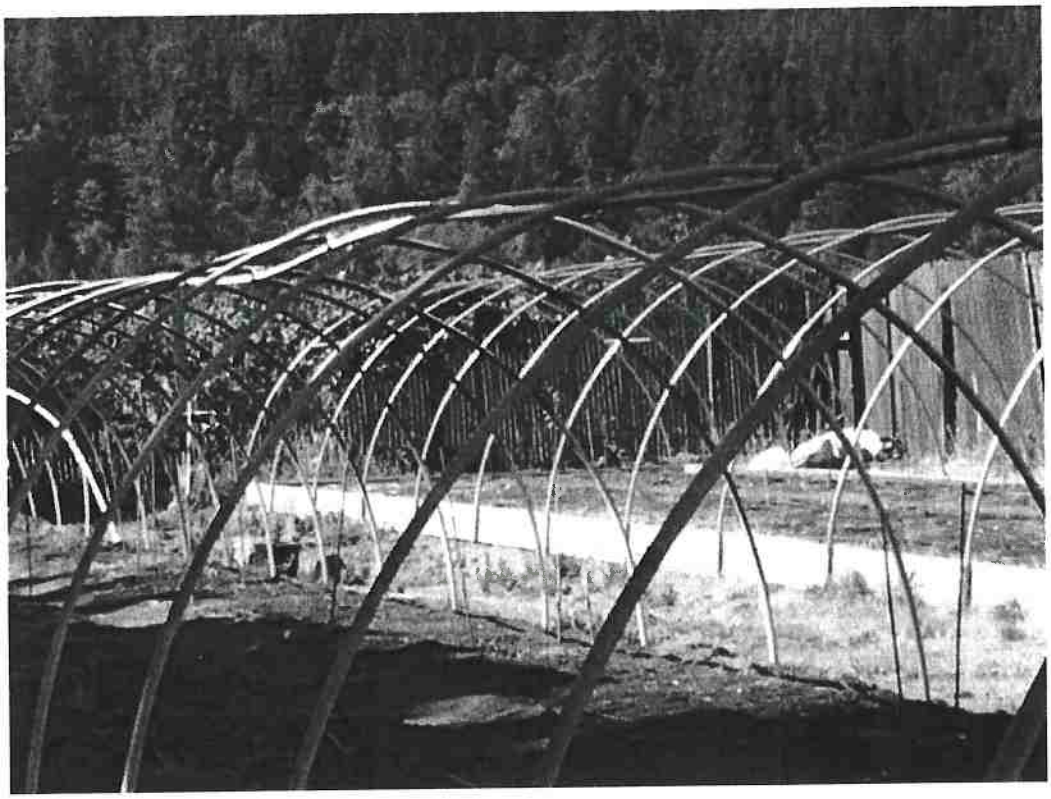

Photo 1

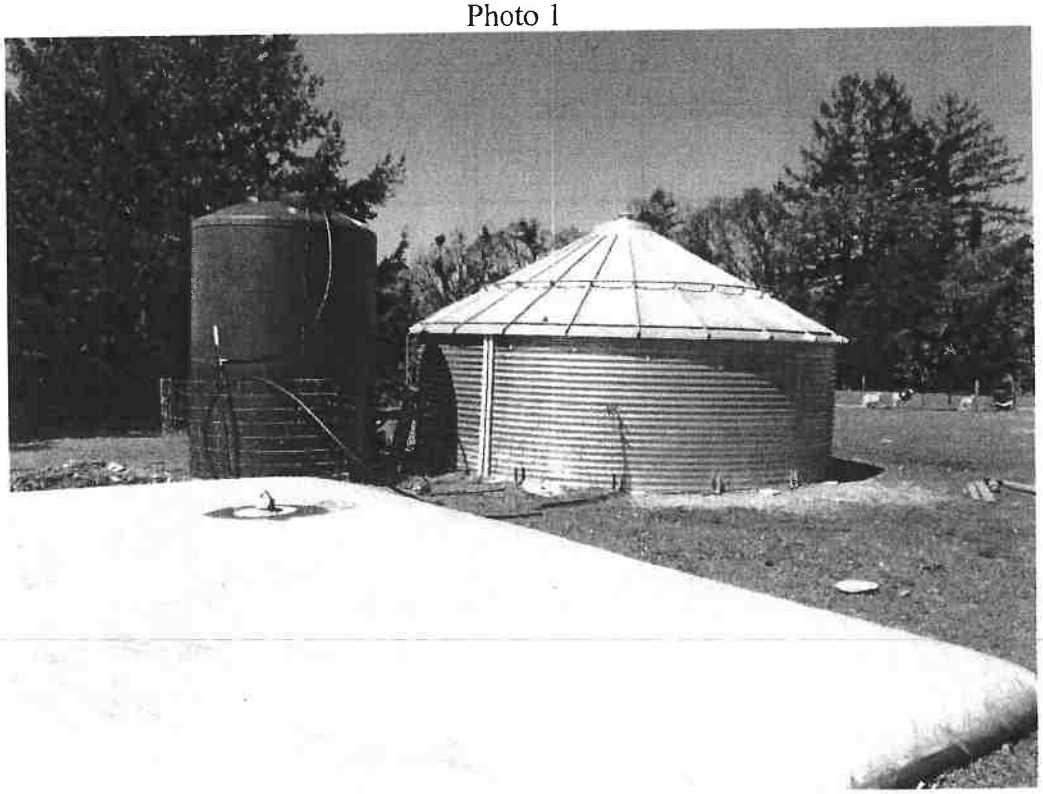

Photo 2

Photo 3

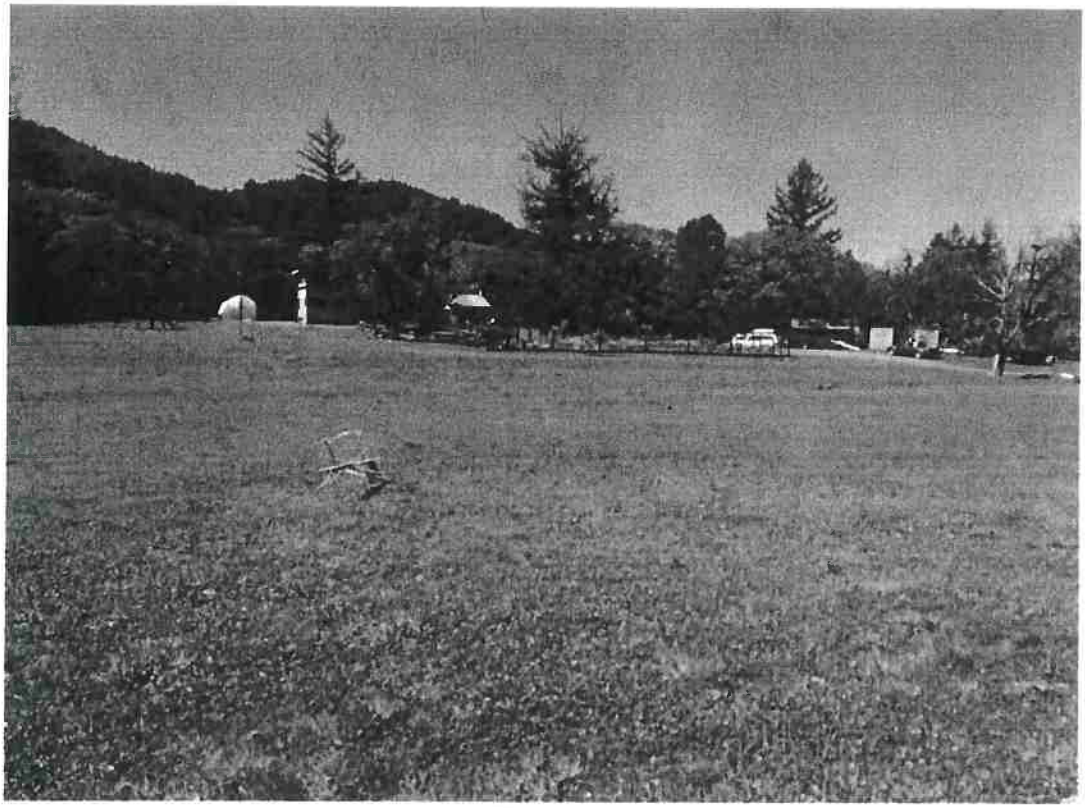

Photo 4

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

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

Table 4. PESTS OF MARIJUANA BY PLANT PART

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

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.

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[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