



**GREEN  
ROAD**  
CONSULTING



# Site Management Plan

WDID: 1B16188CHUM



*Prepared for:*

*State Water Resources Control Board (SWRCB)*  
North Coast Regional Water Quality Control Board (NCRWQCB)

*Prepared by:*

Green Road Consulting  
1650 Central Ave., Suite C, McKinleyville CA, 95519  
(707) 630-5041

*Date of completion:*

8/5/2019

# General Site Information

**Discharger:** Full Moon Farms

**Landowner:** Nikolai Erickson

**Site Address:** [40.5217, -123.6393] Bear Creek, Dinsmore CA 95526 CA

**Mailing Address:** 1065 Riverside, Rio Dell 95562 CA

**Parcel Number:** 208-201-020

**General Plan Designation:** RA40

**Zone:** FR-B-5

**Parcel Size:** 40-Acres

**HUC12 Watershed:** 180101020302 Bear Creek- Mad River

**Disturbed Area:** 77,536-Ft<sup>2</sup>

**Cultivation Area:** 22,672-Ft<sup>2</sup>

**Tier Level:** 2

**Risk Level:** Moderate

## Abbreviations

|         |  |
|---------|--|
| CA      | Cultivation Area                                 |
| CPP     | Corrugated Plastic Pipe                          |
| CMP     | Corrugated Metal Pipe                            |
| CDFW    | California Department of Fish and Wildlife       |
| DRC     | Ditch Relief Culvert                             |
| GRC     | Green Road Consulting                            |
| HDPE    | High-density Polyethylene                        |
| IBD     | In-board Ditch                                   |
| LSAA    | Lake or Streambed Alteration Agreement           |
| NCRWQCB | North Coast Regional Water Quality Control Board |
| PWA     | Pacific Watershed Associates                     |
| POD     | Point of Diversion                               |
| POF     | Point of Overflow                                |
| SIUR    | Small Irrigation Use Registration                |
| SWRCB   | State Water Resources Control Board              |
| STX     | Stream Crossing                                  |

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## 1. Introduction

This document was prepared by Green Road Consulting (GRC) for Full Moon Farms; parcel number 208-201-020 as required by the SWRCB Order WQ 2017-0023-DWQ<sup>1</sup>. The purpose of the order is to provide a regulatory structure for cannabis cultivation that reduces contributions to existing water quality issues and prevents additional adverse impacts to water resources throughout California. The purpose of the Site Management Plan is to identify conditions present on a parcel that may pose a threat to water quality and resources and establish a plan to meet or surpass requirements set forth in the order. GRC has made an initial assessment of this parcel through field work as well as through a variety of county, state, and private websites (e.g. USDA web soil survey, USGS stream stats program, Google Earth, Humboldt County Web GIS). The parcel boundaries are approximate and obtained from Humboldt County. Property lines on maps created by GRC may be shifted to match property line and corners located in the field. The site was surveyed with a GPS unit (2 to 4-meter accuracy) to document roads, buildings, cultivation sites, watercourses, and areas requiring remediation. Maps were created using the software ESRI ArcMap.

## 2. Site Characteristics

### 2.1. General

The site is in Southern Humboldt County, approximately 4-miles north of Dinsmore. Take Dinsmore road to Bear Creek Road and then turn right onto Anderson Ford Road. Continue straight for 1.2 miles and the entrance is on the left. Parcel boundaries on the attached maps are approximations. The elevation of the site is approximately 2,800-feet above sea level. The parcel is located on a mountainous hillslope with Bear Creek that flows from the north into the Mad River. The Mad River is on the USEPA's Section 303(d) list for impairment or threat of impairment to water quality associated with elevated sediment and temperature levels. The Mad River Watershed is known to have Coho and Chinook Salmon as well as Steelhead trout which are designated as a Federally and State threatened species. Slopes on the site range from 0% to 35%. The hillslopes in the region are known to have high instability. The site geology is part of the Franciscan Complex which is primarily composed of Late Cretaceous to Pliocene sandstone, shale and minor conglomerate. The region was historically logged with legacy logging roads and landings throughout the site.

### 2.2. Site Overview

Structures on the approximately 40-acre property include one (1) residence with an unpermitted, working septic system, one (1) temporary residence, and three (3) storage sheds. The temporary residence roof is connected to twenty-nine (29) HDPE tanks for storing rainwater for irrigation. Two (2) HDPE tanks exist on the other side of the parcel. Water for domestic is pumped from two (2) onstream rainwater catchment ponds. The parcel is not grid tied and there are two (2) generators.

The site has three (3) outdoor cultivation areas (**CA**) and two (2) greenhouses (**GH**) outlined in Table 1. In total there is 22,672-ft<sup>2</sup> of cultivation. The site had approximately 77,536-ft<sup>2</sup> of disturbed area. No disturbed area is located within riparian setbacks. Yet, because there are disturbances on >30% slopes

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<sup>1</sup> Order entitled "STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2017-0023-DWQ GENERAL WASTE DISCHARGE REQUIREMENTS AND WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF WASTE ASSOCIATED WITH CANNABIS CULTIVATION ACTIVITIES"

GRC determines this site to be a moderate risk to watershed impairment according to SWRCB policy. Therefore, a Site Erosion and Sediment Control Plan will be included with this report.

Table 1. Cultivation area overview.

| Cultivation Area (CA) & Greenhouses (GH) | Disturbed Area (ft <sup>2</sup> ) | Natural Slope (%) | Distance to Water Body (ft)* | Water Body Classification |
|--|-----------------------------------|-------------------|------------------------------|---------------------------|
| CA1                                      | 4,370                             | 21                | 100                          | Class III                 |
| CA2                                      | 5,100                             | 16                | 100                          | Class III                 |
| CA3                                      | 9,430                             | 16                | 100                          | Class III                 |
| GH1                                      | 1,886                             | 30                | 200                          | Class III                 |
| GH2                                      | 1,886                             | 30                | 200                          | Class III                 |

\*Distance to Waterbody (ft) is not an exact distance; slope is not factored in.

### 2.3. Access Roads

The site has 0-miles of permanent roads, 0.9-miles of seasonal access roads, and 0.64-miles of skid roads. The seasonal roads are constructed with in situ soils. In general, seasonal access roads are drained via rolling dips and sloped outward. However, the seasonal access roads on the site were not fully stable according to the Pacific Watershed Associates (PWA) “Handbook for Forest, Ranch, and Rural Roads”. The seasonal access roads require resurfacing in areas to out slope the road and the installation of rolling dips to improve drainage patterns. Short sections had slopes that approached 20%. These sections shall be armored with crushed angular rock. Furthermore, there was slight hydrological connectivity to watercourses at the stream crossings. Stream crossings will be upgraded, and approaches will be rocked to alleviate sediment delivery. Segments of the skid road need to be stabilized by out sloping and installing rolling dips. These features will allow for long term use or allow for decommissioning of the road.

There is a road segment at **MP10** where the cutbank intercepted a spring seep which now flows down the access road. An inboard ditch will be constructed here to prevent erosion caused by surface runoff. The ditch will drain at a rolling dip surfaced with gravel onto a vegetated hill slope. There is an ATV trail through **CA2 & CA3** where a rill has formed (**MP8**). For location of disturbed areas requiring work see the Site Map. Roads are to be designed, constructed, and maintained, or reconstructed consistent with the *Road Handbook for Forest, Ranch, and Rural Roads* by Pacific Watershed Associates and implement the interim and long-term erosion control prevention and soil stabilization measures contained in “Attachment A”.

### 2.4. Stream Crossings

There are six (6) stream crossings on the property that are the responsibility of the property owner. All instream work will be permitted through the appropriate agencies (e.g. CDFW, SWRCB & Army Corps) before work commences. An LSAA has been submitted by GRC to CDFW for all instream work. The applicant is waiting for the permit to be approved and delivered, before the initiation of remediation work. See Table 2 for overview of the proposed instream work.

A seasonal access road on the property that is a route to the adjacent parcel has minimal stream crossing structure (**MP1**). Obtain permits for instream work and revamp the rocked ford (**STX1**).

A seasonal access road on the property that is a route to the adjacent parcel has an undersized culvert

(MP2). Obtain permits for instream work and upgrade to a properly sized culvert (STX2).

A skid road on the property that crosses a Class III watercourse twice has minimal stream crossing structure (MP3). Obtain permits for instream work and revamp the rocked fords (STX3 & STX4).

Obtain permits for instream work to create a pond bypass and revamp the rocked ford or install a culvert on the skid road at STX5 (MP5).

A skid road on the property that unused has minimal stream crossing structure (MP11). Obtain permits for instream work and revamp a rocked ford or decommission (STX6).

Table 2. Overview of stream crossing on the property.

| Stream Crossing (STX) | Existing Size (inch) | Type      | Watercourse Class | Action                   |
|-----------------------|----------------------|-----------|-------------------|--------------------------|
| STX1                  | NA                   | Rock Ford | III               | Maintain Rock Ford       |
| STX2                  | 12"                  | CPP       | III               | Upgrade to a 24" culvert |
| STX3                  | NA                   | Rock Ford | III               | Maintain Rock Ford       |
| STX4                  | NA                   | Rock Ford | III               | Maintain Rock Ford       |
| STX5                  | NA                   | Rock Ford | III               | Maintain Rock Ford       |
| STX6                  | NA                   | Rock Ford | III               | Maintain Rock Ford       |

## 2.5. Legacy Waste Discharges

Historical developments on this parcel include three sections of legacy skid road, likely developed during logging operations carried out in the area. These skid roads are for the most part in good condition and are drained via out sloping and rolling dips. There is a disturbed area on the skid road at MP6. A cut slope seeps along this road. The runoff has slightly eroded the road below. The applicant shall install and maintain two (2) rolling dips here to prevent erosion. By reshaping the road to have rolling dips that spans the entire cross section of the road, runoff will be discharged in a minimally erosive manner. The outlets of the rolling dips will have wash-rock and plants installed to reduce the force of discharge at the outlets and catch sediment. The applicant will vegetate the disturbed area with native grass seed or native *Juncus spp.* plugs, to slow, spread, and sink runoff. No areas of serious erosion were identified on the skid roads or cut slopes. The skid roads should be considered a very low risk of sediment deposition. The roads will be inspected regularly as part of the monitoring and reporting process, with drainage features maintained by hand when necessary.

## 3. Erosion Prevention and Sediment Capture

The disturbed areas consisted of the cultivation areas, soils/amendment piles, erosion prone road segments, and storage areas as shown on the Site Map. Map points correspond to the Remediation Summary Table found in section 10 of this report. The accompanying Site Erosion and Sediment Control Plan will encompass all remediation work in complete detail.

#### 4. Water Uses

Water for cannabis irrigation is sourced from the rainwater catchment systems. Rainwater is collected from a roof top (**Rain**) and supplemented by the two (2) rain collection ponds (**POD1 & POD2**) if storage not filled by rain. Rainwater is stored in the HDPE tanks for use during the forbearance period. Annual water use is summarized in Table 3.

The upper pond was developed in 1993, prior to the applicant's ownership. The lower pond used to be two (2) separate ponds. The berm separating the two was breached at some point and now these ponds are contiguous. The southern part of the lower pond was completed in 2007 and the northern portion was completed in 2012. The applicant shall follow recommendations from the waterboard and the recommendations published in the final LSAA from CDFW to maintain the structural integrity of the embankments.

The upper pond receives inputs from two (2) Class IV watercourses, seasonally fed by road runoff (**MP12**). Both will be vegetated to reduce erosion. The Class IV where intersected by the ATV Trail will be rocked to reduce erosion. The lower pond has a Class III drainage entering it on the southwest shore. These inputs are all delineated on the attached map. The Class III watercourse has a planned bypass proposed so that stream water does not enter the pond. The final determination of the pond configuration is still pending approval from the required agencies.

The applicant will be required file a Cannabis Small Irrigation Use Registration for use for the larger pond if water cannot be bypassed. This will include requesting a determination from the Deputy Director of the Division of Water rights to determine whether removal of the pond would cause more environmental damage than continuing to use the existing reservoir. If approved, the reservoir will be modified to comply with any stipulations outlined by the Deputy Director. A Statement of Diversion and Use was filed. The claim numbers for these points of diversion are S027347 for **POD1** and S027065 for **POD2**. Water for domestic uses is also drawn directly from the onstream rainwater catchment ponds any time of year (**POD1 & POD2**). The domestic use registration number is D032907.

The upper pond (**POD1**) is smaller with a surface area of approximately 0.2966 acres and a capacity of 1.661 acre-feet. The lower pond (**POD2**) has a surface area of approximately 1.4463 acres and a capacity of 9.112 acre-feet. The dam of the lower reservoir is approximately 400 ft in length and 20 ft high. The reservoirs must become permitted and the outflows must be stabilized following permitting by CDFW and the SWRCB Deputy Director. A bypass flow culvert must be installed according to the pending CDFW permit and SWRCB, at **MP5 (<p>By-Pass)**. The proposed bypass goes from the upslope Class III stream, around the lower pond to the lower pond's overflow channel (**POF**) and then confluences with the other Class III stream at **STX5**.

A staff gauge is installed in each pond. The gauges will be seasonally monitored to measure inputs during forbearance. As the drainages feeding the pond are generally dry during this time, minimal input is expected. If any input is detected, an equal volume of water will be pumped from the reservoirs into the lower **POF** channel.

During the season of diversion, bypass flow will be ensured by pumping from the pond to the **POF** channel until the ponds are full. Then the output flow will equal input. A 4" trash pump will be used to pump to



the **POF** channel. The pump will be stationed at least 50' from the nearby Class III watercourses and the pond's edge.

The **POF** between the upper pond and the lower pond has gullied (**MP4**). The lower **POF** must be upgraded (**STX5**). The channels will be heavily rock armored with large (>2ft) rock in the lower channel to reduce flow velocity and scouring. The rock should be large enough to resist being moved but not so large as to cause scouring of the channel sidewalls. The recommendation for revegetation is to plant native willow cuttings in the channel. See the LSAA and the design by SHN Consulting Engineers & Geologists, for details of the pond overflows (**POF**).

Table 3. Annual water uses on the parcel.

| Source              | Use      | Start Date | End Date | To Storage (gallons) | To Use (gallons) |
|---------------------|----------|------------|----------|----------------------|------------------|
| Rain Catchment HDPE | Storage  | Apr. 1     | Nov. 1   | n/a                  | 120,000          |
| Rain Catchment Pond | Cannabis | Nov.1      | Mar. 31  | n/a                  | 0                |
| POD1                | Domestic | Apr. 1     | Nov. 1   | n/a                  | 20,000           |
| POD2                | Domestic | Apr. 1     | Nov. 1   | n/a                  | 20,000           |

The site has a total of 120,000 gallons of HDPE water storage available which is summarized in Table 4. Irrigation methods will ensure water is applied at agronomic rates. Using drip irrigation and irrigating deeply during the early morning is recommended. All irrigation infrastructure will be regularly inspected for leaks and immediately repaired if any are found. Woodchips or rice straw will be used as mulch in cultivation areas that do not have vegetative ground cover to reduce evaporation and conserve water. The cultivator will record irrigation water usage by installing water meters and maintaining records on site for a minimum of 5 years.

Table 4. Summary of water storage on the parcel.

| Water Storage Type | Size (gallons) | Quantity | Total (gallons) |
|--------------------|----------------|----------|-----------------|
| HDPE               | 5,000          | 12       | 60,000          |
| HDPE               | 4,250          | 10       | 42,500          |
| HDPE               | 2,500          | 7        | 17,500          |
| <b>Total:</b>      |                |          | <b>120,000</b>  |

## 5. Fertilizers, Pesticides and Herbicides

### 5.1. Application, Storage and Disposal

All fertilizers, pesticides, herbicides and rodenticides will be mixed or prepared in locations where they cannot enter a waterbody (surface or groundwater). Fertilizers, pesticides, herbicides and rodenticides shall be applied at agronomic rates specified on the product label. The enrollee will keep a log of their fertilizers, pesticides and herbicides use for annual reporting. All labels will be kept, and directions followed when amendments and fertilizers are applied. All liquid chemicals will be stored in separate secondary containment. During the off season all chemicals will be stored in a covered building. Agricultural chemicals will not be applied within 48-hour of a predicted rain event with a 50% or greater chance of 0.25-inches. Disposal of unused products will be consistent with labels on containers. Empty containers will be disposed of at an authorized recycling center. A spill clean-up kit will be stored in the



garage/shop. No restricted materials or pesticides will be used or stored on site. No greater than 319 pounds of nitrogen per acre per year shall be applied. A summary of fertilizers, pesticides, and herbicides used annually are listed below in Table 5. A calculation completed by GRC, clarified that the amount applied per acre per year is 198.67 lbs. of nitrogen and 238.67 lbs. of phosphorous.

Table 5. Overview of annual chemical use.

| Product Name  | Chemical Type | N-P-K or Active Ingredient | Annual Use (lbs. or gallons) |
|---------------|---------------|----------------------------|------------------------------|
| Chicken       | Fertilizers   | 4-3-2                      | 1650-lbs.                    |
| Bat Guano     | Fertilizers   | 1-10-0                     | 700-lbs.                     |
| Worm Castings | Fertilizers   | 0.1-0-0                    | 2000-lbs.                    |
| Fish          | Fertilizers   | 5-1-1                      | 40-gal.                      |
| Kelp          | Fertilizers   | 1-0-4                      | 80-gal.                      |

## 5.2. Spill Prevention and Clean Up

A spill cleanup kit will be located near or made available wherever chemicals, fuels, or amendments are stored or used. In case of a major spill of fertilizers, or any petroleum products, the cannabis cultivator shall immediately notify the California Office of Emergency Services at 1-800-852-7550 and initiate cleanup activities for all spills that could enter a waterbody or degrade groundwater.

## 6. Petroleum

### 6.1. Use, Storage, and Disposal

The site is powered by two (2) generators. At **MP9** a large fuel canister on a concrete pad has no cover from rain or debris. A cover must be installed to maintain adequate volume of the accidental spill basin in all circumstances. The other generator is contained according to SWRCB policy. Fueling of the generators, as well as any other equipment or vehicles, will also take place outside of the riparian setbacks. All equipment containing petroleum derivatives will be inspected regularly for leaks. When the generators are not in use they will be stored in a covered building with an impermeable floor. A summary of annual petroleum use is listed below in Table 6.

Table 6. Overview annual petroleum usage.

| Product   | Chemical Type | Annual Use (lbs. or gallons) |
|-----------|---------------|------------------------------|
| Gasoline  | Petroleum     | 1000-gallons                 |
| Motor Oil | Petroleum     | 40-gallons                   |

## 7. Cultivation Waste, Trash/Refuse and Domestic Wastewater

### 7.1. Trash/Refuse Overview

All trash is locked up in the storage on site and is removed on a regular basis to a waste management facility. No trash or debris will be allowed to enter a watercourse or riparian setback area. Compostable cultivation waste will be stored in a location and manner where it cannot be transported to surface waters. Spent growth medium (e.g. soil) shall either be reused, disposed of at an appropriate waste site, or be

spread outside of riparian setbacks and planted with native vegetation.

## 7.2. Domestic Wastewater BPTC Measures

The residence on the site has a working unpermitted septic system (**MP7**). Portable chemical toilets are on site for the seasonal workers. Portable toilets are serviced regularly, located outside of riparian setbacks, and away from unstable areas.

## 8. Winterization Measures

### 8.1. Summary

It is required that winterization measures be completed annually before the onset of the winter rainy season. The SWRCB has defined the winter season as beginning November 1<sup>st</sup> and concluding April 1<sup>st</sup>. Winterization measures apply to cultivation areas, any additional disturbed areas including roads, and stream crossings. These measures aim to prepare the site for an extended period of heavy precipitation during which frequent access, monitoring, and maintenance can be challenging or infeasible. The end goal is to reduce the erosion of unstable areas and prevent the delivery of eroded sediment to sensitive waterways. One of the primary techniques of winterization consists of stabilizing all bare soils with straw and seed. Fiber rolls shall additionally be installed at grade breaks and along slopes of disturbed areas to break up flow paths, thereby reducing the speed and erosive energy of runoff. No heavy machinery shall be used during the winter season to avoid the degradation of saturated roadways and unstable surfaces. Soil stockpiles shall be guarded before the onset of winter with a cover and/or perimeter controls such as fiber rolls. Culverts shall be inspected and maintained to ensure integrity during winter. This includes clearing inlets and outlets of sediment and/or debris and ensuring that sufficient energy dissipation exists at outlets to reduce bank erosion. Seasonal access roads shall be locked to ensure that roads are not in use during the wet season by trespassers. Aside from the erosion control components to winterization, a general and thorough site cleanup will be performed to remove all refuse from the site. Additionally, all fertilizers and petroleum products to be left on site will be stored in secondary containment and locked in the shipping container to avoid spillage and discharge to surface or groundwater. Winterization measures for medium risk sites are covered in more detail in the Site Erosion and Sediment Control Plan to be submitted for that site.

## 9. Monitoring

Monitoring is broken up into 3 reports; Facility Status, Site Maintenance, and Storm Water Runoff Monitoring. For Low Risk sites the only monitoring report required is the Facility Status Report. For Moderate sites all three monitoring reports need to be completed. See "Site Erosion and Sediment Control Plan" for details on the Site Maintenance and Storm Water Runoff Monitoring. Annual reports for the cultivation site will be submitted to the North Coast Regional Water Quality and Control Board (NCRWQCB) prior to March 1 of the following year. The annual report shall include the following: Facility Status, Site Maintenance, and Storm Water Runoff Monitoring; Name and contact information for the person responsible for operation, maintenance, and monitoring. Reporting documents can be emailed to [northcoast@waterboards.ca.gov](mailto:northcoast@waterboards.ca.gov) or mailed to 5550 Skylane Blvd., Ste. A, Santa Rosa, CA 95403.

Table 7. Facility status monitoring requirements.

| Monitoring Requirement             | Description   |
|------------------------------------|---|
| Winterization Measures Implemented | Report winterization procedures implemented, any outstanding measures, and the schedule for completion.   |
| Tier Status Confirmation           | Report any change in tier status. (Stabilization of disturbed areas may change the tier status of a facility. Contact the Regional Water Board if a change in status is appropriate.)           |
| Third Party Identification         | Report any change in third party status as appropriate.   |
| Nitrogen Application               | Report monthly and annual total nitrogen use for bulk, solid, and liquid forms of nitrogen. Provide the data as lbs./canopy acre/time (month or year) as described in Nitrogen Management Plan. |

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

**Legally Responsible Person** \_\_\_\_\_ **Date** \_\_\_\_\_

### 10. Remediation Summary Table

| Map Point (MP) | Topic  | Issue   | Remediation Measure  | Treatment Priority | Expected Completion Date            | Actual Completion Date |
|----------------|--|---|--|--------------------|-------------------------------------|------------------------|
| MP1            | Stream Crossing Maintenance                              | A seasonal access road on the property that is access to the adjacent parcel has minimal stream crossing structure. | Obtain permits for instream work and install rocked ford.  | High               | October 2021<br>CDFW permit pending |                        |
| MP2            | Stream Crossing Maintenance                              | A seasonal access road on the property that is access to the adjacent parcel has an undersized culvert.             | Obtain permits for instream work and install a properly sized culvert.   | High               | October 2021<br>CDFW permit pending |                        |
| MP3            | Stream Crossing Maintenance                              | A skid road on the property that crosses a Class III watercourse twice has minimal stream crossing structure.       | Obtain permits for instream work and install a rocked ford for both stream crossings.  | High               | October 2021<br>CDFW permit pending |                        |
| MP4            | Site Maintenance, Erosion Control, and Drainage Features | The POF channel from the upper pond leading to the lower pond is eroding.   | The channel will be reconstructed, rock lined, and planted with vegetation.  | High               | October 2021<br>CDFW permit pending |                        |
| MP5            | Site Maintenance, Erosion Control, and Drainage Features | The lower pond requires bypass flow. The POF needs further stabilization and reconstructing.                        | The Class III watercourse will be routed around the lower pond and into a reconstructed pond overflow channel. See the LSAA and design created by SHN - Consulting Engineers & Geologists for the pond overflow details. | High               | October 2021<br>CDFW permit pending |                        |
| MP5            | Stream Crossing Maintenance                              | A rocked ford at STX5 requires revamping.   | Obtain a permit and install additional rock.   | High               | October 2021<br>CDFW permit pending |                        |
| MP6            | Site Maintenance, Erosion Control, and Drainage Features | A cut slope is seeping and erodes the skid road.  | Install a rolling dip to dissipate runoff. Place wash-rock and vegetate the outlet of the rolling dip.   | High               | October 2020                        |                        |
| MP7            | Refuse and Human Waste                                   | Working septic system is not permitted.   | Retroactively permit the septic system and use portable chemical toilets for workers.  | Moderate           | October 2020                        |                        |

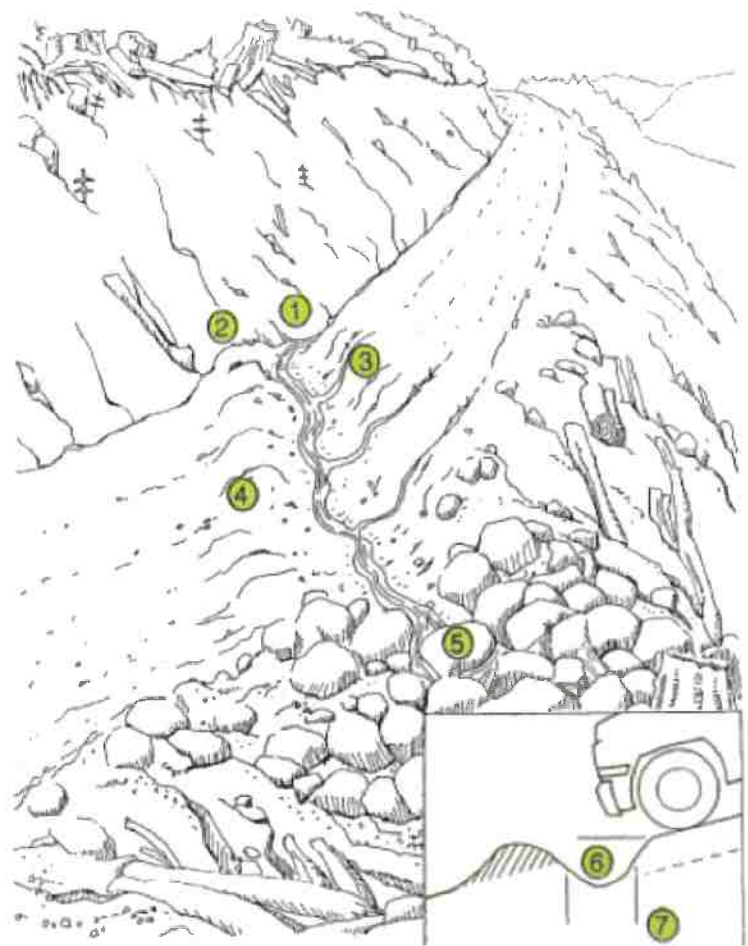
| Map Point (MP) | Topic  | Issue   | Remediation Measure  | Treatment Priority | Expected Completion Date            | Actual Completion Date |
|----------------|--|---|--|--------------------|-------------------------------------|------------------------|
| MP8            | Site Maintenance, Erosion Control, and Drainage Features | ATV trail between cultivation area had sign of surface erosion.   | Install rolling dip every ~75-ft.  | Moderate           | October 2020                        |                        |
| MP9            | Petroleum Products and Other Chemicals                   | A large fuel canister on a concrete pad with containment but no cover.  | Install cover to prevent the drip catchment from being compromised.  | Moderate           | October 2020                        |                        |
| MP10           | Site Maintenance, Erosion Control, and Drainage Features | A spring seep comes out of cut bank that erodes the access road.  | Inslope road and install an inboard ditch to capture spring seep. Relieve the ditch at a rocked rolling dip.           | Moderate           | October 2020                        |                        |
| MP11           | Stream Crossing Maintenance                              | A disused skid road on the property has minimal stream crossing structure.  | Obtain permits for instream work and revamp rocked ford or decommission.   | High               | October 2021<br>CDFW permit pending |                        |
| MP12           | Site Maintenance, Erosion Control, and Drainage Features | Two (2) Class IV man made channels seasonally send flow into the upper pond. The ATV Trail lacks sufficient surface gravel at the point of intersection with the Class IV and both the outlets lack vegetation. | Lay surface gravel where the Class IV and the ATV trail intersect. Vegetate at the Class IV outlets to reduce erosion. | Moderate           | October 2020                        |                        |

## **11. Appendices**

- Water Bar and Rolling Dip Diagram
- Types of rolling dips Diagram
- Site Map APN: 2018-201-020
- Section 2 – Requirements Related to Water Diversions and Waste Discharge for Cannabis Cultivation



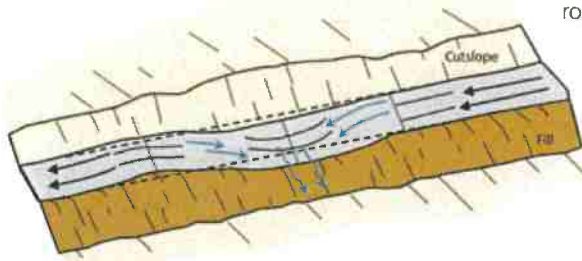
**FIGURE 40.** Waterbars are constructed on unsurfaced forest and ranch roads that will have little or no traffic during the wet season. The waterbar should be extended to the cutbank to intercept all ditch flow (1) and extend beyond the shoulder of the road. A berm (2) must block and prevent ditch flow from continuing down the road during flood flows. The excavated waterbar (3) should be constructed to be self-cleaning, typically with a 30° skew to the road alignment with the excavated material bermed on the downhill grade of the road (4). Water should always be discharged onto the downhill side on a stable slope protected by vegetation. Rock (shown in the figure) should not be necessary if waterbars are spaced close enough to prevent serious erosion. (5) The cross ditch depth (6) and width (7) must allow vehicle cross-over without destroying the function of the drain. Several alternate types of waterbars are possible, including one that drains only the road surface (not the ditch), and one that drains the road surface into the inside ditch (RCMF, 1991).



**TABLE 21.** Table of rolling dip dimensions<sup>1</sup>

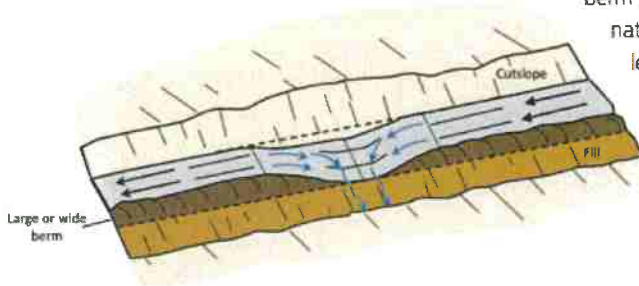
| Road grade (%) | Upslope approach <sup>2</sup> (distance from up-road start of rolling dip to trough) (ft) | Reverse grade <sup>2</sup> (distance from trough to crest) (ft) | Depth below average road grade at discharge end of trough <sup>2</sup> (ft) | Depth below average road grade at upslope end of trough <sup>2</sup> (ft) |
|----------------|---|---|---|---|
| <6             | 55  | 15-20   | 0.9   | 0.3   |
| 8              | 65  | 15-20   | 1.0   | 0.2   |
| 10             | 75  | 15-20   | 1.1   | 0.1   |
| 12             | 85  | 20-25   | 1.2   | 0.1   |
| >12            | 100   | 20-25   | 1.3   | 0.1   |

Type 1 Rolling Dip  
(Standard)



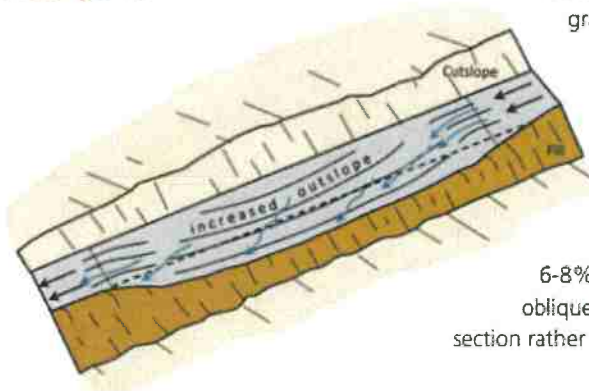
Type 1 rolling dips are used where road grades are less than about 12-14% and road runoff is not confined by a large through cut or berm. The axis of the dip should be perpendicular to the road alignment and sloped at 3-4% across the road tread. Steep roads will have longer and more abrupt dip dimensions to develop reverse grade through the dip axis. The road tread and/or the dip outlet can be rocked to protect against erosion, if needed.

Type 2 Rolling Dip  
(Through-cut or thick berm road reaches)



Type 2 rolling dips are constructed on roads up to 12-14% grade where there is a through cut up to 3 feet tall, or a wide or tall berm that otherwise blocks road drainage. The berm or native through cut material should be removed for the length of the dip, or at least through the axis of the dip, to the extent needed to provide for uninterrupted drainage onto the adjacent slope. The berm and slope material can be excavated and endhauled, or the material can be sidecast onto native slopes up to 45%, provided it will not enter a stream.

Type 3 Rolling Dip  
(Steep road grade)



Type 3 rolling dips are utilized where road grades are steeper than about 12% and it is not feasible to develop a reverse grade that will also allow passage of the design vehicle (steep road grades require more abrupt grade reversals that some vehicles may not be able to traverse without bottoming out).

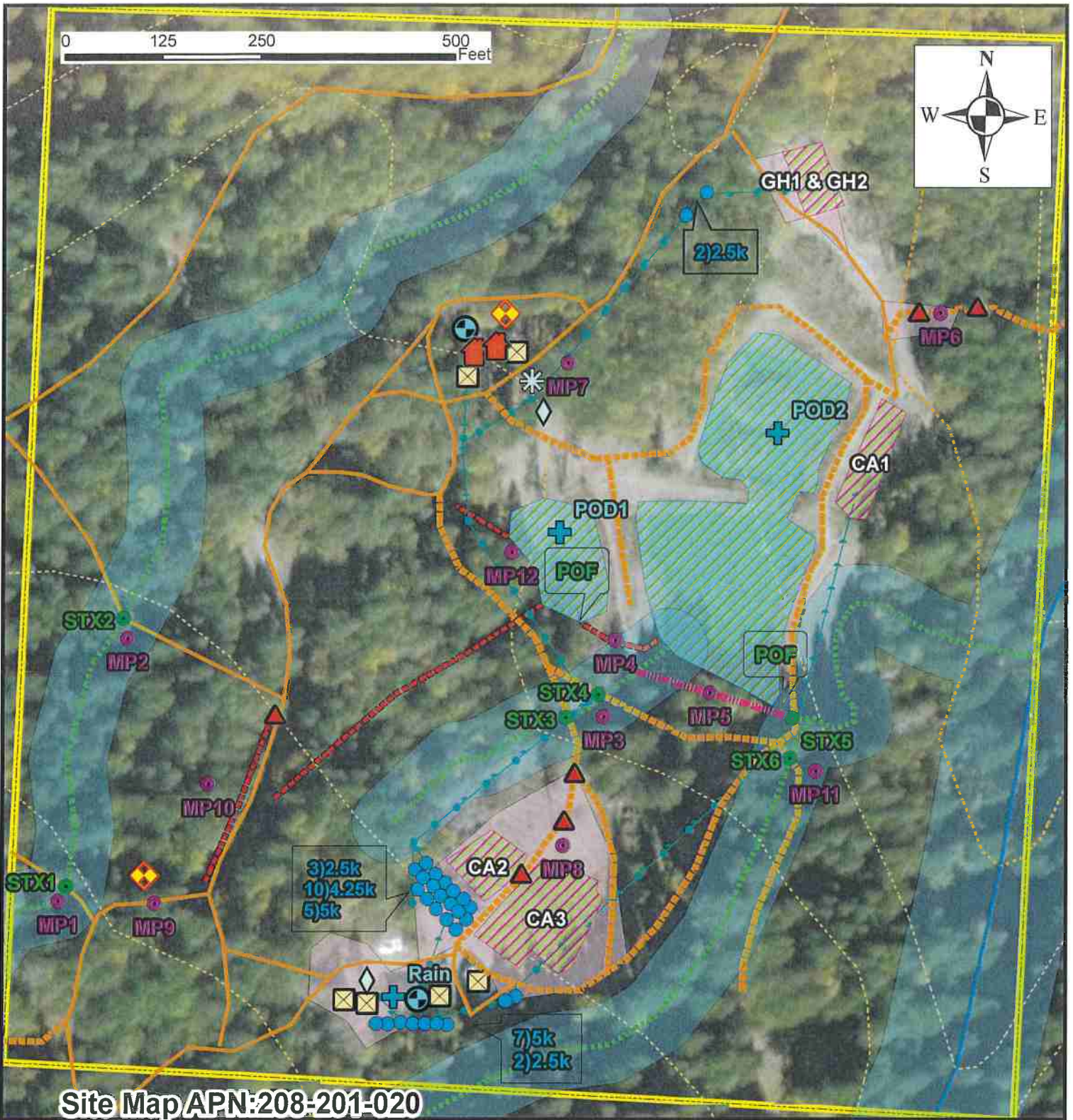
Instead of relying on the dip's grade reversal to turn runoff off the roadbed, the road is built with an exaggerated outslope of 6-8% across the dip axis. Road runoff is deflected obliquely across the dip axis and is shed off the outsloped section rather than continuing down the steep road grade.

FIGURE 36. Rolling dip types

Work Cited

- <sup>1</sup>Weaver, William, PHD, Eileen Weppner, P.G., and Danny Hagans, CPESC. "Handbook for Forest, Ranch, & Rural Roads: A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads." Pacific Watershed Associates. 2014. Accessed 2019. [http://www.pacificwatershed.com/sites/default/files/5\\_-\\_chapter\\_4\\_-\\_road\\_and\\_stream\\_crossing\\_design.pdf](http://www.pacificwatershed.com/sites/default/files/5_-_chapter_4_-_road_and_stream_crossing_design.pdf)





**Site Map APN:208-201-020**

- |                             |                               |                      |                    |
|-----------------------------|-------------------------------|----------------------|--------------------|
| Pond                        | <b>Humboldt Contours 40ft</b> | Class IV Watercourse | Fertilizer Storage |
| Approximate Parcel Boundary | Index Contours                | <P> Bypass           | Water Tank         |
| Riparian Buffer Zone        | Intermediate Contours         | Portable Toilet      | Watersource        |
| Cultivation Area (CA)       | Water Line                    | Septic               | Stream Crossing    |
| Disturbed Area              | <b>Watercourse</b>            | Residence            | Map Point (MP)     |
| Permanent Road              | Class I Watercourse           | Storage Shed         | Rolling Dip        |
| Seasonal Road               | Class II Watercourse          | Fuel Storage         |                    |
| ATV Trail                   | Class III Watercourse         |                      |                    |

Contour Interval: 40ft  
Imagery: 2016 NAIP



## SECTION 2 – REQUIREMENTS RELATED TO WATER DIVERSIONS AND WASTE DISCHARGE FOR CANNABIS CULTIVATION

The following Requirements apply to any water diversion or waste discharge related to cannabis cultivation.

| No.   | TERM  |
|---|---|
| <b>Land Development and Maintenance, Erosion Control, and Drainage Features</b> |   |
| <b>Limitations on Earthmoving</b>   |   |
| 1.  | <p>Cannabis cultivators shall not conduct grading activities for cannabis cultivation land development or alteration on slopes exceeding 50 percent grade, or as restricted by local county or city permits, ordinances, or regulations for grading, agriculture, or cannabis cultivation; whichever is more stringent shall apply.</p> <p>The grading prohibition on slopes exceeding 50 percent does not apply to site mitigation or remediation if the cannabis cultivator is issued separate WDRs or an enforcement order for the activity by the Regional Water Board Executive Officer.</p>   |
| 2.  | <p>Finished cut and fill slopes, including side slopes between terraces, shall not exceed slopes of 50 percent and should conform to the natural pre-grade slope whenever possible.</p>   |
| 3.  | <p>Cannabis cultivators shall not drive or operate vehicles or equipment within the riparian setbacks or within waters of the state unless authorized under 404/401 CWA permits, a CDFW LSA Agreement, coverage under the Cannabis General Order water quality certification, or site-specific WDRs issued by the Regional Water Board. This requirement does not prohibit driving on established, maintained access roads that are in compliance with this Policy.</p>   |
| 4.  | <p>Cannabis cultivation land development and access road construction shall be designed by qualified professionals. Cannabis cultivators shall conduct all construction or land development activities to minimize grading, soil disturbance, and disturbance to aquatic and terrestrial habitat.</p>   |
| 5.  | <p>The cannabis cultivator shall control all dust related to cannabis cultivation activities to ensure dust does not produce sediment-laden runoff. The cannabis cultivator shall implement dust control measures, including, but not limited to, pre-watering of excavation or grading sites, use of water trucks, track-out prevention, washing down vehicles or equipment before leaving a site, and prohibiting land disturbance activities when instantaneous wind speeds (gusts) exceed 25 miles per hour. Cannabis cultivators shall grade access roads in dry weather while moisture is still present in soil to minimize dust and to achieve design soil compaction, or when needed use a water truck to control dust and soil moisture.</p> |
| <b>Construction Equipment Use and Limitations</b>                               |   |

|                        |   |
|------------------------|---|
| 6.                     | Cannabis cultivators shall employ spill control and containment practices to prevent the discharge of fuels, oils, solvents and other chemicals to soils and waters of the state.   |
| 7.                     | <p>Cannabis cultivators shall stage and store equipment, materials, fuels, lubricants, solvents, or hazardous or toxic materials in locations that minimize the potential for discharge to waters of the state. At a minimum, the following measures shall be implemented:</p> <ol style="list-style-type: none"> <li>1. Designate an area outside the riparian setback for equipment storage, short-term maintenance, and refueling. Cannabis cultivator shall not conduct any maintenance activity or refuel equipment in any location where the petroleum products or other pollutants may enter waters of the state as per Fish and Game Code section 5650 (a)(1).</li> <li>2. Frequently inspect equipment and vehicles for leaks.</li> <li>3. Immediately clean up leaks, drips, and spills. Except for emergency repairs that are necessary for safe transport of equipment or vehicles to an appropriate repair facility, equipment or vehicle repairs, maintenance, and washing onsite is prohibited.</li> <li>4. If emergency repairs generate waste fluids, ensure they are contained and properly disposed or recycled off-site.</li> <li>5. Properly dispose of all construction debris off-site.</li> <li>6. Use dry cleanup methods (e.g., absorbent materials, cat litter, and/or rags) whenever possible. Sweep up, contain, and properly dispose of spilled dry materials.</li> </ol> |
| <b>Erosion Control</b> |   |
| 8.                     | The cannabis cultivator shall use appropriate erosion control measures to minimize erosion of disturbed areas, potting soil, or bulk soil amendments to prevent discharges of waste. Fill soil shall not be placed where it may discharge into surface water. If used, weed-free straw mulch shall be applied at a rate of two tons per acre of exposed soils and, if warranted by site conditions, shall be secured to the ground.   |
| 9.                     | The cannabis cultivator shall not plant or seed noxious weeds. Prohibited plant species include those identified in the California Invasive Pest Plant Council's database, available at: <a href="http://www.cal-ipc.org/paf/">www.cal-ipc.org/paf/</a> . Locally native, non-invasive, and non-persistent grass species may be used for temporary erosion control benefits to stabilize disturbed land and prevent exposure of disturbed land to rainfall. Nothing in this term may be construed as a ban on cannabis cultivation that complies with the terms of this Policy.   |
| 10.                    | <p>Cannabis cultivators shall incorporate erosion control and sediment detention devices and materials into the design, work schedule, and implementation of the cannabis cultivation activities. The erosion prevention and sediment capture measures shall be effective in protecting water quality.</p> <ul style="list-style-type: none"> <li>• Interim erosion prevention and sediment capture measures shall be implemented within seven days of completion of grading and land disturbance activities, and</li> </ul>  |

|                   |  |
|-------------------|--|
|                   | <p>shall consist of erosion prevention measures and sediment capture measures including:</p> <ul style="list-style-type: none"> <li>○ Erosion prevention measures are required for any earthwork that uses heavy equipment (e.g., bulldozer, compactor, excavator, etc.). Erosion prevention measures may include surface contouring, slope roughening, and upslope storm water diversion. Other types of erosion prevention measures may include mulching, hydroseeding, tarp placement, revegetation, and rock slope protection.</li> <li>○ Sediment capture measures include the implementation of measures such as gravel bag berms, fiber rolls, straw bale barriers, properly installed silt fences, and sediment settling basins.</li> <li>● Long-term erosion prevention and sediment capture measures shall be implemented as soon as possible and prior to the onset of fall and winter precipitation. Long-term measures may include the use of heavy equipment to reconfigure access roads or improve access road drainage, installation of properly-sized culverts, gravel placement on steeper grades, and stabilization of previously disturbed land.</li> <li>● Maintenance of all erosion protection and sediment capture measures is required year round. Early monitoring allows for identification of problem areas or underperforming erosion or sediment control measures. Verification of the effectiveness of all erosion prevention and sediment capture measures is required as part of winterization activities.</li> </ul> |
| <p><b>11.</b></p> | <p>Cannabis cultivators shall only use geotextiles, fiber rolls, and other erosion control measures made of loose-weave mesh (e.g., jute, coconut (coir) fiber, or from other products without welded weaves). To minimize the risk of ensnaring and strangling wildlife, cannabis cultivators shall not use synthetic (e.g., plastic or nylon) monofilament netting materials for erosion control for any cannabis cultivation activities. This prohibition includes photo- or bio-degradable plastic netting.</p>  |
| <p><b>12.</b></p> | <p>Cultivation sites constructed on or near slopes with a slope greater than or equal to 30 percent shall be inspected for indications of instability. Indications of instability include the occurrence of slope failures at nearby similar sites, weak soil layers, geologic bedding parallel to slope surface, hillside creep (trees, fence posts, etc. leaning downslope), tension cracks in the slope surface, bulging soil at the base of the slope, and groundwater discharge from the slope. If indicators of instability are present, the cannabis cultivator shall consult with a qualified professional to design measures to stabilize the slope to prevent sediment discharge to surface waters.</p>  |
| <p><b>13.</b></p> | <p>For areas outside of riparian setbacks or for upland areas, cannabis cultivators shall ensure that rock placed for slope protection is the minimum amount necessary and is part of a design that provides for native plant revegetation. If retaining walls or other structures are required to provide slope stability, they shall be designed by a qualified professional.</p>  |
| <p><b>14.</b></p> | <p>Cannabis cultivators shall monitor erosion control measures during and after each storm event that produces at least 0.5 in/day or 1.0 inch/7 days of precipitation, and repair or replace, as needed, ineffective erosion control measures immediately.</p>  |



**Access Road/Land Development and Drainage**

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|-------------------|--|
| <p><b>15.</b></p> | <p>Access roads shall be constructed consistent with the requirements of California Code of Regulations Title 14, Chapter 4. The Road Handbook describes how to implement the regulations and is available at &lt;<a href="http://www.pacificwatershed.com/PWA-publications-library">http://www.pacificwatershed.com/PWA-publications-library</a>&gt;. Existing access roads shall be upgraded to comply with the Road Handbook.</p>   |
| <p><b>16.</b></p> | <p>Cannabis cultivators shall obtain all required permits and approvals prior to the construction of any access road constructed for cannabis cultivation activities. Permits may include section 404/401 CWA permits, Regional Water Board WDRs (when applicable), CDFW LSA Agreement, and county or local agency permits.</p>  |
| <p><b>17.</b></p> | <p>Cannabis cultivators shall ensure that all access roads are hydrologically disconnected to receiving waters to the extent possible by installing disconnecting drainage features, increasing the frequency of (inside) ditch drain relief as needed, constructing out-sloped roads, constructing energy dissipating structures, avoiding concentrating flows in unstable areas, and performing inspection and maintenance as needed to optimize the access road performance.</p>  |
| <p><b>18.</b></p> | <p>New access road alignments should be constructed with grades (slopes) of 3- to 8-percent, or less, wherever possible. Forest access roads should generally be kept below 12-percent except for short pitches of 500 feet or less where road slopes may go up to 20-percent. These steeper access road slopes should be paved or rock surfaced and equipped with adequate drainage. Existing access roads that do not comply with these limits shall be inspected by a qualified professional to determine if improvements are needed.</p>   |
| <p><b>19.</b></p> | <p>Cannabis cultivators shall decommission or relocate existing roads away from riparian setbacks whenever possible. Roads that are proposed for decommissioning shall be abandoned and left in a condition that provides for long-term, maintenance-free function of drainage and erosion controls. Abandoned roads shall be blocked to prevent unauthorized vehicle traffic.</p>   |
| <p><b>20.</b></p> | <p>If site conditions prohibit drainage structures (including rolling dips and ditch-relief culverts) at adequate intervals to avoid erosion, the cannabis cultivator shall use bioengineering techniques<sup>12</sup> as the preferred measure to minimize erosion (e.g., live fascines). If bioengineering cannot be used, then engineering fixes such as armoring (e.g., 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) may be used for problem sites. The maximum distance between water breaks shall not exceed those defined in the Road Handbook.</p> |
| <p><b>21.</b></p> | <p>Cannabis cultivators shall have a qualified professional design the optimal access road alignment, surfacing, drainage, maintenance requirements, and spoils handling</p>   |

<sup>12</sup> A Primer on Stream and River Protection for the Regulator and Program Manager: Technical Reference Circular W.D. 02-#1, San Francisco Bay Region, California Regional Water Board (April 2003) [http://www.waterboards.ca.gov/sanfranciscobay/water\\_issues/programs/stream\\_wetland/streamprotectio ncircular.pdf](http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stream_wetland/streamprotectio ncircular.pdf).

|     |  |
|-----|--|
|     | procedures.  |
| 22. | Cannabis cultivators shall ensure that access road surfacing, especially within a segment leading to a waterbody, is sufficient to minimize sediment delivery to the wetland or waterbody and maximize access road integrity. Road surfacing may include pavement, chip-seal, lignin, rock, or other material appropriate for timing and nature of use. All access roads that will be used for winter or wet weather hauling/traffic shall be surfaced. Steeper access road grades require higher quality rock (e.g., crushed angular versus river-run) to remain in place. The use of asphalt grindings is prohibited.  |
| 23. | Cannabis cultivators shall install erosion control measures on all access road approaches to surface water diversion sites to reduce the generation and transport of sediment to streams.  |
| 24. | Cannabis cultivators shall ensure that access roads are out-sloped whenever possible to promote even drainage of the access road surface, prevent the concentration of storm water flow within an inboard or inside ditch, and to minimize disruption of the natural sheet flow pattern off a hill slope to a stream.  |
| 25. | If unable to eliminate inboard or inside ditches, the cannabis cultivator shall ensure adequate ditch relief culverts to prevent down-cutting of the ditch and to reduce water runoff concentration, velocity, and erosion. Ditches shall be designed and maintained as recommended by a qualified professional. To avoid point-source discharges, inboard ditches and ditch relief culverts shall be discharged onto vegetated or armored slopes that are designed to dissipate and prevent runoff channelization. Inboard ditches and ditch relief culverts shall be designed to ensure discharges into natural stream channels or watercourses are prevented. |
| 26. | Cannabis cultivators shall ensure that access roads are not allowed to develop or show evidence of significant surface rutting or gulying. Cannabis cultivators shall use water bars and rolling dips as designed by a qualified professional to minimize access road surface erosion and dissipate runoff.  |
| 27. | Cannabis cultivators shall only grade ditches when necessary to prevent erosion of the ditch, undermining of the banks, or exposure of the toe of the cut slope to erosion. Cannabis cultivators shall not remove more vegetation than necessary to keep water moving, as vegetation prevents scour and filters out sediment.  |
| 28. | Access road storm water drainage structures shall not discharge onto unstable slopes, earthen fills, or directly to a waterbody. Drainage structures shall discharge onto stable areas with straw bales, slash, vegetation, and/or rock riprap.  |
| 29. | Sediment control devices (e.g., check dams, sand/gravel bag barriers, etc.) shall be used when it is not practical to disperse storm water before discharge to a waterbody. Where potential discharge to a wetland or waterbody exists (e.g., within 200 feet of a waterbody) access road surface drainage shall be filtered through vegetation, slash, other appropriate material, or settled into a depression with an outlet with adequate drainage. Sediment basins shall be engineered and properly sized to allow sediment settling, spillway stability, and maintenance activities.   |

| <b>Drainage Culverts (See also Watercourse Crossings)</b> |  |
|---|--|
| <b>30.</b>  | Cannabis cultivators shall regularly inspect ditch-relief culverts and clear them of any debris or sediment. To reduce ditch-relief culvert plugging by debris, cannabis cultivators shall use 15- to 24-inch diameter pipes, at minimum. In forested areas with a potential for woody debris, a minimum 18-inch diameter pipe shall be used to reduce clogging. Ditch relief culverts shall be designed by a qualified professional based on site-specific conditions.  |
| <b>31.</b>  | Cannabis cultivators shall ensure that all permanent watercourse crossings that are constructed or reconstructed are capable of accommodating the estimated 100-year flood flow, including debris and sediment loads. Watercourse crossings shall be designed and sized by a qualified professional.   |
| <b>Cleanup, Restoration, and Mitigation</b>               |  |
| <b>32.</b>  | Cannabis cultivators shall limit disturbance to existing grades and vegetation to the actual site of the cleanup or remediation and any necessary access routes.   |
| <b>33.</b>  | <p>Cannabis cultivators shall avoid damage to native riparian vegetation. All exposed or disturbed land and access points within the stream and riparian setback with damaged vegetation shall be restored with regional native vegetation of similar native species. Riparian trees over four inches diameter at breast height shall be replaced by similar native species at a ratio of three to one (3:1). Restored areas must be mulched, using at least 2 to 4 inches of weed-free, clean straw or similar biodegradable mulch over the seeded area. Mulching shall be completed within 30 days after land disturbance activities in the areas cease. Revegetation planting shall occur at a seasonally appropriate time until vegetation is restored to pre-cannabis or pre-Legacy condition or better.</p> <p>Cannabis cultivators shall stabilize and restore any temporary work areas with native vegetation to pre-cannabis cultivation or pre-Legacy conditions or better. Vegetation shall be planted at an adequate density and variety to control surface erosion and re-generate a diverse composition of regional native vegetation of similar native species.</p> |
| <b>34.</b>  | Cannabis cultivators shall avoid damage to oak woodlands. Cannabis cultivator shall plant three oak trees for every one oak tree damaged or removed. Trees may be planted in groves in order to maximize wildlife benefits and shall be native to the local county.  |
| <b>35.</b>  | <p>Cannabis cultivators shall develop a revegetation plan for:</p> <ul style="list-style-type: none"> <li>• All exposed or disturbed riparian vegetation areas,</li> <li>• any oak trees that are damaged or removed, and</li> <li>• temporary work areas.</li> </ul> <p>Cannabis cultivators shall develop a monitoring plan that evaluates the revegetation plan for five years. Cannabis cultivators shall maintain annual inspections for the purpose of assessing an 85 percent survival and growth of revegetated areas within a five-year period. The presence of exposed soil shall be documented for three years following revegetation work. If the revegetation results in less than an 85 percent success rate, the unsuccessful vegetation areas shall be replanted. Cannabis cultivators shall identify the location and extent of exposed soil associated with the site; pre- and post-revegetation</p>   |

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|  | work photos; diagram of all areas revegetated, the planting methods, and plants used; and an assessment of the success of the revegetation program. Cannabis cultivators shall maintain a copy of the revegetation plan and monitoring results onsite and make them available, upon request, to Water Boards staff or authorized representatives. An electronic copy of monitoring results is acceptable in Portable Document Format (PDF).  |
| 36.  | Cannabis cultivators shall revegetate soil exposed as a result of cannabis cultivation activities with native vegetation by live planting, seed casting, or hydroseeding within seven days of exposure.  |
| 37.  | Cannabis cultivators shall prevent the spread or introduction of exotic plant species to the maximum extent possible by cleaning equipment before delivery to the cannabis cultivation Site and before removal, restoring land disturbance with appropriate native species, and post-cannabis cultivation activities monitoring and control of exotic species. Nothing in this term may be construed as a ban on cannabis cultivation that complies with the terms of this Policy.   |
| <b>Stream Crossing Installation and Maintenance</b>                    |  |
| <b>Limitations on Work in Watercourses and Permanently Poned Areas</b> |  |
| 38.  | Cannabis cultivators shall obtain all applicable permits and approvals prior to doing any work in or around waterbodies or within the riparian setbacks. Permits may include section 404/401 CWA permits, Regional Water Board WDRs (when applicable), and a CDFW LSA Agreement.   |
| 39.  | Cannabis cultivators shall avoid or minimize temporary stream crossings. When necessary, temporary stream crossings shall be located in areas where erosion potential and damage to the existing habitat is low. Cannabis cultivators shall avoid areas where runoff from access roadway side slopes and natural hillsides will drain and flow into the temporary crossing. Temporary stream crossings that impede fish passage are strictly prohibited on permanent or seasonal fish-bearing streams.   |
| 40.  | Cannabis cultivators shall avoid or minimize use of heavy equipment <sup>13</sup> in a watercourse. If use is unavoidable, heavy equipment may only travel or work in a waterbody with a rocky or cobbled channel. Wood, rubber, or clean native rock temporary work pads shall be used on the channel bottom prior to use of heavy equipment to protect channel bed and preserve channel morphology. Temporary work pads and other channel protection shall be removed as soon as possible once the use of heavy equipment is complete.   |
| 41.  | Cannabis cultivators shall avoid or minimize work in or near a stream, creek, river, lake, pond, or other waterbody. If work in a waterbody cannot be avoided, activities and associated workspace shall be isolated from flowing water by directing the water around the work site. If water is present, then the cannabis cultivator shall develop a site-specific plan prepared by a qualified professional. The plan shall consider partial or full stream diversion and dewatering. The plan shall consider the use of coffer dams upstream and downstream of the work site and the diversion of all flow from upstream of the upstream |

<sup>13</sup> Heavy equipment is defined as large pieces of machinery or vehicles, especially those used in the building and construction industry (e.g., bulldozers, excavators, backhoes, bobcats, tractors, etc.).



|  |  |
|--|--|
|  | dam to downstream of the downstream dam, through a suitably sized pipe with intake screens that protect and prevent impacts to fish and wildlife. Cannabis cultivation activities and associated work shall be performed outside the waterbody from the top of the bank to the maximum extent possible.  |
| <b>Temporary Watercourse Diversion and Dewatering: All Live Watercourses</b> |  |
| 42.  | Cannabis cultivators shall ensure that coffer dams are constructed prior to commencing work and as close as practicable upstream and downstream of the work area. Cofferdam construction using offsite materials, such as clean gravel bags or inflatable dams, is preferred. Thick plastic may be used to minimize leakage, but shall be completely removed and properly disposed of upon work completion. If the coffer dams or stream diversion fail, the cannabis cultivator shall repair them immediately.  |
| 43.  | When any dam or other artificial obstruction is being constructed, maintained, or placed in operation, the cannabis cultivator shall allow sufficient water at all times to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code section 5937.  |
| 44.  | If possible, gravity flow is the preferred method of water diversion. If a pump is used, the cannabis cultivator shall ensure that the pump is operated at the rate of flow that passes through the cannabis cultivation site. Pumping rates shall not dewater or impound water on the upstream side of the coffer dam. When diversion pipe is used it shall be protected from cannabis cultivation activities and maintained to prevent debris blockage.  |
| 45.  | Cannabis cultivators shall only divert water such that water does not scour the channel bed or banks at the downstream end. Cannabis cultivator shall divert flow in a manner that prevents turbidity, siltation, and pollution and provides flows to downstream reaches. Cannabis cultivators shall provide flows to downstream reaches during all times that the natural flow would have supported aquatic life. Flows shall be of sufficient quality and quantity, and of appropriate temperature to support fish and other aquatic life both above and below the diversion. Block netting and intake screens shall be sized to protect and prevent impacts to fish and wildlife. |
| 46.  | Once water has been diverted around the work area, cannabis cultivators may dewater the site to provide an adequately dry work area. Any muddy or otherwise contaminated water shall be pumped to a settling tank, dewatering filter bag, or upland area, or to another location approved by CDFW or the appropriate Regional Water Board Executive Officer prior to re-entering the watercourse.  |
| 47.  | Upon completion of work, cannabis cultivators shall immediately remove the flow diversion structure in a manner that allows flow to resume with a minimum of disturbance to the channel substrate and that minimizes the generation of turbidity.  |
| <b>Watercourse Crossings</b>   |  |
| 48.  | Cannabis cultivators shall ensure that watercourse crossings are designed by a qualified professional.   |
| 49.  | Cannabis cultivators shall ensure that all access road watercourse crossing structures allow for the unrestricted passage of water and shall be designed to accommodate the  |

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|     | <p>estimated 100-year flood flow and associated debris (based upon an assessment of the streams potential to generate debris during high flow events). Consult CAL FIRE 100 year Watercourse Crossings document for examples and design calculations, available at: <a href="http://calfire.ca.gov/resource_mgt/downloads/100%20yr%20revised%208-08-17%20(final-a).pdf">http://calfire.ca.gov/resource_mgt/downloads/100%20yr%20revised%208-08-17%20(final-a).pdf</a>.</p>  |
| 50. | <p>Cannabis cultivators shall ensure that watercourse crossings allow migration of aquatic life during all life stages supported or potentially supported by that stream reach. Design measures shall be incorporated to ensure water depth and velocity does not inhibit migration of aquatic life. Any access road crossing structure on watercourses that supports fish shall be constructed for the unrestricted passage of fish at all life stages, and should use the following design guidelines:</p> <ul style="list-style-type: none"> <li>• CDFW's <i>Culvert Criteria for Fish Passage</i>;</li> <li>• CDFW's <i>Salmonid Stream Habitat Restoration Manual, Volume 2, Part IX: Fish Passage Evaluation at Stream Crossings</i>; and</li> <li>• National Marine Fisheries Service, Southwest Region <i>Guidelines for Salmonid Passage at Stream Crossings</i>.</li> </ul> |
| 51. | <p>Cannabis cultivators shall conduct regular inspection and maintenance of stream crossings to ensure crossings are not blocked by debris. Refer to California Board of Forestry Technical Rule No. 5 available at: <a href="http://www.calforests.org/wp-content/uploads/2013/10/Adopted-TRA5.pdf">http://www.calforests.org/wp-content/uploads/2013/10/Adopted-TRA5.pdf</a>.</p>   |
| 52. | <p>Cannabis cultivators shall only use rock fords for temporary seasonal crossings on small watercourses where aquatic life passage is not required during the time period of use. Rock fords shall be oriented perpendicular to the flow of the watercourse and designed to maintain the range of surface flows that occur in the watercourse. When constructed, rock shall be sized to withstand the range of flow events that occur at the crossing and rock shall be maintained at the rock ford to completely cover the channel bed and bank surfaces to minimize soil compaction, rutting, and erosion. Rock must extend on either side of the ford up to the break in slope. The use of rock fords as watercourse crossings for all-weather access road use is prohibited.</p>   |
| 53. | <p>Cannabis cultivators shall ensure that culverts used at watercourse crossings are designed to direct flow and debris toward the inlet (e.g., use of wing-walls, pipe beveling, rock armoring, etc.) to prevent erosion of road fill, debris blocking the culvert, and watercourses from eroding a new channel.</p>   |
| 54. | <p>Cannabis cultivators shall regularly inspect and maintain the condition of access roads, access road drainage features, and watercourse crossings. At a minimum, cannabis cultivators shall perform inspections prior to the onset of fall and winter precipitation and following storm events that produce at least 0.5 in/day or 1.0 inch/7 days of precipitation. Cannabis cultivators are required to perform all of the following maintenance:</p> <ul style="list-style-type: none"> <li>• Remove any wood debris that may restrict flow in a culvert.</li> <li>• Remove sediment that impacts access road or drainage feature performance. Place any removed sediment in a location outside the riparian setbacks and stabilize the sediment.</li> <li>• Maintain records of access road and drainage feature maintenance and consider</li> </ul>                           |



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|  | redesigning the access road to improve performance and reduce maintenance needs.  |
| 55.  | Cannabis cultivators shall compact access road crossing approaches and fill slopes during installation and shall stabilize them with rock or other appropriate surface protection to minimize surface erosion. When possible, cannabis cultivators shall ensure that access roads over culverts are equipped with a critical dip to ensure that, if the culvert becomes blocked or plugged, water can flow over the access road surface without washing away the fill prism. Access road crossings where specific conditions do not allow for a critical dip or in areas with potential for significant debris accumulation, shall include additional measures such as emergency overflow culverts or oversized culverts that are designed by a qualified professional. |
| 56.  | Cannabis cultivators shall ensure that culverts used at watercourse crossings are: 1) installed parallel to the watercourse alignment to the extent possible, 2) of sufficient length to extend beyond stabilized fill/sidecast material, and 3) embedded or installed at the same level and gradient of the streambed in which they are being placed to prevent erosion.   |
| <b>Soil Disposal and Spoils Management</b> |   |
| 57.  | Cannabis cultivators shall store soil, construction, and waste materials outside the riparian setback except as needed for immediate construction needs. Such materials shall not be stored in locations of known slope instability or where the storage of construction or waste material could reduce slope stability.  |
| 58.  | Cannabis cultivators shall separate large organic material (e.g., roots, woody debris, etc.) from soil materials. Cannabis cultivators shall either place the large organic material in long-term, upland storage sites, or properly dispose of these materials offsite.  |
| 59.  | Cannabis cultivators shall store erodible soil, soil amendments, and spoil piles to prevent sediment discharges in storm water. Storage practices may include use of tarps, upslope land contouring to divert surface flow around the material, or use of sediment control devices (e.g., silt fences, straw wattles, etc.).  |
| 60.  | Cannabis cultivators shall contour and stabilize stored spoils to mimic natural slope contours and drainage patterns (as appropriate) to reduce the potential for fill saturation and slope failure.  |
| 61.  | For soil disposal sites cannabis cultivators shall: <ul style="list-style-type: none"> <li>• revegetate soil disposal sites with a mix of native plant species,</li> <li>• cover the seeded and planted areas with mulched straw at a rate of two tons per acre, and</li> <li>• apply non-synthetic netting or similar erosion control fabric (e.g., jute) on slopes greater than 2:1 if the site is erodible.</li> </ul>   |
| 62.  | Cannabis cultivators shall haul away and properly dispose of excess soil and other debris as needed to prevent discharge to waters of the state.  |

## Riparian and Wetland Protection and Management

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| 63. | Cannabis cultivators shall not disturb aquatic or riparian habitat, such as pools, spawning sites, large wood, or shading vegetation unless authorized under a CWA section 404 permit, CWA section 401 certification, Regional Water Board WDRs (when applicable), or a CDFW LSA Agreement.  |
| 64. | Cannabis cultivators shall maintain existing, naturally occurring, riparian vegetative cover (e.g., trees, shrubs, and grasses) in aquatic habitat areas to the maximum extent possible to maintain riparian areas for streambank stabilization, erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, wildlife support, and to minimize waste discharge. |

## Water Storage and Use

### Water Supply, Diversion, and Storage

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| 65. | Cannabis cultivators shall only install, maintain, and destroy wells in compliance with county, city, and local ordinances and with California Well Standards as stipulated in California Department of Water Resources Bulletins 74-90 and 74-81. <sup>14</sup>   |
| 66. | All water diversions for cannabis cultivation from a surface stream, subterranean stream flowing through a known and definite channel (e.g., groundwater well diversions from subsurface stream flows), or other surface waterbody are subject to the surface water Numeric and Narrative Instream Flow Requirements. This includes lakes, ponds, and springs (unless the spring is deemed exempt by the Deputy Director). See Section 3. Numeric and Narrative Instream Flow Requirements of this Attachment A for more information.                          |
| 67. | Groundwater diversions may be subject to additional requirements, such as a forbearance period, if the State Water Board determines those requirements are reasonably necessary to implement the purposes of this Policy.  |
| 68. | Cannabis cultivators are encouraged to use appropriate rainwater catchment systems to collect from impermeable surfaces (e.g., roof tops, etc.) during the wet season and store storm water in tanks, bladders, or off-stream engineered reservoirs to reduce the need for surface water or groundwater diversions.  |
| 69. | Cannabis cultivators shall not divert surface water unless it is diverted in accordance with an existing water right that specifies, as appropriate, the source, location of the point of diversion, purpose of use, place of use, and quantity and season of diversion. Cannabis cultivators shall maintain documentation of the water right at the cannabis cultivation site. Documentation of the water right shall be available for review and inspection by the Water Boards, CDFW, and any other authorized representatives of the Water Boards or CDFW. |

<sup>14</sup> California Well Standards are available at:

[http://www.water.ca.gov/groundwater/well\\_info\\_and\\_other/california\\_well\\_standards/well\\_standards\\_content.html](http://www.water.ca.gov/groundwater/well_info_and_other/california_well_standards/well_standards_content.html).

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| 70. | Cannabis cultivators shall ensure that all water diversion facilities are designed, constructed, and maintained so they do not prevent, impede, or tend to prevent the passing of fish, as defined by Fish and Game Code section 45, upstream or downstream, as required by Fish and Game Code section 5901. This includes but is not limited to the supply of water at an appropriate depth, temperature, and velocity to facilitate upstream and downstream aquatic life movement and migration. Cannabis cultivators shall allow sufficient water at all times to pass past the point of diversion to keep in good condition any fish that may be planted or exist below the point of diversion as defined by Fish and Game Code section 5937. Cannabis cultivators shall not divert water in a manner contrary to or inconsistent with these Requirements. |
| 71. | Cannabis cultivators issued a Cannabis SIUR by the State Water Board shall not divert surface water unless in compliance with all additional Cannabis SIUR conditions required by CDFW.  |
| 72. | Water diversion facilities shall include satisfactory means for bypassing water to satisfy downstream prior rights and any requirements of policies for water quality control, water quality control plans, water quality certifications, waste discharge requirements, or other local, state or federal instream flow requirements. Cannabis cultivators shall not divert in a manner that results in injury to holders of legal downstream senior rights. Cannabis cultivators may be required to curtail diversions should diversion result in injury to holders of legal downstream senior water rights or interfere with maintenance of downstream instream flow requirements.  |
| 73. | <p>Fuel powered (e.g., gas, diesel, etc.) diversion pumps shall be located in a stable and secure location outside of the riparian setbacks unless authorized under a 404/401 CWA permits, a CDFW LSA Agreement, coverage under the Cannabis General Order water quality certification, or site-specific WDRs issued by the Regional Water Board. Use of non-fuel powered diversion pumps (solar, electric, gravity, etc.) is encouraged.</p> <p>In all cases, all pumps shall:</p> <ol style="list-style-type: none"> <li>1. be properly maintained,</li> <li>2. have suitable containment to ensure any spills or leaks do not enter surface waterbodies or groundwater, and</li> <li>3. have sufficient overhead cover to prevent exposure of equipment to precipitation.</li> </ol>  |
| 74. | No water shall be diverted unless the cannabis cultivator is operating the water diversion facility with a CDFW-approved water-intake screen (e.g. fish screen). The water intake screen shall be designed and maintained in accordance with screening criteria approved by CDFW. The screen shall prevent wildlife from entering the diversion intake and becoming entrapped. The cannabis cultivator shall contact the regional CDFW Office, LSA Program for information on screening criteria for diversion(s). <sup>15</sup> The cannabis cultivator shall provide evidence that demonstrates that the water intake screen is in good condition whenever requested by the Water Boards or CDFW. Points of re-diversion from off-stream storage facilities that are open to the environment shall have a water intake screen, as required by CDFW.          |

<sup>15</sup> CDFW's Lake and Streambed program information is available at: <https://www.wildlife.ca.gov/Conservation/LSA> .



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| 75. | Cannabis cultivators shall inspect, maintain, and clean water intake screens and bypass appurtenances as directed by CDFW to ensure proper operation for the protection of fish and wildlife.  |
| 76. | Cannabis cultivators shall not obstruct, alter, dam, or divert all or any portion of a natural watercourse prior to obtaining all applicable permits and approvals. Permits may include a valid water right, 404/401 CWA permits, a CDFW LSA Agreement, coverage under the Cannabis General Order water quality certification, or site-specific WDRs issued by the Regional Water Board.   |
| 77. | Cannabis cultivators shall plug, block, cap, disconnect, or remove the diversion intake associated with cannabis cultivation activities during the surface water forbearance period, unless the diversion intake is used for other beneficial uses, to ensure no water is diverted during that time.   |
| 78. | Cannabis cultivators shall not divert from a surface water or from a subterranean stream for cannabis cultivation at a rate more than a maximum instantaneous diversion rate of 10 gallons per minute, unless authorized under an existing appropriative water right.  |
| 82. | <p>Onstream storage reservoirs are prohibited unless either:</p> <ul style="list-style-type: none"> <li>• The cannabis cultivator has an existing water right with irrigation as a designated use, issued prior to October 31, 2017, that authorizes the onstream storage reservoir, or</li> <li>• The cannabis cultivator obtains an appropriative water right permit with irrigation as a designated use prior to diverting water from an onstream storage reservoir for cannabis cultivation. Cannabis cultivators with a pending application or an unpermitted onstream storage reservoir shall not divert for cannabis cultivation until the cannabis cultivator has obtain a valid water right.</li> </ul> |
| 83. | Cannabis cultivators are encouraged to install separate storage systems for water diverted for cannabis irrigation and water diverted for any other beneficial uses, <sup>16</sup> or otherwise shall install separate measuring devices to quantify diversion to and from each storage facility, including the quantity of water diverted and the quantity, place, and purpose of use (e.g., cannabis irrigation, other crop irrigation, domestic, etc.) for the stored water.  |
| 84. | The cannabis cultivator shall install and maintain a measuring device(s) for surface water or subterranean stream diversions. The measuring device shall be, at a minimum equivalent to the requirements for direct diversions greater than 10 acre-feet per year in California Code of Regulations, Title 23, Division 3, Chapter 2.7 <sup>17</sup> . The measuring device(s) shall be located as close to the point of diversion as reasonable. Cannabis cultivators shall maintain daily diversion records for water diverted for cannabis cultivation.   |

<sup>16</sup> Other beneficial uses of water include: domestic, irrigation, power, municipal, mining, industrial, fish and wildlife preservation and enhancement, aquaculture, recreational, stockwatering, water quality, frost protection, and heat control. (California Code of Regulations, Title 23 sections 659-672).

<sup>17</sup> Additional information on measuring devices may be found at:  
[https://www.waterboards.ca.gov/waterrights/water\\_issues/programs/diversion\\_use/water\\_use.shtml#measurement](https://www.waterboards.ca.gov/waterrights/water_issues/programs/diversion_use/water_use.shtml#measurement)

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|     | <p>Cannabis cultivators shall maintain separate records that document the amount of water used for cannabis cultivation separated out from the amount of water used for other irrigation purposes and other beneficial uses of water (e.g., domestic, fire protection, etc.). Cannabis cultivators shall maintain daily diversion records at the cultivation site and shall make the records available for review or by request by the Water Boards CDFW, or any other authorized representatives of the Water Boards or CDFW. Daily diversion records shall be retained for a minimum of five years. Compliance with this term is required for any surface water diversion for cannabis cultivation, even those under 10 acre-feet per year.</p>  |
| 85. | <p>The State Water Board intends to develop and implement a basin-wide program for real-time electronic monitoring and reporting of diversions, withdrawals, releases and streamflow in a standardized format if and when resources become available. Such real-time reporting will be required upon a showing by the State Water Board that the program and the infrastructure are in place to accept real-time electronic reports. Implementation of the reporting requirements shall not necessitate amendment to this Requirement.</p>   |
| 86. | <p>Cannabis cultivators shall not use off-stream storage reservoirs and ponds to store water for cannabis cultivation unless they are sited and designed or approved by a qualified professional in compliance with Division of Safety of Dams (DSOD), county, and/or city requirements, as applicable. If the DSOD, county, and/or city do not have established requirements they shall be designed consistent with the Natural Resource Conservation Service National Engineering Manual. Reservoirs shall be designed with an adequate overflow outlet that is protected and promotes the dispersal and infiltration of flow and prevents channelization.</p> <p>All off-stream storage reservoirs and ponds shall be designed, managed, and maintained to accommodate average annual winter period precipitation and storm water inputs to reduce the potential for overflow.</p> <p>Cannabis cultivators shall plant native vegetation along the perimeter of the reservoir in locations where it does not impact the structural integrity of the reservoir berm or spillway. The cannabis cultivator shall control vegetation around the reservoir berm and spillway to allow for visual inspection of berm and spillway condition and control burrowing animals as necessary.</p> |
| 87. | <p>Cannabis cultivators shall implement an invasive species management plan prepared by a Qualified Biologist for any existing or proposed water storage facilities that are open to the environment. The plan shall include, at a minimum, an annual survey for bullfrogs and other invasive aquatic species. If bullfrogs or other invasive aquatic species are identified, eradication measures shall be implemented under the direction of a qualified biologist, if appropriate after consultation with CDFW (pursuant to Fish and Game Code section 6400). Eradication methods can be direct or indirect. Direct methods may include hand-held dip net, hook and line, lights, spears, gigs, or fish tackle under a fishing license (pursuant to Fish and Game Code section 6855). An indirect method may involve seasonally timed complete dewatering and a drying period of the off-stream storage facility under a Permit to Destroy Harmful Species (pursuant to Fish and Game Code section 5501) issued by CDFW.</p>  |
| 88. | <p>Water storage bladders are not encouraged for long-term use. If bladders are used, the cannabis cultivator shall ensure that the bladder is designed and properly installed to store water and that the bladder is sited to minimize the potential for water to flow into a</p>   |

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|     | <p>watercourse in the event of a catastrophic failure. If a storage bladder has been previously used, the cannabis cultivator shall carefully inspect the bladder to confirm its integrity and confirm the absence of any interior residual chemicals prior to resuming use. Cannabis cultivators shall periodically inspect water storage bladders and containment features to ensure integrity. Water storage bladders shall be properly disposed of or recycled and not resold when assurance of structural integrity is no longer guaranteed.</p>   |
| 89. | <p>Cannabis cultivators shall not use water storage bladders unless the bladder is safely contained within a secondary containment system with sufficient capacity to capture 110 percent of a bladder's maximum possible contents in the event of bladder failure (i.e., 110 percent of bladder's capacity). Secondary containment systems shall be of sufficient strength and stability to withstand the forces of released contents in the event of catastrophic bladder failure. In addition, secondary containment systems that are open to the environment shall be designed and maintained with sufficient capacity to accommodate precipitation and storm water inputs from a 25-year, 24-hour storm event.</p>                             |
| 90. | <p>Cannabis cultivators shall not cause or allow any overflow from off-stream water storage facilities that are closed to the environment (e.g., tanks and bladders) if the off-stream facilities are served by a diversion from surface water or groundwater. Cannabis cultivators shall regularly inspect for and repair all leaks of the diversion and storage system.</p>   |
| 91. | <p>Water storage tanks, bladders, and other off-stream water storage facilities that are closed to the environment shall not be located in a riparian setback or next to equipment that generates heat. Cannabis cultivators shall place water storage tanks, bladders, and other off-stream water storage facilities that are closed to the environment in areas that allow for ease of installation, access, maintenance, and minimize road development.</p>  |
| 92. | <p>Cannabis cultivators shall install vertical and horizontal tanks according to manufacturer's specifications and shall place tanks on properly compacted soil that is free of rocks and sharp objects and capable of bearing the weight of the tank and its maximum contents with minimal settlement. Tanks shall not be located in areas of slope instability. Cannabis cultivators shall install water storage tanks capable of containing more than 8,000 gallons only 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) per the recommendations of a qualified professional.</p> |
| 93. | <p>To prevent rupture or overflow and runoff, cannabis cultivators shall only use water storage tanks and bladders equipped with a float valve, or equivalent device, to shut off diversion when storage systems are full. Cannabis cultivators shall install any other measures necessary to prevent overflow of storage systems to prevent runoff and the diversion of more water than can be used and/or stored.</p>   |
| 94. | <p>Cannabis cultivators shall ensure that all vents and other openings on water storage tanks are designed to prevent the entry and/or entrapment of wildlife.</p>  |



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| 95.                               | <p>Cannabis cultivators shall retain, for a minimum of five years, appropriate documentation for any hauled water<sup>18</sup> used for cannabis cultivation. Documentation for hauled water shall include, for each delivery, all of the following:</p> <ol style="list-style-type: none"> <li>1. A receipt that shows the date of delivery and the name, address, license plate number, and license plate issuing state for the water hauler,</li> <li>2. A copy of the Water Hauler's License (California Health and Safety Code section 111120),</li> <li>3. A copy of proof of the Water Hauler's water right, groundwater well, or other authorization to take water, and the location of the water source, and</li> <li>4. The quantity of water delivered or picked up from a water source, in gallons.</li> </ol> <p>Documentation shall be made available, upon request, to Water Boards or CDFW staff and any other authorized representatives of the Water Boards or CDFW.</p> |
| <b>Water Conservation and Use</b> |  |
| 96.                               | Cannabis cultivators shall regularly inspect their entire water delivery system for leaks and immediately repair any leaky faucets, pipes, connectors, or other leaks.   |
| 97.                               | Cannabis cultivators shall use weed-free mulch in cultivation areas that do not have ground cover to conserve soil moisture and minimize evaporative loss.   |
| 98.                               | Cannabis cultivators shall implement water conserving irrigation methods (e.g., drip or trickle irrigation, micro-spray, or hydroponics).  |
| 99.                               | Cannabis cultivators shall maintain daily records of all water used for irrigation of cannabis. Daily records may be calculated by the use of a measuring device or, if known, by calculating the irrigation system rates and duration of time watered (e.g., irrigating for one hour twice per day using 50 half-gallon drips equates to 50 gallons per day (1*2*50*0.5) of water used for irrigation). Cannabis cultivators shall retain, for a minimum of 5 years, irrigation records at the cannabis cultivation site and shall make all irrigation records available for review by the Water Boards, CDFW and any other authorized representatives of the Water Boards or CDFW.   |
| <b>Irrigation Runoff</b>          |  |
| 100.                              | Cannabis cultivators shall regularly inspect for leaks in mainlines <sup>19</sup> , laterals <sup>20</sup> , in irrigation connections, sprinkler heads, or at the ends of drip tape and feeder lines and immediately repair any leaks found upon detection.   |
| 101.                              | The irrigation system shall be designed to include redundancy (e.g., safety valves) in the event that leaks occur, so that waste of water and runoff is prevented and minimized.   |
| 102.                              | Cannabis cultivators shall regularly replace worn, outdated, or inefficient irrigation system components and equipment to ensure a properly functioning, leak-free irrigation system at  |

<sup>18</sup> Water hauler means any person who hauls water in bulk by any means of transportation.

<sup>19</sup> Mainlines are pipes that go from the water source to the control valves.

<sup>20</sup> Laterals are the pipes between the control valve and the sprinkler heads.

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|  | all times.   |
| 103.   | Cannabis cultivators shall minimize irrigation deep percolation <sup>21</sup> by applying irrigation water at agronomic rates.   |
| <b>Fertilizers, Pesticides, and Petroleum Products</b> |  |
| 104.   | Cannabis cultivators shall not mix, prepare, over apply, or dispose of agricultural chemicals/products (e.g., fertilizers, pesticides <sup>22</sup> , and other chemicals as defined in the applicable water quality control plan) in any location where they could enter the riparian setback or waters of the state. The use of agricultural chemicals inconsistently with product labeling, storage instructions, or DPR requirements for pesticide applications <sup>23</sup> is prohibited. Disposal of unused product and containers shall be consistent with labels.  |
| 105.   | Cannabis cultivators shall keep and use absorbent materials designated for spill containment and spill cleanup equipment on-site for use in an accidental spill of fertilizers, petroleum products, hazardous materials, and other substances which may degrade waters of the state. The cannabis cultivator shall immediately notify the California Office of Emergency Services at 1-800-852-7550 and immediately initiate cleanup activities for all spills that could enter a waterbody or degrade groundwater.  |
| 106.   | Cannabis cultivators shall establish and use a separate storage area for pesticides, and fertilizers, and another storage area for petroleum or other liquid chemicals (including diesel, gasoline, oils, etc.). All such storage areas shall comply with the riparian setback Requirements, be in a secured location in compliance with label instructions, outside of areas of known slope instability, and be protected from accidental ignition, weather, and wildlife. All storage areas shall have appropriate secondary containment structures, as necessary, to protect water quality and prevent spillage, mixing, discharge, or seepage. |

<sup>21</sup> Deep percolation occurs when excess irrigation water is applied and percolates below the plant root zone.

<sup>22</sup> Pesticide is defined as follows:

- Per California Code of Regulations Title 3. Division 6. Section 6000:
  - (a) Any substance or mixture of substances that is a pesticide as defined in the Food and Agricultural Code and includes mixtures and dilutions of pesticides;
  - (b) As the term is used in Section 12995 of the California Food and Agricultural Code, includes any substance or product that the user intends to be used for the pesticidal purposes specified in Sections 12753 and 12758 of the Food and Agricultural Code.
- Per California Food and Agricultural Code section 12753(b), the term "Pesticide" includes any of the following: Any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, as defined in Section 12754.5, which may infest or be detrimental to vegetation, man, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever.
- In laymen's terms: "pesticide" includes: rodenticides, herbicides, insecticides, fungicides, and disinfectants.

<sup>23</sup> More information on DPR requirements is available at:

[http://www.cdpr.ca.gov/docs/legbills/laws\\_regulations.htm](http://www.cdpr.ca.gov/docs/legbills/laws_regulations.htm),  
<http://www.cdpr.ca.gov/docs/county/cactrs/penfltrs/penf2017/2017atch/attach0301.pdf>, and  
<http://www.cdpr.ca.gov/docs/cannabis/index.htm>

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|                              | Storage tanks and containers must be of suitable material and construction to be compatible with the substances stored and conditions of storage, such as pressure and temperature.   |
| 107.                         | Throughout the wet season, Cannabis Cultivators shall ensure that any temporary storage areas have a permanent cover and side-wind protection or be covered during non-working days and prior to and during rain events.  |
| 108.                         | Cannabis cultivators shall only use hazardous materials <sup>24</sup> in a manner consistent with the product's label.  |
| 109.                         | Cannabis cultivators shall only keep hazardous materials in their original containers with labels intact, and shall store hazardous materials to prevent exposure to sunlight, excessive heat, and precipitation. Cannabis cultivators shall provide secondary containment for hazardous materials to prevent possible exposure to the environment. Disposal of unused hazardous materials and containers shall be consistent with the label.   |
| 110.                         | Cannabis cultivators shall only mix, prepare, apply, or load hazardous materials outside of the riparian setbacks.  |
| 111.                         | Cannabis cultivators shall not apply agricultural chemicals within 48 hours of a predicted rainfall event of 0.25 inches or greater with a probability greater than 50-percent. In the Lake Tahoe Hydrologic Unit, cannabis cultivators shall not apply agricultural chemicals within 48 hours of any weather pattern that is forecast to have a 30 percent or greater chance of precipitation greater than 0.1 inch per 24 hours. This requirement may be updated based on amendments to the Lahontan Regional Water Board construction storm water general order.   |
| <b>Fertilizers and Soils</b> |   |
| 112.                         | To minimize infiltration and water quality degradation, Cannabis cultivators shall irrigate and apply fertilizer to consistent with the crop need (i.e., agronomic rate).   |
| 113.                         | When used, cannabis cultivators shall apply nitrogen to cannabis cultivation areas consistent with crop need (i.e., agronomic rate). Cannabis cultivators shall not apply nitrogen at a rate that may result in a discharge to surface water or groundwater that causes or contributes to exceedance of water quality objectives, and no greater than 319 pounds/acre/year unless plant tissue analysis performed by a qualified individual demonstrates the need for additional nitrogen application. The analysis shall be performed by an agricultural laboratory certified by the State Water Board's Environmental Laboratory Accreditation Program. |
| 114.                         | Cannabis cultivators shall ensure that potting soil or soil amendments, when not in use, are placed and stored with covers, when needed, to protect from rainfall and erosion, to prevent discharge to waters of the state, and to minimize leaching of waste constituents into   |

<sup>24</sup> A hazardous material is any item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

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|   | groundwater.   |
| <b>Pesticides and Herbicides</b>              |  |
| 115.  | Cannabis cultivators shall not apply restricted materials, including restricted pesticides, or allow restricted materials to be stored at the cannabis cultivation site.   |
| 116.  | Cannabis cultivators shall implement integrated pest management strategies where possible to reduce the need and use of pesticides and the potential for discharges to waters of the state. <sup>25</sup>  |
| <b>Petroleum Products and Other Chemicals</b> |  |
| 117.  | Cannabis cultivators shall only refuel vehicles or equipment outside of riparian setbacks. Cannabis cultivators shall inspect all equipment using oil, hydraulic fluid, or petroleum products for leaks prior to use and shall monitor equipment for leakage. Stationary equipment (e.g., motors, pumps, generators, etc.) and vehicles not in use shall be located outside of riparian setbacks. Spill and containment equipment (e.g., oil spill booms, sorbent pads, etc.) shall be stored onsite at all locations where equipment is used or staged.   |
| 118.  | Cannabis cultivators shall store petroleum, petroleum products, and similar fluids in a manner that provides chemical compatibility, provides secondary containment, and protection from accidental ignition, the sun, wind, and rain.   |
| 119.  | Use of an underground storage tank(s) for the storage of petroleum products is allowed if compliant with all applicable federal, state, and local laws; regulations; and permitting requirements.  |
| <b>Cultivation-Related Waste</b>              |  |
| 120.  | Cannabis cultivators shall contain and regularly remove all debris and trash associated with cannabis cultivation activities from the cannabis cultivation site. Cannabis cultivators shall only dispose of debris and trash at an authorized landfill or other disposal site in compliance with state and local laws, ordinances, and regulations. Cannabis cultivators shall not allow litter, plastic, or similar debris to enter the riparian setback or waters of the state. Cannabis plant material may be disposed of onsite in compliance with any applicable CDFA license conditions.   |
| 121.  | Cannabis cultivators shall only dispose or reuse spent growth medium (e.g., soil and other organic media) in a manner that prevents discharge of soil and residual nutrients and chemicals to the riparian setback or waters of the state. Spent growth medium shall be covered with plastic sheeting or stored in water tight dumpsters prior to proper disposal or reuse. Spent growth medium should be disposed of at an authorized landfill or other disposal site in compliance with state and local laws, ordinances, and regulations. Proper reuse of spent growth medium may include incorporation into garden beds or spreading on a stable surface and revegetating the surface with native plants. Cannabis cultivators shall use erosion control techniques, as needed, for any reused or stored spent growth medium |

<sup>25</sup> <https://www.epa.gov/safepestcontrol/integrated-pest-management-ipm-principles>



|  |                             |
|--|-----------------------------|
|  | to prevent polluted runoff. |
|--|-----------------------------|

### Refuse and Domestic Waste

|      |   |
|------|---|
| 122. | Cannabis cultivators shall ensure that debris, soil, silt, bark, slash, sawdust, rubbish, creosote-treated wood, raw cement and concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to any life stage of fish and wildlife or their habitat (includes food sources) does not contaminate soil or enter the riparian setback or waters of the state. |
| 123. | Cannabis cultivators shall not dispose of domestic wastewater unless it meets applicable local agency and/or Regional Water Board requirements. Cannabis cultivators shall ensure that human or animal waste is disposed of properly. Cannabis cultivators shall ensure onsite wastewater treatment systems (e.g., septic system) are permitted by the local agency or applicable Regional Water Board.   |
| 124. | If used, chemical toilets or holding tanks shall be maintained in a manner appropriate for the frequency and conditions of usage, sited in stable locations, and comply with the riparian setback Requirements.   |

### Winterization

| 125.            | Cannabis cultivators shall implement all applicable Erosion Control and Soil Disposal and Spoils Management Requirements in addition to the Winterization Requirements below by the onset of the winter period.   |                 |  |        |    |         |    |     |    |
|-----------------|---|-----------------|--|--------|----|---------|----|-----|----|
| 126.            | Cannabis cultivators shall block or otherwise close any temporary access roads to all motorized vehicles no later than the onset of the winter period each year.  |                 |  |        |    |         |    |     |    |
| 127.            | Cannabis cultivators shall not operate heavy equipment of any kind at the cannabis cultivation site during the winter period, unless authorized for emergency repairs contained in an enforcement order issued by the State Water Board, Regional Water Board, or other agency having jurisdiction.   |                 |  |        |    |         |    |     |    |
| 128.            | Cannabis cultivators shall apply linear sediment controls (e.g., silt fences, wattles, etc.) along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow length <sup>26</sup> at the frequency specified below. <table border="1" data-bbox="537 1444 1182 1751"> <thead> <tr> <th>Slope (percent)</th> <th>Sheet Flow Length Not to Exceed (feet)</th> </tr> </thead> <tbody> <tr> <td>0 – 25</td> <td>20</td> </tr> <tr> <td>25 – 50</td> <td>15</td> </tr> <tr> <td>&gt;50</td> <td>10</td> </tr> </tbody> </table> | Slope (percent) | Sheet Flow Length Not to Exceed (feet) | 0 – 25 | 20 | 25 – 50 | 15 | >50 | 10 |
| Slope (percent) | Sheet Flow Length Not to Exceed (feet)  |                 |  |        |    |         |    |     |    |
| 0 – 25          | 20  |                 |  |        |    |         |    |     |    |
| 25 – 50         | 15  |                 |  |        |    |         |    |     |    |
| >50             | 10  |                 |  |        |    |         |    |     |    |

<sup>26</sup> Sheet flow length is the length that shallow, low velocity flow travels across a site.

|      |  |
|------|--|
| 129. | Cannabis cultivators shall maintain all culverts, drop inlets, trash racks and similar devices to ensure they are not blocked by debris or sediment. The outflow of culverts shall be inspected to ensure erosion is not undermining the culvert. Culverts shall be inspected prior to the onset of fall and winter precipitation and following precipitation events that produce at least 0.5 in/day or 1.0 inch/7 days of precipitation to determine if maintenance or cleaning is required. |
| 130. | Cannabis cultivators shall stabilize all disturbed areas and construction entrances and exits to control erosion and sediment discharges from land disturbance.  |
| 131. | Cannabis cultivators shall cover and berm all loose stockpiled construction materials (e.g., soil, spoils, aggregate, etc.) that are not actively (scheduled for use within 48 hours) being used as needed to prevent erosion by storm water. The cannabis cultivator shall have adequate cover and berm materials available onsite if the weather forecast indicates a probability of precipitation.  |
| 132. | Cannabis cultivators shall apply erosion repair and control measures to the bare ground (e.g., cultivation area, access paths, etc.) to prevent discharge of sediment to waters of the state.  |
| 133. | As part of the winterization plan approval process, the Regional Water Board may require cannabis cultivators to implement additional site-specific erosion and sediment control requirements if the implementation of the Requirements in this section do not adequately protect water quality.   |