ATTACHMENT 4B

SITE MANAGEMENT PLAN

Site Management Plan

(Tier 1, Low Risk)

WDID - 1_12CC436121

Humboldt County
APN: 210-101-011-000

Prepared by:

Timberland Resource Consultants

165 South Fortuna Boulevard, Fortuna, CA 95540
707-725-1897 • fax 707-725-0972
trc@timberlandresource.com

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Purpose

This Site Management Plan (SMP) has been prepared on behalf of the cannabis cultivator for the Humboldt County property identified as Assessor Parcel Numbers 210-101-011-000, by agreement and in response to the State Water Resources Control Board Cannabis Cultivation Policy (Cannabis Policy), in congruence with Order WQ 2019-0001-DWQ General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities (General Order). The General Order implements the Cannabis Policy requirements, specifically those requirements that address waste discharges associated with cannabis cultivation activities. Cannabis cultivators covered under the General Order are subject to the requirements of the Cannabis Policy in its entirety. The Cannabis Policy provides a statewide tiered approach for permitting discharges and threatened discharges of waste from cannabis cultivation and associated activities, establishes a personal use exemption standard, and provides conditional exemption criteria for activities with a low threat to water quality.

Tier Designation

Tiers are defined by the amount of disturbed area. Tier 1 outdoor commercial cultivation activities disturb an area equal to or greater than 2,000 square feet and less than 1 acre (43,560 square feet). Tier 2 outdoor commercial cultivation activities disturb an area equal to or greater than 1 acre. Risk designation for Tier 1 and Tier 2 enrollees under the Cannabis Policy is based on the slope of disturbed areas and the proximity to a surface water body. Characterization is based on the risk designation summarized in Table 1 below.

Table 1: Summary of Risk Designation

Low Risk	Moderate Risk	High Risk
• No portion of the disturbed area is located on a slope greater than 30 percent, and • All of the disturbed area complies with the setback requirements.	• Any portion of the disturbed area is located on a slope greater than 30 percent, and • All of the disturbed area complies with the setback requirements.	• Any portion of the disturbed area is located within the setback requirements.

Thorough assessment of the project area including roads, disturbed areas, legacy features, and cultivation areas classify this enrollment into the **Tier 1, Low Risk** designation. The cultivator is currently seeking approval of county and state permits. Following approval and construction of the cultivation areas and the proposed facilities, the tier and risk level may need to be re-evaluated, likely resulting in an increase to a Tier 2.

Scope of Report

Tier 1 and Tier 2 cannabis cultivators are required to submit and implement a Site Management Plan that describes how they are complying with the Requirements listed in Attachment A. The description shall describe how all applicable Best Practicable Treatment or Control (BPTC) measures are implemented. Cannabis cultivators within the North Coast Regional Water Quality Control Board jurisdiction are required to submit and implement Site Management Plans that describe how the Requirements are implemented property-wide, to include legacy activities. The SMP includes an Implementation Schedule to achieve compliance, but all work must be completed by the onset of the Winter Period each year. Projects designated as Moderate Risk are also required to have a Site Erosion and Sediment Control Plan to achieve the goal of minimizing the discharge of sediment off-site. Projects designated as High Risk are also required to have a Disturbed Area Stabilization Plan to achieve the goal of stabilizing the disturbed area to minimize the discharge of sediment off-site and comply with the setback requirements. The cannabis cultivator shall ensure that all site operating personnel are familiar with the contents of the General Order and all technical reports prepared for the property. Projects which have over one acre of cannabis cultivation (total canopy area) are also required to have a Nitrogen Management Plan to describe how nitrogen is stored, used, and applied to crops in a way that is protective of water quality. A copy of the General Order, and technical reports required by the General Order, shall be kept at the cultivation site. Electronic copies of these documents are acceptable. Either format of maintained documents kept on site must be immediately presentable upon request.

Methods

The methods used to develop this SMP include both field and office components. The office component consisted of aerial photography review and interpretation, existing USGS quad map review, GIS mapping of field data, review of on-site photography points, streamflow calculations, general planning, and information gathered from the cannabis cultivator and/or landowner. The field component included mapping of all access roads, vehicle parking areas, Waters of the State, stream crossings, drainage features, cultivation sites, buildings, disturbed areas, and all other relevant site features within the project area and surrounding areas (as feasible). Cultivation areas, associated facilities, roads, and other developed and/or disturbed areas were assessed for discharges and related controllable water quality factors from the activities listed in the General Order. The field assessment also included an evaluation and determination of compliance with all applicable BPTC's per Section 2 of the General Order.

Property Description

The property assessed is one parcel totaling approximately 52 acres located approximately 3.5 miles southwest of Dinsmore, California, at an elevation of approximately 2,400 feet above sea level. The property is located in Section 19, T1N-R5E, in Humboldt County, on the Larabee Valley USGS 7.5' Quad. Map. Unnamed Class III tributaries of the Little Van Duzen River are located on the parcel.

Site Management Plan

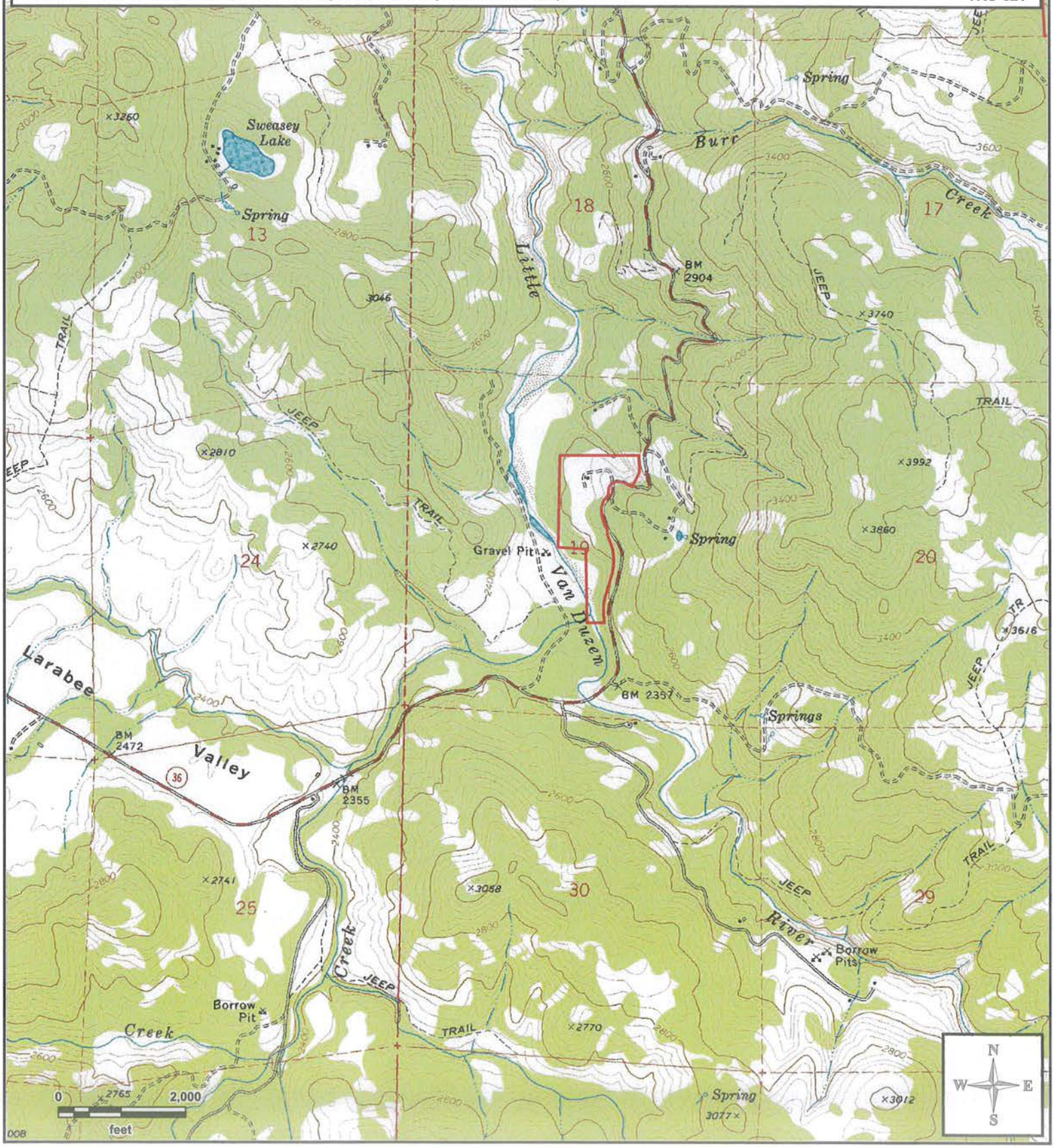
General Location Map WDID - 1_12CC436121

Property Boundary

Timberland Resource Consultants

Section 19, T1N-R5E, H.B.M., Humboldt County, Larabee Valley USGS Quad. Map

TRC-521



Project Description

Cannabis cultivation on the parcel was not active. The cultivator currently has permits allowing for approximately 2,800 square feet of propagation and is in the process of getting county approval for future cannabis cultivation on the parcel in the amount of 35,000 square feet. The exact dimensions, configurations, and distribution of the proposed cultivation was not known at the time of the site assessment. Cultivation areas were not active and contained little infrastructure in the form of mostly uncovered hoop house frames or barely visible former hoop house sites. The cultivation area is located in a large, flat, grass covered opening that appeared to be mostly natural slopes. The proposed area is located outside of riparian setbacks. Future development at the cultivation areas may require minor grading and surfacing. The sites are estimated to be at least 300 ft away from the nearest watercourse. Following approval, future development at the cultivation areas should be planned and constructed so that runoff is evenly dispersed as much as possible and not concentrated.

The majority of the cultivation areas are planned, but were not active during the site assessment. For the purpose of SMP preparation, cultivation areas mapped in this report follow along existing hoop house frames or along the visible foot print of prior hoop house locations, along with information from a draft of the project's Site Plan. Since the cultivation was not active and most of the associated facilities are not yet constructed, the final disturbed area square footage total is not known. The planned cultivation totals 35,000 square feet, and it will result in over 1 acre of disturbed areas upon its completion. Since the cultivation area was inactive and in permitting and planning stages, the current disturbed area is only approximately 26,700 square feet. The property was enrolled as Tier 1 but will be updated to Tier 2 upon completion, when and if, the disturbed area exceeds 1 acre in the future. Table 1 shows the square footage of the proposed cultivation area. The column titled "Land Disturbance Area" shows the square footage of disturbed area at the time of the site assessment. Table 2 shows the estimated distance from proposed cultivation areas to the nearest watercourse. This project was previously enrolled in the North Coast Regional Water Quality Control Board Order No. R1-2015-0023. It is currently enrolled with the State Water Recourses Control Board as WDID-1_12CC436121. This project is being classified as Tier 1, Low Risk. Any increase in the Tier and Risk level will be reported as necessary following approved, future development.

Table 1: Cultivation Site Parameters.

Cultivation Area	Land Disturbance Area (ft^2)	General Cultivation Area (ft^2)	Adjoining Hillslopes (% Grade)
	26,700 (current) [1]	35,000 (proposed)	5 - 10
Totals:	26,700 (current) [1]	35,000 (proposed)	

[1] Upon completion of the cultivation area and related cannabis facilities, the disturbed area will likely increase to approximately 50,000[2] ft.

Table 2: Riparian and Wetland Protection and Management

Disturbed Area	Disturbed Area Distances and Riparian Setbacks				
	Class I [Setback: 150']	Class II or Wetland [Setback: 100'][1]	Class III [Setback: 50']	Perennial Spring [Setback: 150']	Disturbed Area Within Setbacks [ft²]
Cultivation Area	>200'	>200'	>200'	>200'	0
				Total =	0

Water Use:

There are two water sources in use on the property. POD 1 is used for domestic water and is a concrete cistern placed in a spring. POD 2 is a manmade off-stream pond that is used for cannabis irrigation. Both sources are included in a CDFW LSA Agreement No. 1600-2016-0343-R1 that was later amended. There is also a permitted, 140-foot deep groundwater well on the property that was not in use or hooked up at the time of the site assessment.

Specific conditions listed in the LSA Agreement regarding the use of the spring, POD 1, are listed below (Items 2.2 through 2.5 of the Agreement).

2.2 Maximum Diversion Rate. The maximum instantaneous diversion rate from the spring POD-1 shall not exceed 2 gallons per minute at any time.

2.3 Bypass Flow. The Permittee shall pass sufficient flow at all times to keep all aquatic species including fish and other aquatic life in good condition below the point of diversion.

2.4 Seasonal Diversion Minimization. No more than 150 gallons per day shall be diverted from POD-1 (spring) during the season from May 15 to October 15 of any year beginning when this Agreement is signed. Water shall be diverted only if the Permittee can adhere to conditions 2.2 and 2.3 of this Agreement.

2.5 Measurement of Diverted Flow. The Permittee shall install devices acceptable to CDFW for measuring the quantity of water diverted for use. This measurement shall begin as soon as this Agreement is signed by the Permittee. The Permittee shall record the quantity of water diverted from both POD's for use.

Specific conditions listed in the LSA Agreement and its Amendment regarding the use of the pond, POD 2, for irrigation and monitoring its drawdown are listed below in Item 2.6 and 1.8. below.

2.6 Monitoring of Pond Drawdown. The Permittee or their agent shall submit photographs of POD-2 that document the pond level each year as part of this Agreement. Photographs shall be taken within 10 days of the dates of August 15 and September 15 of any year in which water is diverted. The photographs shall be submitted to CDFW with the measurement of diverted flow by December 31 of each year.

1.8 Seasonal Diversion Minimization. To minimize adverse impacts to native pond breeding amphibians (when present) the following diversion minimizations apply: From November 1 to March 31, the Permittee shall divert water at a rate no greater than the rate of water flowing into the pond (i.e., water diversion shall not decrease the pond depth). From April 1 – September 1, when native larval amphibians are present, the Permittee shall cease diverting water once the pond volume is one half (1/2) of the maximum pond volume. To comply with this measure; the Permittee shall establish a fixed visual marker(s) (e.g., stage plate) in the pond as a reference for water level thresholds.

For water diversions at POD 1 and POD 2, follow the requirements listed in the Cannabis Cultivation Policy, Attachment A, Section 2, Term 65 through 102, some of which are paraphrased below.

Cannabis Cultivation Policy, Att. A, Sec. 2, states that cannabis cultivators shall not divert surface water unless it is diverted in accordance with an existing water right, with documentation of the water right available for review and inspection by the Water Boards, CDFW, and any other authorized representatives. Cannabis cultivators shall not obstruct, alter, dam, or divert 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 Cultivation General Order water quality certification, or site-specific WDRs issued by the Regional Water Board. Cannabis cultivators shall plug, block, cap, disconnect, or remove the diversion intake or otherwise bypass flow or render the diversion intake incapable of diverting water for cannabis cultivation activities during the surface water forbearance period. Cannabis cultivators shall install and maintain measuring devices for surface water or subterranean stream diversions, and maintain daily diversion records for water diverted for cannabis cultivation. Records shall be kept 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. Cannabis cultivators shall maintain daily diversion records at the cultivation site and shall make the records available for review per request by the Water Boards or CDFW, and daily diversion records shall be retained for a minimum of five years. Refer to Cannabis Cultivation Policy, Att. A, Sec. 2, Term 69, 74, 76, 77, and 82 for the full text of requirements.

Cannabis Cultivation Policy, Att. A, Sec. 2, Term 98 states, 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 irrigation emitters equates to 50 gallons per day (1 hour x 2 times per day x 50 irrigation emitters x 0.5 gallons per irrigation emitter per hour) of water used for irrigation). Cannabis cultivators shall retain, for a minimum of five 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.

Per the Cannabis Cultivation Policy, Att. A, Sec. 2, Cannabis Cultivators shall on a monthly basis, at a minimum, inspect their entire water delivery system for leaks and immediately repair any leaky faucets, pipes, connectors, or other leaks. The Cannabis Cultivation Policy, Att. A, Sec. 2, Term 89 and 99 also pertain to overflows and leaks.

Based on the size of the proposed cultivation area and information from the cultivator, annual irrigation water use is estimated to be within the range of 350,000 to 500,000 gallons annually. Irrigation will be from monitored hand watering and no irrigation runoff is expected.

Cannabis Cultivation Policy, Att. A, Sec. 2, - REQUIREMENTS RELATED TO WATER DIVERSIONS AND WASTE DISCHARGE FOR CANNABIS CULTIVATION, (Term 1 through 134) is included as an attachment.

SITE MANAGEMENT PLAN GENERAL GUIDANCE OUTLINE

This Site Management Plan General Guidance Outline describes how the Discharger is implementing the best practical treatment or control measures (BPTC) measures listed in Attachment A of the Cannabis Cultivation Policy. The assessment of applicable BPTC measures consisted of a field examination on September 9, 2021. Anywhere applicable BPTC measures are not met on the property, descriptions of the assessments and the prescribed treatments are outlined following each associated section below.

Summary of BPTC Measures Compliance

1. Sediment Discharge BPTC Measures Y☒/N☐
2. Fertilizer, Pesticide, Herbicide, and Rodenticide BPTC Measures Y☐/N☒
3. Petroleum Product BPTC Measures Y☐/N☒
4. Trash/Refuse, and Domestic Wastewater BPTC Measures Y☐/N☒
5. Winterization BPTC Measures Y☒/N☐

1. Sediment Discharge BPTC Measures

1.1. Site Characteristics

1.1.1. Provide a map showing access roads, vehicle parking areas, streams, stream crossings, cultivation site(s), disturbed areas, buildings, and other relevant site features.

See attached Site Map. The final dimensions and configurations of cultivation areas and some of the other relevant site features was not known at the time of the site assessment. For the purpose of SMP preparation, cultivation areas shown on the Site Map were mapped following along existing hoop house frames or along the visible foot print of prior hoop house locations, along with information from a draft of the Site Plan. Since the cultivation was not active and most of the associated facilities are not yet constructed, the final disturbed area square footage total is not known.

1.1.2. Describe the access road conditions including estimating vehicle traffic, road surface (e.g., paved, rocked, or bare ground), and maintenance activities. Describe how storm water is drained from the access road (e.g., crowned, out slope, armored ditch, culverts, rolling dips, etc.).

The permanent and seasonal roads have been recently graded, are outsloped, and appear to be well drained. The permanent roads on the property are heavily rocked and contain several grade breaks. Sideslopes are minimal and there are no excessive, erodible fills. Road length to the cultivation area is short and does not rely on the use of any

watercourse crossings. Seasonal roads are dirt surfaced, outsloped and have several functioning rolling dips incorporated for surface drainage. Traffic is currently light, and will likely increase upon the cultivation area being approved and operational. Traffic during peak season is estimated to be approximately 2 to 3 trips per day.

1.1.3. Describe any vehicle stream crossing including the type of crossing (e.g., bridge, culvert, low water, etc.).

There are 3 vehicle stream crossings located on the seasonal road sections beyond the cultivation area at Site 02, 06, and 08. Site 02 and Site 06 are rocked ford crossings of a Class III watercourse, and Site 08 is an existing functioning permanent culvert. See the attached Mitigation Report and Site Maps for descriptions and treatments proposed at these sites.

1.1.3.1. For Region 1 Dischargers, identify, discuss, and locate on the site map any legacy waste discharge issues that exist on the property.

No legacy waste discharge issues were identified during the assessment of the property.

1.2. Sediment Erosion Prevention and Sediment Capture (Moderate risk Tier 1 or Tier 2 Dischargers are required to submit a Site Erosion and Sediment Control Plan. Those Dischargers may refer to that plan rather than repeat it here)

1.2.1. Erosion Prevention BPTC Measures

1.2.1.1. Describe the BPTC measures that have been, or will be implemented to prevent or limit erosion. Provide an implementation schedule for BPTC measures that have not yet been implemented. Identify the erosion prevention BPTC measures on a site map.

The permanent roads have been rocked and graded. The surfaces are outsloped with several grade breaks, and appear to be well drained. Dirt surfaced seasonal roads are outsloped and have been graded with several rolling dips. The cultivator should continue with annual monitoring and maintenance. See the Mitigation Report and the Site Maps.

1.2.1.1.1. The description shall address physical BPTC measures, (e.g., placement of straw mulch, plastic covers, slope stabilization, soil binders, culvert outfall armoring, etc.) and biological BPTC measures (vegetation preservation/replacement, hydro seeding, etc.).

See the Mitigation Report, the Site Maps, the attached BMPs, and the Annual Winterization Measures for descriptions of the physical BPTC measures being prescribed.

1.2.2. Sediment Control BPTC Measures

1.2.2.1. Describe the BPTC measures that have been, or will be implemented to capture sediment that has been eroded. Provide an implementation schedule for BPTC measures that have not yet been implemented. Identify the sediment control BPTC measures on a site map.

Not applicable. Currently, no BPTC measures are proposed to capture sediment that has been eroded.

1.2.2.1.1. The description shall address physical BPTC measures, (e.g., placement of silt fences, fiber rolls, or settling ponds/areas, etc.) and biological BPTC measures (vegetated outfalls, hydro seeding, etc.).

Not applicable. Currently, no BPTC measures are proposed to capture sediment that has been eroded.

1.2.3. Maintenance Activities - Erosion Prevention and Sediment Control

1.2.3.1. Describe how the erosion prevention and sediment control BPTC measures will be monitored and maintained to protect water quality.

All recommended mitigations and annual maintenance work shall be inspected prior to and in conjunction with winter monitoring, as described in the attached "Monitoring Plan" to ensure that proper placement and installation, remain intact and functioning prior to and throughout the Winter Period. The roads appeared to be maintained well for the upcoming winter season.

1.2.3.2. Describe how any captured sediment will be either stabilized in place, excavated and stabilized on-site, or removed from the site.

Not applicable. In the future, any spoils material should be stored at a stable location outside of riparian setbacks and away from runoff. See the Mitigation Report, Treatment Implementation Schedule, and Site Maps regarding these sites.

1.2.4. Erosion control BPTC measures: Describe the interim soil stabilization, if applicable and long-term BPTC measures implemented to prevent sediment transport at each identified disturbed area(s) and improperly constructed features.

There are no interim measures proposed. The roads network is well maintained and there were no improperly constructed features at the disturbed areas. See the Mitigation Report and the attached BMPs for general maintenance measures.

2. Fertilizer, Pesticide, Herbicide, and Rodenticide BPTC Measures

2.1. Provide a summary table that identifies the products used at the site, when they are delivered to the site, how they are stored, and used at the site. If products are not consumed during the growing season, describe how they are removed from the site or stored to prevent discharge over the winter season.

The cultivator is in the process of getting county approval for cannabis cultivation on the parcel. An estimate of the products to be used is given below.

2.2. Provide a site map that locates storage locations.

A small amount of fertilizers and soil amendments were being stored on the parcel in a small shed labeled on the Site Map. It has a wooden floor and cover but was open on one end. Per a draft of a Site Plan, a 12-foot by 8-foot dedicated agricultural / chemical and pesticide shed is proposed in the future. In the future any storage locations shall be located outside of riparian setbacks and shall follow Cannabis Cultivation Policy, Att. A, Sec. 2, - Term 103 through 115.

2.3. Describe how bulk fertilizers and chemical concentrates are stored, mixed, applied, and how empty containers are disposed.

Potential Fertilizer, Pesticides, and Herbicide Products used on Site

Product	Delivery and Storage	On-site usage	How removed or stored
potassium, potash humic acid, raw kelp, ray silica, raw yucca, thiamine, fish meal, bone meal, sulfur, oyster shell, kelp meal, Black gold peat moss, Stutzman's chicken fertilizer, Epsom salts, Neem oil, Diatomaceous earth, Azamax, Azatrol ec hydro, Safer garden fungicide, Root knot root-knat nematodes, Predator mites, Lady bugs, Dish soap, Safegro mildew cure, Safegro pest out	Will likely be brought to the property at the beginning of the growing season and as needed. Stored in the shed labeled on the Site Map. A 12-foot by 8-foot dedicated agricultural / chemical and pesticide shed is planned to be constructed in the future. Products are required to be used and stored per Cannabis Cultivation Policy, Att. A, Sec. 2, - Term 103 through 115.	Powdered fertilizers and soil amendments are mixed directly into the soil before planting. Liquid fertilizers and soil amendments are mixed with water in tanks by cultivation areas, and watered as needed.	Empty bags, containers, and unused products are stored short term until removed and taken to a waste disposal site. Per Cannabis Cultivation Policy, Att. A, Sec. 2, - Term 103 through 115, cannabis cultivators are required to contain and regularly remove all debris and trash associated with cannabis cultivation activities from the cannabis cultivation site.

2.4. Describe procedures for spill prevention and cleanup.

The cannabis cultivator shall keep and use absorbent materials designated for spill containment and clean-up for use in an accidental spill. Should a spill of these materials occur, absorbent materials will be applied and cleaned up immediately following the manufacturer's guidelines. See Cannabis Cultivation Policy, Att. A, Sec. 2, - Term 103 through 115 that is attached.

3. Petroleum Product BPTC Measures

3.1. Provide a summary table that identifies the products used at the site, when they are delivered to the site, how they are stored, and used at the site. If products are not consumed during the growing season, describe how they are removed from the site or stored to prevent discharge over the winter season.

The cultivator is in the process of getting county approval for cannabis cultivation on the parcel. An estimate of the products to be used is given below.

3.2. Provide a site map that locates storage locations.

Petroleum products were stored in the shed labeled Fuel Shed on the Site Map. The shed has a dirt and partial plywood covered floor. The shed provides adequate cover but not adequate secondary containment for gas cans stored within it. Improvements to the fuel storage shed were discussed with the cultivator on site. The storage shed is located outside of riparian setbacks. Petroleum products are required to be used and stored per Cannabis Cultivation Policy, Att. A, Sec. 2, - Term 103 through 110, and 116 through 118. See the attached Mitigation Report.

3.3. Describe how fuels, lubricants, and other petroleum products are stored, mixed, applied, and empty containers are disposed.

Exact quantities of products that will be stored is not known at this time, but will likely be less than 100 gallons. Petroleum products are required to be used and stored per Cannabis Cultivation Policy, Att. A, Sec. 2, - Term 103 through 110, and 116 through 118. The table below gives estimates.

Petroleum Products

Products used on site	When they are delivered to site	How they are stored and used	How removed or stored
Gasoline	Brought to site when needed throughout the year.	Products were stored in standard 5-gallon gasoline canisters, separately from fertilizers, inside of the Fuel Shed. Used to run generators, pumps, and gas-powered equipment	Stored in standard 5-gallon gasoline canisters, separately from fertilizers, inside of the Fuel Shed until the product is used up on the property.
Diesel	Brought to site when needed throughout the year.	Products were stored in standard 5-gallon gasoline canisters, separately from fertilizers, inside of the Fuel Shed. Used to run diesel powered electric generators.	Stored in standard 5-gallon gasoline canisters, separately from fertilizers, inside of the Fuel Shed until the product is used up on the property.
Motor oil	Brought to site when needed throughout the year.	Stored in the Fuel Shed within factory 1-quart or 1-gallon containers. Used to service internal combustion engines.	After oil changes, the used motor oil is stored in either the container it came in or in sealed 5-gallon buckets for later disposal at an appropriate waste disposal facility.

3.4. Describe procedures for spill prevention and cleanup.

Any/all fuel canisters, motor oil containers, and small generators shall be stored in secondary containment (e.g. drip pans, plastic totes, or sealed metal boxes) while being stored long term or not in immediate use. Adequate quantities of absorbent materials shall be stored at all locations where these types of materials are used, stored, or mixed. Should a spill of these materials occur, absorbent materials will be applied immediately and allowed enough time to absorb as much material as possible. Following treatment, absorbent materials applied as well as any contaminated soil will be removed and disposed of appropriately for the spilled material.

4. Trash/Refuse, and Domestic Wastewater BPTC Measures

4.1. Describe the types of trash/refuse that will be generated at the site. Describe how the material is contained and properly disposed of.

Commercial cannabis refuse will be generated at the site. Site 14 and 15 are piles of cultivation waste and trash remaining from previous years. The piles are in secure locations where they cannot access a watercourse. The piles are stockpiled for eventual removal from the property. Cannabis cultivators are required to contain and regularly remove all debris and trash associated with cannabis cultivation activities from the cannabis cultivation site.

4.1.1. Provide a site map that locates the trash/refuse storage locations.

The location of trash and refuse storage locations is not known at this time. Storage locations will likely be near cultivation areas or near facilities upon approval and construction. Site 14 and 15 are piles of cultivation waste and trash remaining from previous years that is planned for removal.

4.2. Describe the number of employees, visitors, or residents at the site.

At the time of the site visit there was one fulltime resident on the property. Following approval and construction of facilities, it is estimated that up to 4 additional employees / residents will be onsite during cultivation. Visitors are not expected to generate trash/refuse.

4.2.1. Describe the types of domestic wastewater generated at the site (e.g., household generated wastewater or chemical toilet).

Domestic sewage / wastewater may be generated on site.

4.2.2. Describe how the domestic wastewater is disposed.

4.2.2.1. Permitted onsite wastewater treatment system (e.g., septic tank and leach lines).

Site 13 is an outdoor shower located on a large flat bench area, fully vegetated with grass, far from watercourses. Runoff from its use cannot cause erosion or enter a watercourse. Site 17 is a portable

chemical toilet. Per draft site maps for this project there is a proposed 30-foot by 50-foot workers quarters and a septic area, and a proposed 40-foot by 50-foot processing facility and septic area planned to be permitted and constructed in the future.

Per Cannabis Cultivation Policy, Att. A, Sec. 2, Term 124 - 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. Term 125 states - 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.

4.2.2.2. Chemical toilets or holding tank. If so, provide the name of the servicing company and the frequency of service.

The portable, chemical toilet is provided and serviced on a regular basis by B and B.

4.2.2.3. Outhouse, pit privy, or similar. Use of this alternative requires approval from the Regional Water Board Executive Officer; include the approval from the Executive Officer and any conditions imposed for use of this alternative.

Not Applicable.

4.2.2.3.1. Provide a site map that locates any domestic wastewater treatment, storage, or disposal area.

See Site 13 and 17 on the Mitigation Report and the Site Map. Septic systems that are in planning stages are proposed nearby these locations.

5. Winterization BPTC Measures

5.1. Describe activities that will be performed to winterize the site and prevent discharges of waste. The description should address all the issues listed above.

See the Annual Winterization Measures for actions that are required to be performed prior to each Winter Period.

5.2. Describe maintenance of all drainage or sediment capture features (e.g., drainage culverts, drainage trenches, settling ponds, etc.) to remove debris, soil blockages, and ensure adequate capacity exists.

For this year it appears that road surfaces and culverts are properly winterized. In future years, existing road surface drainage structures will be maintained or repaired as feasible and necessary with hand tools during annual winterization and monitoring. Prescribed repair and maintenance will be executed in accordance with the Mitigation Report, Annual Winterization Measures, Monitoring Plan, and the attached BMPs.

5.3. Describe any revegetation activities that will occur either at the beginning or end of the precipitation season.

See the Annual Winterization Measures, Monitoring Plan, and the attached BMPs for a description of areas requiring treatment with seed and straw mulch for erosion control prior to next winter period.

5.4. If any BPTC measure cannot be completed before the onset of Winter Period, contact the Regional Water Board to establish a compliance schedule.

See the attached Mitigation Report, the Annual Winterization Measures, and Monitoring Plan for site descriptions, treatments, and schedule.

5.5. For Region 1 Dischargers, describe any activities that will be performed to address legacy waste discharge issues. Region 6 Dischargers should consult with Regional Water Board staff to confirm if any other activities in addition to BPTCs are necessary to address legacy waste discharge issues.

Not applicable. No legacy waste discharge issues were identified during the assessment of the property.

Annual Winterization Measures

Winterization measures consist of general cleanup and winter-preparation activities that both prepare for, and utilize, anticipated, local winter weather. In project areas that may become inaccessible during periods, or the entirety, of the winter, additional winterization procedures and precautions may be required due to the potential absence of winter monitoring.

- Any exposed soils resulting from winterization activities shall be seeded and straw mulched.
- Any/all areas of exposed soils in and around cultivation areas be seeded and either straw mulched with weed free straw or woodchips.
- All existing culvert inlets, interiors, and outlets shall be cleared of any existing or potential obstructions to include; debris upstream of the culvert such as sediment, loose, moveable rocks, and raftable, small, woody debris.
- Damage or wear resulting from vehicular use to road surfaces (such as rutting or wheel tracks) and/or road surfacing (such as rock) that would impair road surface drainage or drainage features (such as outsloping, waterbars, rolling dips, etc.) shall be repaired prior to the Winter Period.
- All existing surface drainage features and sediment capture features shall be maintained if needed to ensure continued function through the Winter Period.
- All fertilizers and petroleum products will be stored in an area located outside of riparian setbacks, completely sealed, placed in a secondary containment (liquids), and stored in a manner that prevents contact with precipitation and surface runoff.
- Chemical toilets will be removed from the property until need resumes the following cultivation season, or at a minimum serviced and left unused during periods when not in use.
- Water storage tank lids shall be appropriately closed to prevent the access of wildlife.
- All refuse/trash shall be removed and disposed of appropriately.
- All inorganic material capable of being transported by wind or rain shall be secured and stored appropriately.

Monitoring Plan

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. See Required Monitoring tables below for site specific monitoring and reporting requirements. Cannabis cultivators are required to perform all of the following maintenance:

- Remove any wood debris that may restrict flow in a culvert.
- 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.
- Maintain records of access road and drainage feature maintenance for annual reporting.

Cannabis cultivators that are operating in areas that are, or may become, inaccessible during winter months due to extreme weather such as snow, road closures, seasonal access roads to the property, or any other such conditions shall make additional efforts to enhance winterization measures in the absence of monitoring during storm events.

Monitoring Requirements
(Tier 1, Low Risk, < 1 acre of cultivation)

Monitoring Requirement	Description
Winterization Measures Implemented	Report winterization procedures implemented, any outstanding measures, and the schedule for completion.
Tier Status Confirmation	Report any changes in the tier status.
Third Party Identification	Report any change in third party status as appropriate.

Annual Reporting
Annual Reports shall be submitted to the North Coast Regional Water Quality Control Board by March 1st following the year being monitored. The first Annual Report for this enrollment shall be submitted by March 1st, 2022 and report on monitoring done during the 2021 calendar year. Annual reporting is required each subsequent year of enrollment.

Site Management Plan

Site Map WDID - 1_12CC436121

Timberland Resource Consultants

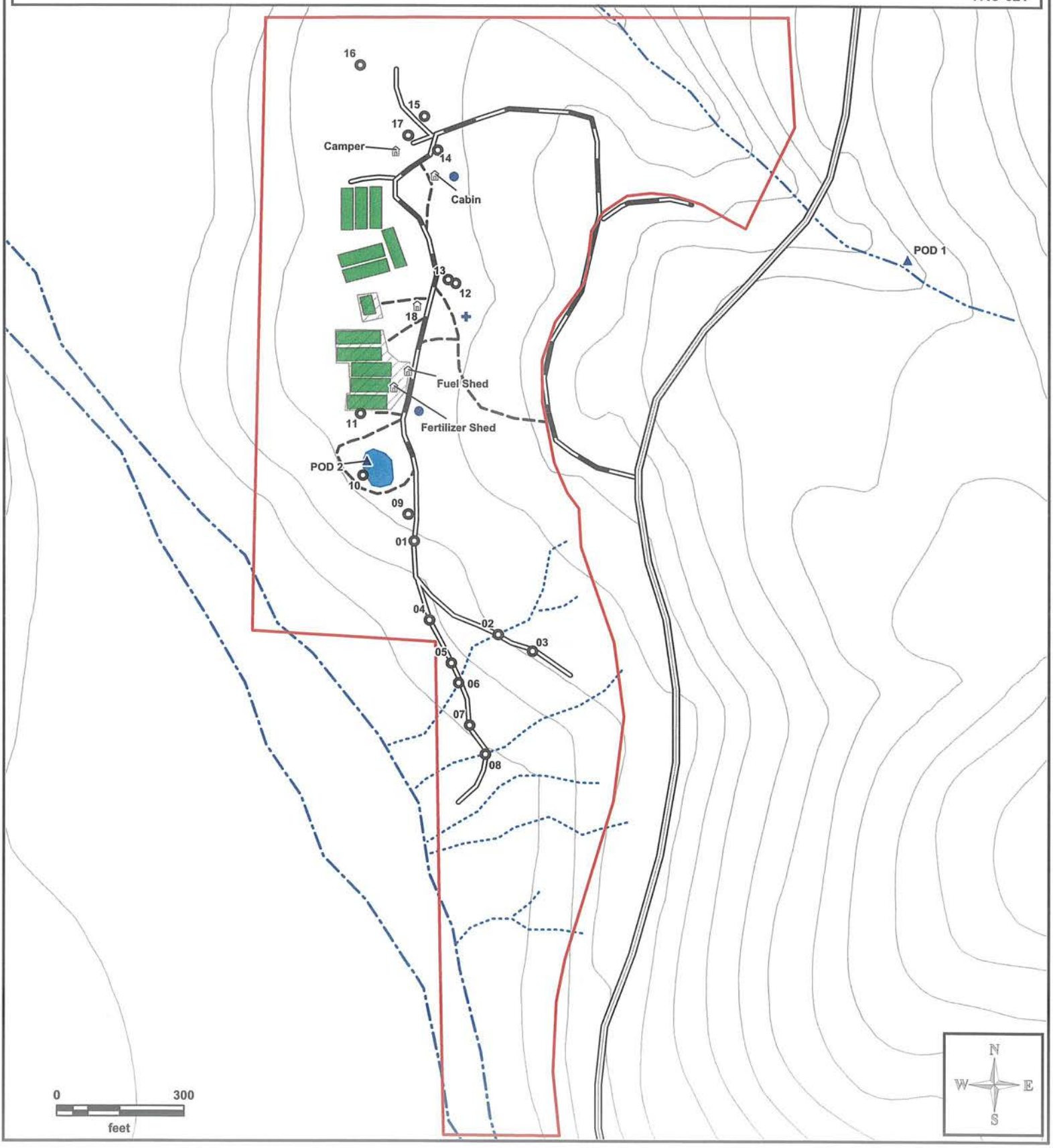
Property Boundary
Cultivation Area
Disturbed Area

Roads
Highway 36
Permanent
Seasonal
Trail

Watercourses
Class I (Little Van Duzen River)
Class III
Manmade, Off-stream Pond

Site
POD
Tank
Well
Structure

TRC-521



Site Management Plan

Site Map WDID - 1_12CC436121

Timberland Resource Consultants

Property Boundary
Cultivation Area
Disturbed Area

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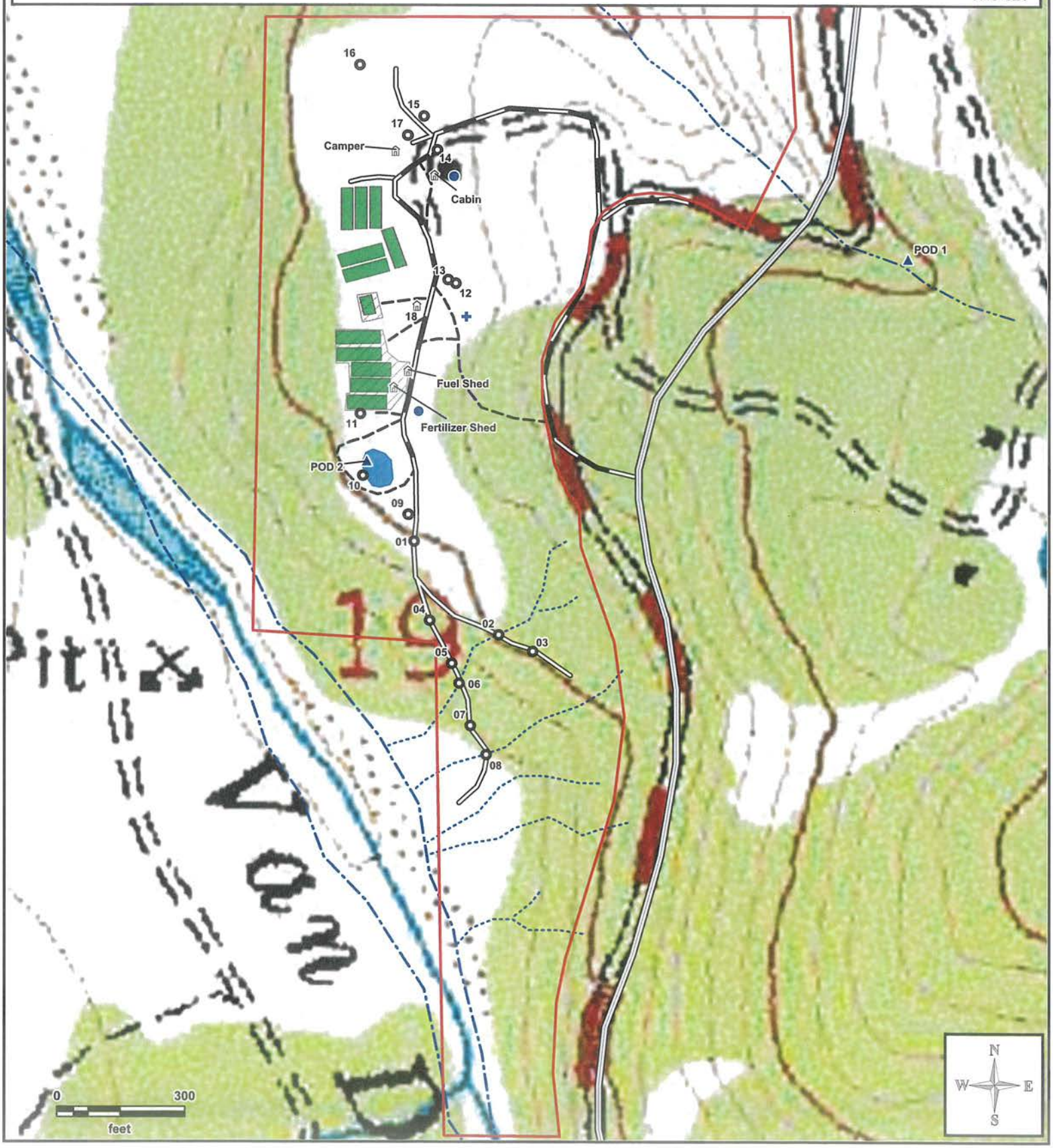

Site Management Plan

Site Map WDID - 1_12CC436121

Timberland Resource Consultants

Property Boundary
Cultivation Area
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Class I (Little Van Duzen River)
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TRC-521

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SMP - Mitigation Report

WDID# - 1_12CC436121

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 01	-123.656749 40.451357	Seasonal	-	X	-	Annually prior to 10/15	
Current Condition: Existing functioning Rocked Rolling Dip.						Prescribed Action: Monitor and maintain as necessary.	

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 02	-123.656039 40.450763	Seasonal	-	X	-	Annually prior to 10/15	
Current Condition: Existing functioning Rocked Ford crossing of a Class III watercourse. It is located on a seasonal road that does not access the cultivation area. The crossing approaches are heavily rocked and hydrologically disconnected as much as feasible.						Prescribed Action: Monitor and maintain as necessary.	

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 03	-123.655754 40.450659	Seasonal	-	X	-	Annually prior to 10/15	
Current Condition: Existing functioning Rocked Rolling Dip.						Prescribed Action: Monitor and maintain as necessary.	

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 04	-123.656613 40.450851	Seasonal	-	X	-	Annually prior to 10/15	
Current Condition: Existing functioning Rocked Rolling Dip.						Prescribed Action: Monitor and maintain as necessary.	

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 05	-123.656427 40.450578	Seasonal	-	X	-	Annually prior to 10/15	
Current Condition: Existing functioning Rocked Rolling Dip.						Prescribed Action: Monitor and maintain as necessary.	

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 06	-123.656365 40.450452	Seasonal	-	X	-	Annually prior to 10/15	
Current Condition: Existing functioning Rocked Ford crossing of a Class III watercourse. It is located on a seasonal road that does not access the cultivation area. The crossing approaches are heavily rocked and hydrologically disconnected as much as feasible.						Prescribed Action: Monitor and maintain as necessary.	

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 07	-123.656269 40.450181	Seasonal	-	X	-	Annually prior to 10/15	
Current Condition: Existing functioning Rocked Rolling Dip.						Prescribed Action: Monitor and maintain as necessary.	

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WDID# - 1_12CC436121

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 08	-123.656136 40.449996	Seasonal	-	X	-	Annually prior to 10/15	

Current Condition: 36-inch diameter, 30-foot long metal culvert crossing of a Class III watercourse. It is adequately sized for the 100 year peak streamflow. The inlet and outlet are rock armored. The crossing approaches are heavily rocked and hydrologically disconnected as much as feasible.

Prescribed Action: Ensure that the culvert inlet and outlet are open and free from obstructions at all times. Monitor and provide maintenance as necessary.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 09	-123.656799 40.451528	Seasonal	-	X	-	As required	

Current Condition: Compost / used soil area. It is located on flat ground and outside of riparian setbacks.

Prescribed Action: At this site and anywhere cultivation soils are stored on the property adhere to the following: Cannabis Cultivation Policy, Att. A, Sec. 2, Term 59 states - 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.). Term 62 states - Cannabis cultivators shall haul away and properly dispose of excess soil and other debris as needed to prevent discharge to waters of the state. Term 113 states - 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 or waste constituents into groundwater.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 10	-123.65718 40.451774	-	-	X	-	Annually prior to 10/15	

Current Condition: Pond overflow is a 10-inch diameter, perforated metal culvert. The pond is manmade, off-stream, and the pond overflow culvert is functioning adequately.

Prescribed Action: Ensure that the culvert inlet and outlet are open and free from obstructions at all times. Monitor and provide maintenance as necessary.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 11	-123.657206 40.45217	Cultivation Area	X	X	-	As required	

Current Condition: Site 11 refers to the area between the southern most greenhouse and the manmade off-stream pond. The area is located on a natural bench and has gradual slopes that lead towards the pond.

Prescribed Action: Ensure that cultivation soil or materials do not extend into the area between the southern most greenhouse and the manmade, off-stream pond. As an extra precaution to keep cultivation soils contained, install straw wattles along the south (downslope) side of the southern most greenhouse. Do not store cultivation soils or materials along the south side of the cultivation area, north of the pond. Do not discard waste or plant waste along the south side of the cultivation area, or towards the pond.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 12	-123.65642 40.45301	-	-	X	-	As required	

Current Condition: Site is an above ground swimming pool with approximately 2,500 gallons capacity. It is used for auxiliary water storage and was empty on 9-9-2021. It is located on a large flat bench area, fully vegetated with grass, well away from any watercourses such that a failure would not enter a watercourse or result in erosion.

Prescribed Action: If used again, ensure that it is in good condition and free of leaks.

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Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 13	-123.656484 40.453033	-	-	X	-	Prior to 10/15/22 pending the approval of any required permits	

Current Condition: Outdoor shower located on a large flat bench area, fully vegetated with grass, well away from any watercourses. Runoff from its use cannot cause erosion or enter a watercourse. Per Site Plans for this project, a processing facility and a workers quarters building are proposed along with proposed septic areas.

Prescribed Action: Per Cannabis Cultivation Policy, Att. A, Sec. 2, Term 124: 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.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 14 and 15	-123.656646 40.453938	Permanent	X	-	-	Prior to 11/15/22	

Current Condition: Site 14 and 15 are piles of cultivation waste and trash remaining from previous years. The piles are in secure locations where they cannot access a watercourse. The piles are stockpiled for eventual removal from the property.

Prescribed Action: Remove and dispose of the cultivation waste at Sites 14 and 15, and anywhere else on the property. Per Cannabis Cultivation Policy, Att. A, Sec. 2, Term 119 - Cannabis cultivators shall contain and regularly remove all debris and trash associated with cannabis cultivation activities from the cannabis cultivation site. Cannabis cultivators shall not allow litter, plastic, or similar debris to enter the riparian setback or waters of the state.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 16	-123.657235 40.454401	-	X	-	-	Prior to 11/15/22	

Current Condition: Remaining cultivation pots and related materials from the past. It is located such that it does not pose a risk or a threat to water quality at this time.

Prescribed Action: Remove and dispose of the past cultivation pots and related materials at Site 16, and anywhere else on the property. Per Cannabis Cultivation Policy, Att. A, Sec. 2, Term 119 - Cannabis cultivators shall contain and regularly remove all debris and trash associated with cannabis cultivation activities from the cannabis cultivation site. Cannabis cultivators shall not allow litter, plastic, or similar debris to enter the riparian setback or waters of the state.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 17	-123.65683 40.453954	Permanent	X	X	-	As required	

Current Condition: Site 17 is a portable toilet that is professionally serviced on a regular basis. Per Site Plans for this project, a processing facility and a workers quarters building are proposed along with proposed septic areas.

Prescribed Action: Continue to have the portable toilet serviced on a regular basis while in use. Cannabis Cultivation Policy, Att. A, Sec. 2, Term 124 states - 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. Term 125 states - 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.

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WDID# - 1_12CC436121

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Site 18	-123.656741 40.452867	-	-	-	-	-	

Current Condition: Site 18 refers to a metal shipping container shed. It is located outside of riparian setbacks and would be an appropriate location for storage of cultivation materials.

Prescribed Action: None.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Fertilizer Shed	-123.656927 40.452344	-	X	X	-	Prior to 11/15/21	

Current Condition: The fertilizer shed is a small covered shed with a wooden floor and it is attached to the end of one of the greenhouses.

Prescribed Action: Within the Fertilizer Shed and anywhere else on the property where fertilizers and nutrients are stored, adhere to the following terms: Cannabis Cultivation Policy, Att. A, Sec. 2, Term 104 states - 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... Term 105 states - 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 storage areas shall have appropriate secondary containment structures, as necessary, to protect water quality and prevent spillage, mixing, discharge, or seepage. Term 108 states - ...Cannabis cultivators shall provide secondary containment for hazardous materials to prevent possible exposure to the environment... Refer to Cannabis Cultivation Policy, Att. A, Sec. 2, Term 103 through 115 for the full text of requirements regarding fertilizers, soils, pesticides, and herbicides.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Fuel Storage Shed	-123.656812 40.452449	-	X	X	-	Prior to 11/15/21	

Current Condition: Fuel storage shed. The shed has a dirt and partial plywood covered floor. The shed provides adequate cover but not adequate secondary containment for gas cans stored within it.

Prescribed Action: Store fuel containers under cover and inside of secondary containment. Within the Fuel Shed and anywhere else on the property where fuels and petroleum products are stored, adhere to the following terms: Cannabis Cultivation Policy, Att. A, Sec. 2, Term 104 states - 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... Term 105 states - ...All storage areas shall have appropriate secondary containment structures, as necessary, to protect water quality and prevent spillage, mixing, discharge, or seepage. Term 108 states - ...Cannabis cultivators shall provide secondary containment for hazardous materials to prevent possible exposure to the environment... Term 116 states - ...Cannabis cultivators shall inspect all equipment using oil, hydraulic fluid, or petroleum products for leaks prior to use and shall monitor equipment for leakage.... Term 117 states - 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. Refer to Cannabis Cultivation Policy, Att. A, Sec. 2, Term 104, 105, 108, 116, and 117 for the full text of requirements.

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Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
POD 1 and POD 2		-	X	X	X	Immediately	

Current Condition: Two Points of Diversion (POD 1 and 2) are proposed as the sources of irrigation and domestic water on the property. These water sources are included in a recently amended streambed alteration agreement. POD 1 is used for domestic water and is a concrete cistern placed in a spring. POD 2 is a manmade off-stream pond that is used for cannabis irrigation. See the Prescribed Action for requirements related to water diversion that are listed in the Cannabis Cultivation Policy, Attachment A, Section 2. For the specific measures required by the CDFW LSAA Agreement and Amendment 1600-2016-0343-R1 see the body of this report or refer to those documents.

Prescribed Action: Refer to Cannabis Cultivation Policy, Att. A, Sec. 2, Term 69, 74, 76, 77, 82, and 89 for the full text of requirements related to surface water diversions. Term 69 states - Cannabis cultivators shall not divert surface water unless it is diverted in accordance with an existing water right... Documentation of the water right shall be available for review and inspection by the Water Boards, CDFW, and any other authorized representatives... Term 74 states - No water shall be diverted unless the cannabis cultivator is operating the water diversion facility with a CDFW-approved water-intake screen... The water intake screen shall be designed and maintained in accordance with screening criteria approved by CDFW... Term 76 states - Cannabis cultivators shall not obstruct, alter, dam, or divert 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, ...Term 77 states - Cannabis cultivators shall plug, block, cap, disconnect, or remove the diversion intake or otherwise bypass flow or render the diversion intake incapable of diverting water for cannabis cultivation activities during the surface water forbearance period... Term 82 states - The cannabis cultivator shall install and maintain a measuring device(s) for surface water... ...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. 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 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. Term 89 states - Cannabis cultivators shall on a monthly basis, at a minimum, inspect for and repair all leaks of the diversion and storage system. Written records describing the date, time, and nature of such inspections and repairs shall be kept on-site for a period of at least two years. ...records shall be made available for review by Water Boards or CDFW...

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Treatment Schedule	Date Completed
Well	-123.656328 40.452796	-	X	X	-	As required	

Current Condition: A 140-foot deep, permitted groundwater well. The well is drilled and cased but was not in use.

Prescribed Action: With regards to well water use for cannabis irrigation, adhere to the following: Cannabis Cultivation Policy, Att. A, Sec. 2, Term 98 states - 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 irrigation emitters equates to 50 gallons per day (1 hour x 2 times per day x 50 irrigation emitters x 0.5 gallons per irrigation emitter per hour) of water used for irrigation). Cannabis cultivators shall retain, for a minimum of five 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.

Photographs

Photos show the northern half of the cultivation area. They are located outside of riparian setbacks, and shall be planned so that runoff is evenly dispersed as much as possible and not concentrated. Cultivation soils shall be kept contained to the immediate disturbed areas. Photo date 9/9/2021.

Photographs

Photos show an example of the rocked, permanent road surfaces throughout the majority of the property. The cultivator shall continue to maintain and grade road surfaces as necessary to keep up a functioning, outsloped drainage pattern in the future. Photo date 9/9/2021.

Photographs

Photos show an example of the dirt surfaced seasonal road on the property. The roads were graded with rolling dips installed recently. Following grading, straw was placed for erosion control. The cultivator shall continue to maintain and grade road surfaces as necessary in the future to keep up a functioning, outsloped drainage pattern in the future. Photo date 9/9/2021.

Photographs

Photos show the stockpiled trash piles at Site 14 and 15 that are planned for removal. Per Cannabis Cultivation Policy, Att. A, Sec. 2, Term 119 - Cannabis cultivators shall contain and regularly remove all debris and trash associated with cannabis cultivation activities from the cannabis cultivation site. Cannabis cultivators shall not allow litter, plastic, or similar debris to enter the riparian setback or waters of the state. Photo date 9/9/2021.

Photographs

The photo shows the remaining cultivation pots and related materials from the past at Site 16. It is located such that it does not pose a risk or a threat to water quality at this time. The cultivator shall remove and dispose of the past cultivation pots and related materials at Site 16, and anywhere else on the property. Photo date 9/9/2021.

Photographs

Photo shows the portable toilet at Site 17. It is professionally serviced on a regular basis. Per daft site plans for this project, a processing facility and a worker quarters building are proposed along with proposed septic areas. Photo date 9/9/2021.

STATEMENT OF CONTINGENT AND LIMITING CONDITIONS CONCERNING THE PREPARATION AND USE OF REPORTS ADDRESSING GENERAL WASTE DISCHARGE REQUIREMENTS UNDER ORDER WQ 2019-0001-DWQ

Prepared by Timberland Resource Consultants

1. This document has been prepared for the property within APN 210-101-011-000, in Humboldt County, for enrollment in the General Waste Discharge Order WQ 2019-0001-DWQ.

2. Timberland Resource Consultants does not assume any liability for the use or misuse of the information in this document.

3. The information is based upon conditions apparent to Timberland Resource Consultants at the time inspection(s) were conducted. Changes due to land use activities or environmental factors occurring after inspection, have not been considered in this document.

4. The information regarding water use estimates and water sources is based upon figures provided in previous permitting documents and reports, and through communication with the Client at the time of the inspection. Any conditions not provided by the Client or apparent to Timberland Resource Consultants at the time of the inspection were not considered.

5. Maps, photos, and any other graphical information presented in this report are for illustrative purposes. Their scales are approximate, and they are not to be used for locating and establishing boundary lines.

6. The conditions presented in this document may differ from those made by others or from changes on the property occurring after inspections were conducted. Timberland Resource Consultants does not guarantee this work against such differences.

7. Timberland Resource Consultants did not conduct an investigation on a legal survey of the property.

8. Persons using this document are advised to contact Timberland Resource Consultants prior to such use.

9. Timberland Resource Consultants will not discuss this document or reproduce it for anyone other than the Client for which this document was prepared without authorization from the Client.

Ron Pelletier

Timberland Resource Consultants

ATTACHMENTS

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.

Land Development and Maintenance, Erosion Control, and Drainage Features

Limitations on Earthmoving

#	TERM
1.	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. 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.
2.	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.
3.	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 Cultivation 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.
4.	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.
5.	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.

Construction Equipment Use and Limitations

#	TERM
6.	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. 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.
7.	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: a) 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). b) Frequently inspect equipment and vehicles for leaks. c) Immediately clean up leaks, drips, and spills. Except for emergency repairs that are necessary for the safe transport of equipment or vehicles to an appropriate repair facility; performing equipment or vehicle repairs, maintenance, and washing onsite is prohibited. d) If emergency repairs generate waste fluids, ensure they are contained and properly disposed or recycled off-site. e) Properly dispose of all construction debris off-site. 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.

Erosion Control

#	TERM
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.

#	TERM
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: www.cal-ipc.org/paf/. 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.	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. • Interim erosion prevention and sediment capture measures shall be implemented within seven days of completion of grading and land disturbance activities, and shall consist of erosion prevention measures and sediment capture measures including: o 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. o 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. • 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. 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.

#	TERM
11.	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.
12.	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.
13.	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.
14.	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.

Access Road/Land Development and Drainage

#	TERM
15.	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 http://www.pacificwatershed.com/PWA-publications-library. Existing access roads shall be upgraded to comply with the Road Handbook.
16.	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.

#	TERM
17.	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.
18.	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.
19.	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.
20.	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[13] 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.
21.	Cannabis cultivators shall have a Qualified Professional design the optimal access road alignment, surfacing, drainage, maintenance requirements, and spoils handling 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.

[13] 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/streamprotectioncircular.pdf.

#	TERM
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 gullying. 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.

Drainage Culverts (See also Watercourse Crossings)

#	TERM
30.	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.
31.	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.

Cleanup, Restoration, and Mitigation

#	TERM
32.	Cannabis cultivators shall limit disturbance to existing grades and vegetation to the actual site of the cleanup or remediation and any necessary access routes.
33.	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. 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.
34.	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.
35.	Cannabis cultivators shall develop a revegetation plan for: • All exposed or disturbed riparian vegetation areas, • any oak trees that are damaged or removed, and • temporary work areas. 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 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).

#	TERM
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.

Stream Crossing Installation and Maintenance

Limitations on Work in Watercourses and Permanently Ponded Areas

#	TERM
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[14] 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.

[14] Heavy equipment is defined as machinery or vehicles, typically used in the building and construction industry (e.g., bulldozers, excavators, backhoes, bobcats, tractors, etc.).

#	TERM
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 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.

Temporary Watercourse Diversion and Dewatering: All Live Watercourses

#	TERM
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.	Gravity flow is the preferred method of temporarily dewatering or diverting water. 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 a 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 cultivators 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.

#	TERM
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.

Watercourse Crossings

#	TERM
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 estimated 100-year flood flow and associated debris (based upon an assessment of the streams potential to generate debris during high flow events). Watercourse crossings shall be designed and sized by a Qualified Professional. Consult CAL FIRE 100 year Watercourse Crossings document for examples and design calculations, available at: http://calfire.ca.gov/resource_mgt/downloads/100%20yr%20revised%208-08-17%20(final-a).pdf.
50.	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 support fish shall be constructed for the unrestricted passage of fish at all life stages, and should use the following design guidelines: • CDFW's *Culvert Criteria for Fish Passage;* • CDFW's *Salmonid Stream Habitat Restoration Manual, Volume 2, Part IX: Fish Passage Evaluation at Stream Crossings; and* • National Marine Fisheries Service, Southwest Region *Guidelines for Salmonid Passage at Stream Crossings.*
51.	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: http://www.calforests.org/wp-content/uploads/2013/10/Adopted-TRA5.pdf.

#	TERM
52.	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 roads is prohibited.
53.	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.
54.	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 upon discovery: • Remove any wood debris that may restrict flow in a culvert. • 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. • Maintain records of access road and drainage feature maintenance and consider 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.

#	TERM
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.

Soil Disposal and Spoils Management

#	TERM
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: • revegetate soil disposal sites with a mix of native plant species, • cover the seeded and planted areas with mulched straw at a rate of two tons per acre, and • apply non-synthetic netting or similar erosion control fabric (e.g., jute) on slopes greater than 2:1 if the site is erodible.
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

#	TERM
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.

#	TERM
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

#	TERM
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[15].
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.

[15] California Well Standards are available at: http://wdl.water.ca.gov/groundwater/wells/standards.cfm

#	TERM
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 flow 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.	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 permit, a CDFW LSA Agreement, coverage under the Cannabis Cultivation 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. In all cases, all pumps shall: a) be properly maintained, b) have suitable containment to ensure any spills or leaks do not enter surface waterbodies or groundwater, and c) have sufficient overhead cover to prevent exposure of equipment to precipitation.

#	TERM
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)[16]. 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.
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 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 Cultivation 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 or otherwise bypass flow or render the diversion intake incapable of diverting water for 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.
79.	Onstream storage reservoirs are prohibited except in the following instances: a) 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. b) The cannabis cultivator obtains an appropriative water right permit with irrigation as a designated use prior to diverting water into an onstream storage reservoir for cannabis cultivation. Cannabis cultivators with a pending application or an unpermitted onstream storage reservoir shall not

[16] CDFW's Lake and Streambed program information is available at: https://www.wildlife.ca.gov/Conservation/LSA .

#	TERM
	divert for cannabis cultivation until the cannabis cultivator has obtained a valid water right. c) Cannabis cultivators with an unpermitted onstream reservoir that existed prior to October 1, 2016 may file for a Cannabis SIUR[17]. As part of filing for a Cannabis SIUR, the registrant shall agree to do the following: i. Request a determination from the Deputy Director (or designee) and CDFW to determine whether removal of the reservoir or installation of off-stream storage would cause more environmental damage than continuing to use the existing onstream reservoir for diversion and storage. ii. Accept any conditions imposed by the Deputy Director (or designee) and CDFW before or after issuance of the Cannabis SIUR as part of the determinations to ensure any modifications and ongoing operation of the onstream reservoir are protective of water quality and aquatic resources. If the Deputy Director (or designee) or CDFW determine the existing onstream reservoir does not meet this condition: (1) the reservoir and associated facilities shall be removed or otherwise modified such that the reservoir is incapable of storing water; and (2) the cannabis cultivator shall either install off-stream storage or obtain an alternative source of water or water right. iii. Operate or modify the onstream reservoir to: (1) bypass all inflow to the reservoir during the surface water diversion forbearance period (Section 3, Requirement 4). This requirement may be modified by the Deputy Director (or designee) or CDFW as part of the determinations and Cannabis SIUR; (2) comply with the diversion rate and diversion season bypass conditions (pursuant to Section 3, Requirements 5, 6, and 7). This requirement may be modified by the Deputy Director (or designee) or CDFW as part of the determinations and Cannabis SIUR; and (3) operate consistent with the other Requirements of this Policy. This requirement may be modified by the Deputy Director (or designee) as part of the determinations and Cannabis SIUR. iv. Within six months of the determinations, the cannabis cultivator shall submit a draft compliance plan for review and approval by the Deputy Director (or designee). The compliance plan shall clearly identify the scope of work and schedule for completion of modifications necessary to operate the onstream reservoir in compliance with the determinations and Cannabis SIUR. The schedule for completion must comply with the timeline established by

[17] Cannabis cultivators can apply for a Cannabis SIUR through the Water Boards online Cannabis Cultivation Program Application Portal available at: https://public2.waterboards.ca.gov/cgo.

#	TERM
	the Deputy Director (or designee) and shall not exceed the renewal date of the Cannabis SIUR Certificate[18]. The Deputy Director (or designee) may require modifications prior to approving the draft compliance plan. v. Withdrawal of water from the onstream reservoir for cannabis cultivation activities is only allowed during the surface water diversion forbearance period. d) Onstream reservoirs with an existing valid water right registration for onstream storage that does not identify commercial irrigation as a purpose of use (i.e., Livestock Stockpond Use Registrations, Small Domestic Use Registrations) may file for a Cannabis SIUR , thereby requesting Deputy Director (or designee) and CDFW to make determinations and condition the Cannabis SIUR after issuance with appropriate conditions as outlined in (c)(i), (c)(ii), (c)(iii), (c)(iv), and (c)(v) above, with the exception of (c)(ii)(1) which does not apply.
80.	The State Water Board may impose conditions for each individual SIUR for an onstream reservoir for cannabis cultivation to: a) Ensure that individual and cumulative effects of water diversion and discharge associated with cultivation do not affect the instream flows needed for fish spawning, migration, and rearing, and the flows needed to maintain natural flow variability; b) Ensure that cultivation does not negatively impact springs, riparian habitat, wetlands, or aquatic habitat; and c) Otherwise protect fish, wildlife, fish and wildlife habitat, and water quality. Each SIUR filing for an onstream reservoir for cannabis cultivation shall include self-certification that the registrant has agreed to comply with all lawful conditions required by the State Water Board pursuant to this term. The SIUR Certificate shall include a copy of any conditions required by the State Water Board pursuant to this term.
81.	Cannabis cultivators are encouraged to install separate storage systems for water diverted for cannabis irrigation and water diverted for any other beneficial uses[19], 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.
82.	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

[18] SIURs are subject to renewal every five years.

[19] 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).

#	TERM
	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 and Chapter 2.8[20]. 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. 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.
83.	Cannabis cultivators with onstream reservoirs shall install and maintain a measuring device capable of meeting the requirements below to monitor and record the rate of diversion, the rate of collection to storage, the rate of withdrawal or release from storage, and the total volume of water collected in the onstream reservoir. a) The measurement device (e.g., water level sensor and area-capacity curve) shall be certified to measure the total volume of water diverted or stored accurate to within ±10 percent by volume based on periodic testing of the installed device. b) The measurement device shall be capable of recording the date, time, and volume of water diverted at an hourly or more frequent basis, year-round. c) The measurement device shall be installed and calibrated by a Qualified Professional. This includes the development of any area-capacity curve used to convert water elevation to volume. Cannabis cultivators shall submit a description of the type of measurement device, evidence of proper installation and operation of the device, and the area-capacity curve to the Deputy Director (or designee) for review and approval within two years of the date the Cannabis SIUR is issued. d) To assess continued accuracy of depth readings recorded by the measurement device, a staff gage shall also be installed in the same pond or reservoir as the measurement device and manual depth readings from the staff gage and the date and time of the depth readings shall be recorded monthly, at a minimum. The area-capacity curve shall be reassessed if requested by the Deputy Director (or designee). e) Cannabis cultivators shall maintain hourly depth and volume records from the measurement device and area-capacity curves at the cultivation site and

[20] Additional information on measuring devices may be found at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/diversion_use/water_use.shtml#measurement

#	TERM
	shall make the records available for review upon request by staff from the Water Boards or CDFW. Depth and volume records and area-capacity curves shall be retained for a minimum of five years.
84.	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.
85.	Cannabis cultivators shall not use 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. 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. 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.
86.	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.
87.	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

#	TERM
	potential for water to flow into a 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.
88.	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.
89.	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 on a monthly basis, at a minimum, inspect for and repair all leaks of the diversion and storage system. Written records describing the date, time, and nature of such inspections and repairs shall be kept on-site for a period of at least two years. Such written records shall be made available for review by Water Boards or CDFW, and any other authorized representatives of the Water Boards or CDFW.
90.	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.
91.	Cannabis cultivators shall install storage 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. Cannabis cultivators shall maintain a written or electronic copy of the manufacturer's specifications for each storage tank installed and used for cannabis cultivation activities, if available from the manufacturer in hardcopy or on the internet. 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-

#	TERM
	tighten) per the recommendations of a Qualified Professional. Nothing in this requirement supersedes other applicable state, county, or local requirements for the installation of water storage tanks, whichever is more stringent shall apply.
92.	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.
93.	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.
94.	Cannabis cultivators shall retain, for a minimum of five years, appropriate documentation for any hauled water[21] used for cannabis cultivation. Documentation for hauled water shall include, for each delivery, the following: a) A receipt that shows the date of delivery and the name, address, license plate number, and license plate issuing state for the water hauler, b) A copy of the Water Hauler's License, if applicable (California Health and Safety Code section 111120), c) 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 d) The quantity of water delivered or picked up from a water source, in gallons. Documentation shall be made available, upon request, to Water Boards or CDFW staff and any other authorized representatives of the Water Boards or CDFW.

Water Conservation and Use

#	TERM
95.	Cannabis cultivators shall on a monthly basis, at a minimum, inspect their entire water delivery system for leaks and immediately repair any leaky faucets, pipes, connectors, or other leaks.
96.	Cannabis cultivators shall use weed-free mulch in cultivation areas that do not have ground cover to conserve soil moisture and minimize evaporative loss.
97.	Cannabis cultivators shall implement water conserving irrigation methods (e.g., drip or trickle irrigation, micro-spray, or hydroponics).

[21] Water hauler means any person who hauls water in bulk by any means of transportation.

#	TERM
98.	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 irrigation emitters equates to 50 gallons per day (1 hour x 2 times per day x 50 irrigation emitters x 0.5 gallons per irrigation emitter per hour) of water used for irrigation). Cannabis cultivators shall retain, for a minimum of five 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.

Irrigation Runoff

#	TERM
99.	Cannabis cultivators shall on a weekly basis, at a minimum, during period of use inspect for leaks in mainlines[22], laterals[23], in irrigation connections, sprinkler heads, irrigation emitters, or at the ends of drip tape and feeder lines and immediately repair any leaks found upon detection.
100.	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.
101.	Cannabis cultivators shall regularly replace worn, outdated, or inefficient irrigation system components and equipment to ensure a properly functioning, leak-free, and efficient irrigation system at all times.
102.	Cannabis cultivators shall minimize irrigation deep percolation[24] by applying irrigation water at agronomic rates.

[22] Mainlines are pipes that go from the water source to the control valves.
[23] Laterals are the pipes between the control valves and the sprinkler heads or irrigation emitters.
[24] Deep percolation occurs when excess irrigation water is applied and percolates below the plant root zone.

Fertilizers, Pesticides, and Petroleum Products

#	TERM
103.	Cannabis cultivators shall not mix, prepare, over apply, or dispose of agricultural chemicals/products (e.g., fertilizers, pesticides[25], 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[26] is prohibited. Disposal of unused product and containers shall be consistent with labels.
104.	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.
105.	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. 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.

[25] 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 poison 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.

[26] More information on DPR requirements is available at:
http://www.cdpr.ca.gov/docs/legbills/laws_regulations.htm,
http://www.cdpr.ca.gov/docs/county/cacltrs/penfltrs/penf2017/2017atch/attach0301.pdf, and
http://www.cdpr.ca.gov/docs/cannabis/index.htm

#	TERM
106.	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.
107.	Cannabis cultivators shall only use hazardous materials[27] in a manner consistent with the product's label.
108.	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.
109.	Cannabis cultivators shall only mix, prepare, apply, or load hazardous materials outside of the riparian setbacks.
110.	Cannabis cultivators shall not apply agricultural chemicals within 48 hours of any weather pattern that is forecast to have a 50 percent or greater chance of precipitation of 0.25 inches or greater per 24 hours. 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.

Fertilizers and Soils

#	TERM
111.	To minimize infiltration and water quality degradation, cannabis cultivators shall irrigate and apply fertilizer consistent with the crop need (i.e., agronomic rate).
112.	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.
113.	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 groundwater.

[27] 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.

Pesticides and Herbicides

#	TERM
114.	Cannabis cultivators shall not apply restricted materials, including restricted pesticides, or allow restricted materials to be stored at the cannabis cultivation site.
115.	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[28].

Petroleum Products and Other Chemicals

#	TERM
116.	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 appropriate for the conditions at and near the site (e.g., oil spill booms if surface water could be impacted by a spill, sorbent pads, etc.) shall be stored onsite at all locations where equipment is used or staged.
117.	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.
118.	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.

Cultivation-Related Waste

#	TERM
119.	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.

[28] https://www.epa.gov/safepestcontrol/integrated-pest-management-ipm-principles

#	TERM
120.	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 to prevent polluted runoff.
121.	Wastewater tanks or storage containers must be rigid, enclosed to the environment, and appropriately designed to hold wastewater. They shall not be located within the riparian setback. Cannabis cultivators shall place wastewater storage tanks in areas that allow for ease of installation, access, maintenance, and minimize road development. Cannabis cultivators shall install tanks according to manufacturer's specifications and shall place tanks on properly compacted soil or other surface (e.g., concrete) that is free of rocks and sharp objects and capable of bearing the weight of the tank and its maximum contents with minimal settlement. Cannabis cultivators shall maintain a written or electronic copy of the manufacturer's specifications for each tank installed and used for cannabis cultivation activities, if available from the manufacturer in hardcopy or on the internet. Tanks shall not be located in areas of slope instability or next to equipment that generates heat. Cannabis cultivators shall install wastewater 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. To prevent rupture or overflow and runoff, cannabis cultivators shall only use wastewater storage tanks equipped with a float valve, or equivalent device, to shut off inflow when storage systems are full. Cannabis cultivators shall install any other measures necessary to prevent overflow of storage systems and prevent spills or leaks. Cannabis cultivators shall regularly inspect for and repair all leaks of the storage system. Nothing in this requirement supersedes other applicable state, county, or local requirements for the installation of wastewater tanks or storage containers, whichever is more stringent shall apply.

#	TERM
122.	Cannabis cultivators shall retain, for a minimum of five years, appropriate documentation for any industrial wastewater collected to a storage tank for disposal at a permitted wastewater facility that accepts cannabis cultivation wastewater. Documentation for hauled industrial wastewater shall include, for each delivery, the following: • A receipt that shows the date of pickup and the name, address, license plate number, and license plate issuing state for the industrial wastewater hauler; • A copy of the wastewater hauler's permit; and • The quantity of industrial wastewater picked up, in gallons. Documentation shall be made available, upon request, to Water Boards or CDFW staff and any other authorized representatives of the Water Boards or CDFW.

Refuse and Domestic Waste

#	TERM
123.	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 (including food sources) does not contaminate soil or enter the riparian setback or waters of the state.
124.	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.
125.	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

#	TERM
126.	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.
127.	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.

<table>
<tr><th>#</th><th>TERM</th></tr>
<tr><td>128.</td><td>Cannabis cultivators shall not operate heavy equipment of any kind at the cannabis cultivation site during the winter period, unless authorized (1) in a site management plan as described below, or (2) for emergency repairs contained in an enforcement order issued by the State Water Board, Regional Water Board, or other agency having jurisdiction. Use of heavy equipment (e.g. agricultural equipment) for routine cannabis cultivation soil preparation or planting may be authorized in a site management plan approved by the applicable Regional Water Board Executive Officer or designee if both of the following conditions are met:
i. all soil preparation and planting activities occur outside of the riparian setbacks; and
ii. all soil preparation and planting activities are located on an average slope equal to or less than five percent (5%) (e.g., valley floor).</td></tr>
<tr><td>129.</td><td>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[29] at the frequency specified below or as authorized in a site management plan approved by the applicable Regional Water Board Executive Officer or designee.
<table>
<tr><th>Slope (percent)</th><th>Sheet Flow Length Not to Exceed (feet)</th></tr>
<tr><td>0 – 25</td><td>20</td></tr>
<tr><td>25 – 50</td><td>15</td></tr>
<tr><td>>50</td><td>10</td></tr>
</table></td></tr>
<tr><td>130.</td><td>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.</td></tr>
<tr><td>131.</td><td>Cannabis cultivators shall stabilize all disturbed areas and construction entrances and exits to control erosion and sediment discharges from land disturbance.</td></tr>
</table>

[29] Sheet flow length is the length that shallow, low velocity flow travels across a site.

#	TERM
132.	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.
133.	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.
134.	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.

BMP: Winterization and Interim Treatments for Erosion Control

- **Roads**
  - Existing or newly installed road surface drainage structures such as water bars, rolling dips, ditch relief culverts, and intentionally in/out-sloped segments of road shall be maintained to ensure continued function of capturing and draining surface runoff.
  - Hand tool kick-outs (lead out ditch) for existing wheel rut, surface run-off confinement.
  - Temporary waterbar/cross-wattles installed on road/trail sections of concentrating surface runoff.
  - Clean existing ditch relief culvert inlets, outlets, and contributing ditch lines of current and potential blockage debris by hand.
  - Hand place energy dissipating rock/small woody debris at ditch relief culvert outlets where erosion is occurring.
  - Wattles/straw bales placed at road runoff delivery sites.
  - Touch-up with hand tools of existing surface drainage structures (kick-outs, rolling dips, and waterbars).
  - Seed and straw un-used, or to be abandoned, road surfaces where erosion is occurring.
  - Frequent use of un-surfaced roads should be avoided, particularly when road surfaces are soft/saturated.

- **Crossings**
  - Clean inlets, outlets, and channels above of current and potential blockage debris by hand.
  - Hand place energy dissipating rock/small woody debris at ditch relief culvert outlets.
  - Hand placement of rock armor around culvert inlets.
  - Install staked wattles along the outboard road edge of out-sloped watercourse crossings where direct delivery of road surface runoff is occurring.
  - Hand placement of rock on crossing fill faces where erosion is/may occur as a result of poor crossing construction.

- **Cultivation Areas**
  - Use hand tools to capture cultivation related soils that are not contained (soil from post-harvest plant removal, soil/planter removal, general spillage).
  - Treat beds, pots, new soil storage piles, spent soil piles, and soil disposal piles with cover crops for soil stability and potentially nitrogen fixing/soil amendment.
  - Bagged potting soil should be covered.
  - Install staked wattles or an earthen berm around cultivation soils piles prior to the winter period, annually.
  - Any soil amendment, fertilizer, herbicide, or pesticide that is not 100% sealed should be stored under cover.
  - Cultivation sites with poor or concentrating drainage can have wattles or bales installed prior to winter to help prevent sediment and nutrients from leaving the site.
  - Plastic netting shall be disposed of or stored where it is inaccessible to wildlife.
  - Tarps/dep covers shall be stored so they cannot be blown away.
  - General waste from growing season gathered up and disposed of.
  - Exposed soil surfaces in the cultivation area, as well as graded fill slopes should be seeded, strawed, mulched, jute netted as needed.

- **General Areas**
  - Remove all refuse prior to leaving property for the season.
  - Back fill pit toilets to be abandoned.

BMP: General Recommendations

- **Fertilizers, soil amendments, and pesticides**
  - Fertilizer, soil amendments, and pesticide use it to be recorded in such a manner that cumulative annual totals are recorded for annual reporting.
  - Store in-use fertilizers in a securable storage container, such as a tote or deck box, adjacent to the mixing tanks.

- **Petroleum products and hazardous materials**
  - Utilize spill trays/containment structures and cover over the containment when using, fueling, changing oil on portable generators or petroleum powered water pumps to prevent the potential for leeching, seepage or spillage of petroleum products.
  - It is recommended that all petroleum products and other chemicals are registered with the California Environmental Reporting System (CERS) to satisfy future licensing requirements.

- **Water storage and Use**
  - Water use shall be designed and metered such that water used for the irrigation of cannabis will be recorded separately from domestic use. Water use for the irrigation of cannabis is to be recorded monthly for annual reporting.
  - Ensure lids are secured on all water storage tanks to prevent wildlife from becoming entrapped within the tank.
  - Install float valves, or implement another equivalent system, on all applicable water storage and transfer tanks to prevent unnecessary water diversion and the overflowing of water tanks.

BMP: General Operations BMPs

- If operations require moving of equipment across a flowing stream, such operations shall be conducted without causing a prolonged visible increase in stream turbidity. For repeated crossings, the operator shall install a bridge, culvert, or rock-lined crossing.

- During construction in flowing water, which can transport sediment downstream, the flow shall be diverted around the work area by pipe, pumping, temporary diversion channel or other suitable means. When any dam or artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain fish life below the dam. Equipment may be operated in the channel of flowing live streams only as necessary to construct the described construction.

- Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. The disturbed portion of any stream channel shall be restored to as near their original condition as possible. Restoration shall include the mulching of stripped or exposed dirt areas at crossing sites prior to the end of the work period.

- Structures and associated materials not designed to withstand high seasonal flow shall be removed to areas above the high-water mark before such flows occur.

- No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washing, oil or petroleum products, or other organic or earthen material from any logging, construction, or associated activity of whatever nature shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high-water mark of any stream.

BMP: General Erosion Control

- Timing for soil stabilization measures within the 100 feet of a watercourse or lake: For areas disturbed from May 1 through October 15, treatment shall be completed prior to the start of any rain that causes overland flow across or along the disturbed surface. For areas disturbed from October 16 through April 30, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.

- Within 100 feet of a watercourse or lake, the traveled surface of logging roads shall be treated to prevent waterborne transport of sediment and concentration of runoff that results from operations. Treatment may consist of, but not limited to, rocking, out sloping, rolling dips, cross drains, water bars, slope stabilization measures, or other practices appropriate to site-specific conditions.

- The treatment for other disturbed areas within 100 feet of a watercourse or lake, including: (A) areas exceeding 100 contiguous square feet where operations have exposed bare soil, (B) approaches to road watercourse crossings out to 100 feet or the nearest drainage facility, whichever is farthest, (C) road cut banks and fills, and (D) any other area of disturbed soil that threatens to discharge sediment into waters in amounts deleterious to the quality and beneficial uses of water, shall be grass seeded and mulched with straw or fine slash. Grass seed shall be applied at a rate exceeding 100 pounds per acre. Straw mulch shall be applied in amounts sufficient to provide at least 2- 4-inch depth of straw with minimum 90% coverage. Slash may be substituted for straw mulch provided the depth, texture, and ground contact are equivalent to at least 2 – 4 inches of straw mulch. Any treated area that has been subject to reuse or has less than 90% surface cover shall be treated again prior to the end of operations.

- Within 100 feet of a watercourse or lake, where the undisturbed natural ground cover cannot effectively protect beneficial uses of water from operations, the ground shall be treated with slope stabilization measures described in #3 above per timing described in #1 above.

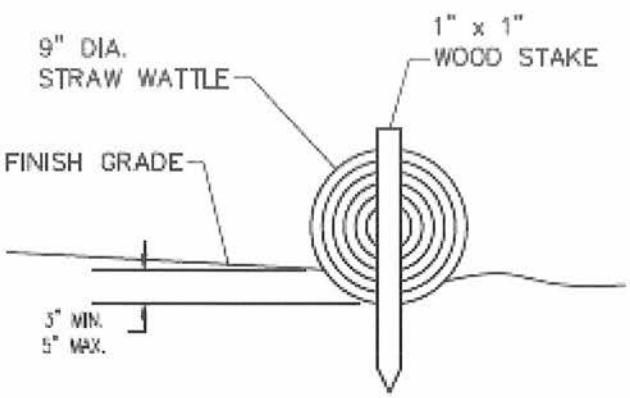
- Side cast or fill material extending more than 20 feet in slope distance from the outside edge of a landing which has access to a watercourse or lake shall be treated with slope stabilization measures described in #3 above. Timing shall occur per #1 above unless outside 100 feet of a watercourse or lake, in which completion date is October 15.

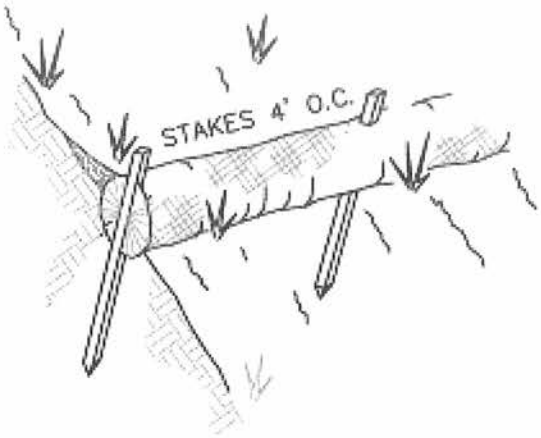
- All roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following operations and prior to either (1) the start of any rain which causes overland flow across or along the disturbed surface within 100 feet of a watercourse or lake protection, or (2) any day with a National Weather Service forecast of a chance of rain of 30 percent or more, a flash flood warning, or a flash flood watch.

BMP: General Erosion Control (Cont.)

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

BMP: General Erosion Control (Cont.)



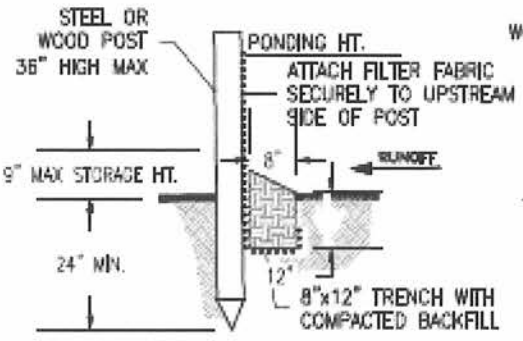


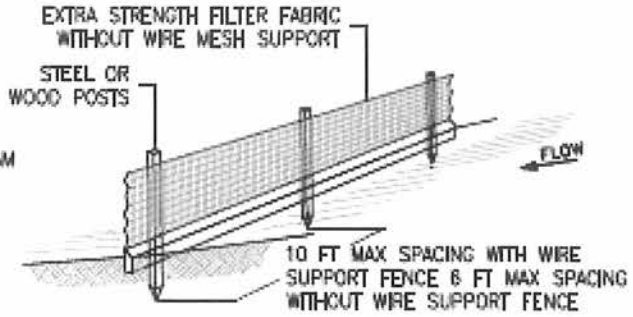
STRAW WATTLE NOTES:

1. STRAW WATTLES SHALL BE INSTALLED WITH 18 OR 24 INCH WOOD STAKES AT FOUR FEET ON CENTER. THE ENDS OF ADJACENT STRAW WATTLES SHALL BE ABUTTED TO EACH OTHER SNUGLY OR OVERLAPPED BY SIX INCHES.
2. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"–5" DEEP. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND THE ROLL.

STRAW WATTLE INSTALLATION DETAIL

NTS





SILT FENCE NOTES:

1. THE CONTRACTOR SHALL INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT.
2. CONTRACTOR SHALL REMOVE SEDIMENT AS NECESSARY. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF–SITE AND IN AN AREA THAT CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

SILT FENCE DETAILS

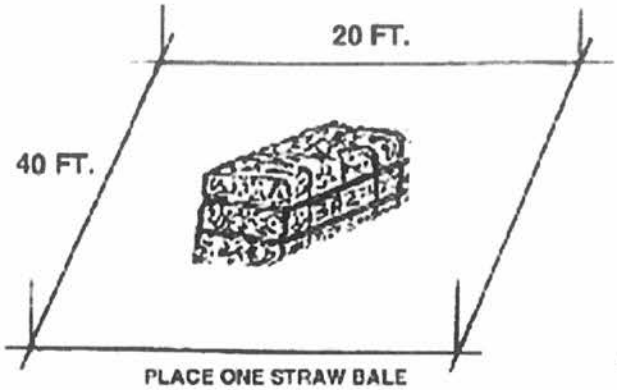
NTS

BMP: General Erosion Control (Cont.)

BMP: General Erosion Control (Cont.)

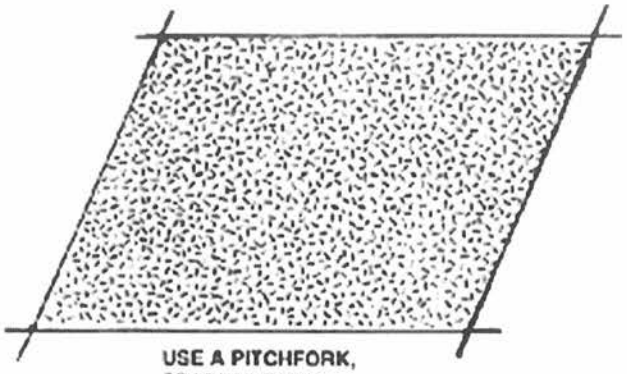
SPREAD THE STRAW

MARK OFF 800 SQ FT. PLOTS



PLACE ONE STRAW BALE PER PLOT (~74 POUNDS). THIS IS EQUIVALENT TO 2 TONS PER ACRE.

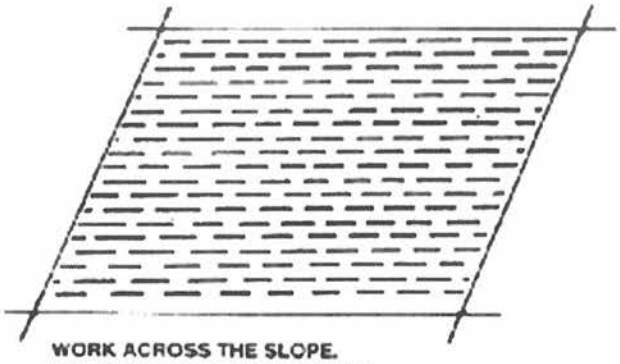
SPREAD EVENLY



USE A PITCHFORK, SPADING FORK, OR BY HAND

ANCHOR THE STRAW

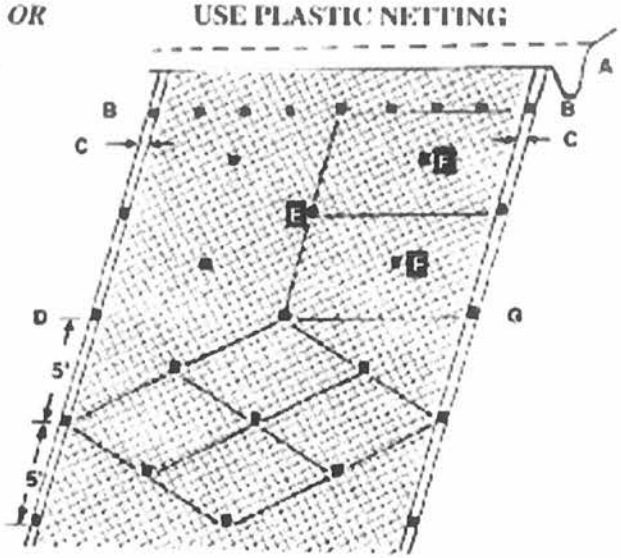
CRIMP BY HAND



WORK ACROSS THE SLOPE. PUNCH STRAW 4 INCHES DEEP. A SQUARE END SPADE WORKS WELL. MAKE PUNCH EVERY 12 INCHES.

OR

USE PLASTIC NETTING:



A. LAY BIRD CONTROL NETTING OR SIMILAR MATTING IN STRIPS DOWN THE SLOPE OVER THE STRAW. BURY UPPER END IN 6-8 INCH DEEP AND WIDE TRENCH.. MOST NETTING COMES IN 14 TO 17 FT. WIDE ROLLS.

B. SECURE THE UPPER END WITH STAKES EVERY 2 FEET.

C. OVERLAP SEAMS ON EACH SIDE 4-5 INCHES.

D. SECURE SEAMS WITH STAKES EVERY 5 FEET.

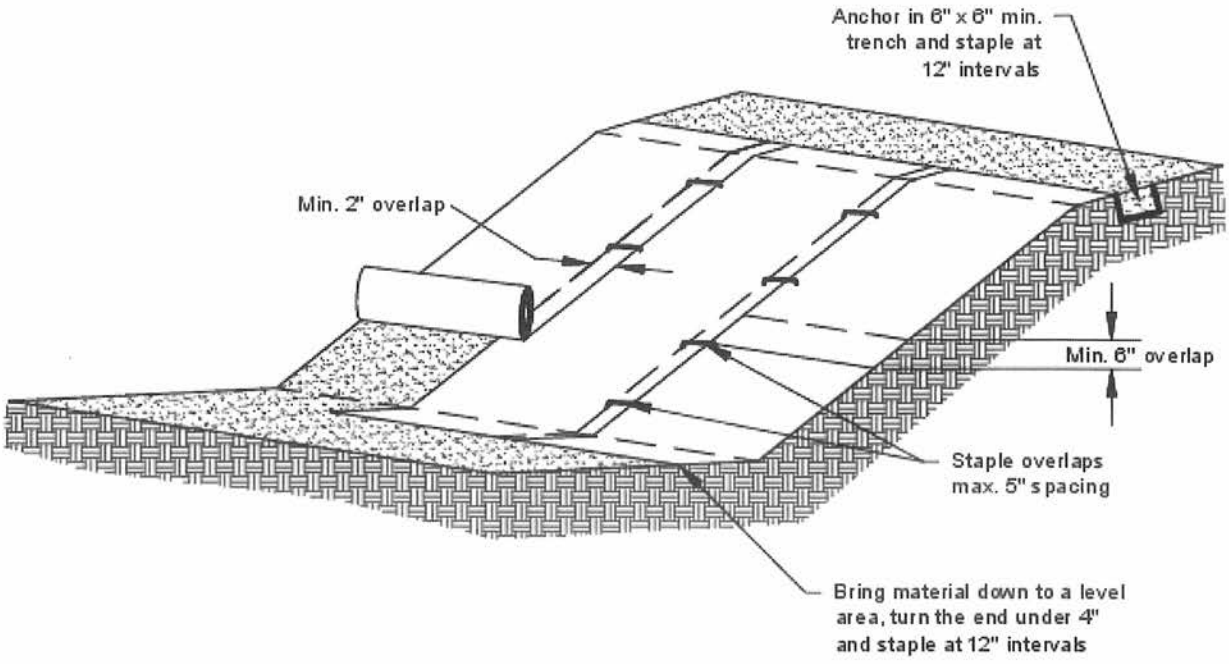
E. STAKE DOWN THE CENTER EVERY 5 FEET.

F. STAKE MIDDLES TO CREATE DIAMOND PAT TERN THAT PROVIDES STAKES SPACED 4-5 FEET APART.

G. USE POINTED 1X2 INCH STAKES 8 TO 9 INCHES LONG. LEAVE 1 TO 2 INCH TOP ABOVE NETTING, OR USE "U" SHAPED METAL PINS AT LEAST 9 INCHES LONG.

NOTE: WHEN JOINING TWO STRIPS, OVERLAP UPPER STRIP 3 FEET OVER LOWER STRIP AND SECURE WITH STAKES EVERY 2 FEET LIKE IN "B" ABOVE

BMP: General Erosion Control (Cont.)



Notes:

1. Slope surface shall be smooth before placement for proper soil contact.
2. Stapling pattern as per manufacturer's recommendations.
3. Do not stretch blankets/mattings tight - allow the rolls to mold to any irregularities.
4. For slopes less than 3H:1V, rolls may be placed in horizontal strips.
5. If there is a berm at the top of the slope, anchor upslope of the berm.
6. Lime, fertilize, and seed before installation. Planting of shrubs, trees, etc. should occur after installation.

NOT TO SCALE

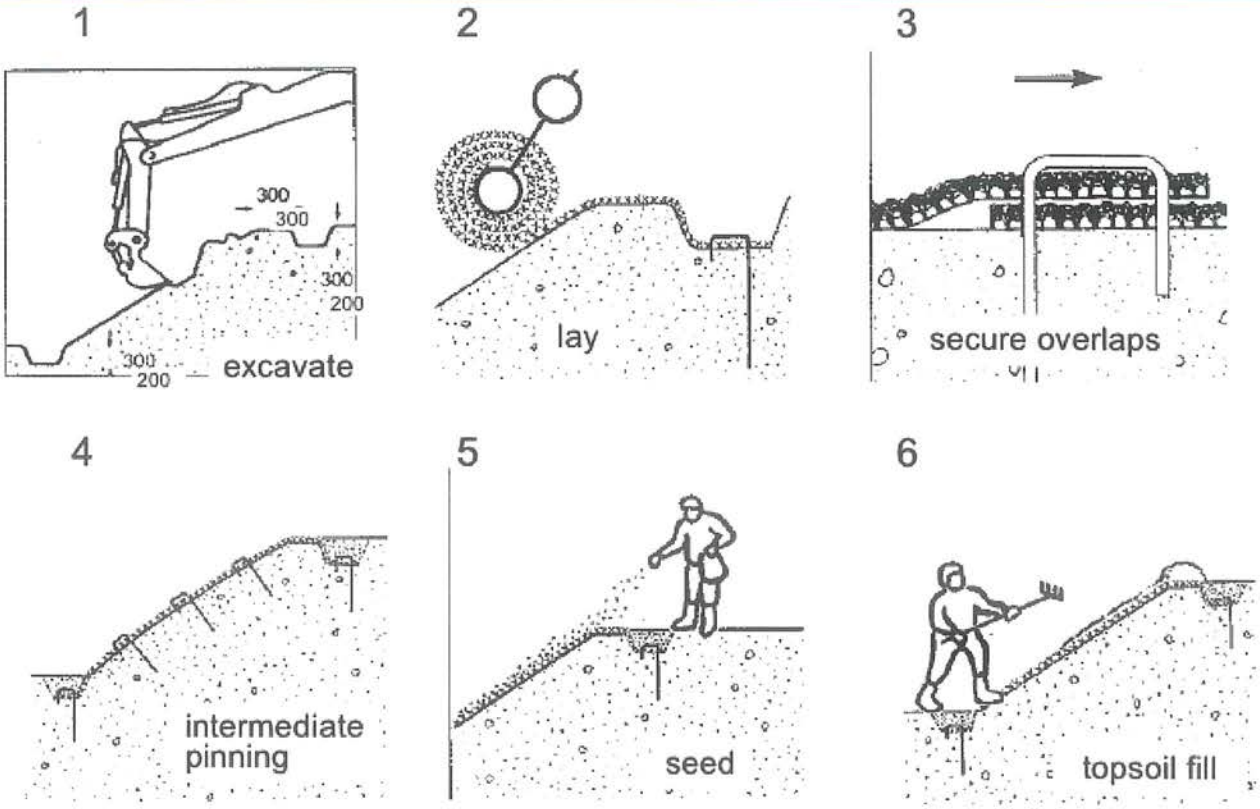
DEPARTMENT OF ECOLOGY
State of Washington

Slope Installation

Revised June 2016

BMP: General Erosion Control (Cont.)

Installation of a geosynthetics mat - Enkamat



BMP: General Erosion Control (Cont.)

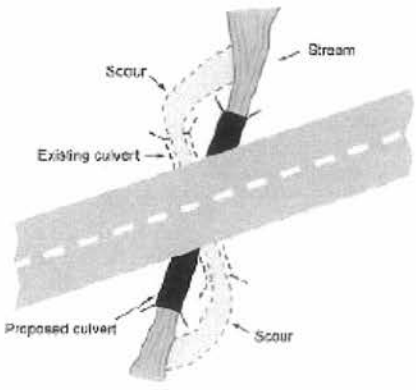
TABLE 34. Guidelines for erosion and sediment control application

Timing of application	Technique	Portion of road and construction area treated
Erosion control during construction	Hydromulching, hydroseeding	Road fill slopes, cut slopes, bare soil areas
	Dry seeding	Road fill slopes, cut slopes, bare soil areas
	Wood chip, straw, Excelsior or tackified mulch	Road fill slopes, cut slopes, bare soil areas
	Straw wattles	Road fill slopes and cut slopes
	Gravel surfacing	Road, landing and turnout surfaces
	Dust palliative	Road surfaces
	Minimize disturbance (soil and vegetation)	All areas peripheral to construction
Sediment control during construction	Sediment basin	Roadside ditches, turnouts and small stream crossings
	Sediment traps (e.g., silt fences, straw bales barriers, woody debris barriers)	Road fill slopes, cutbanks, bare soil areas and ditches
	Straw bale dams	Ditches and small streams
	Sumps and water pumps	Stream channels and stream crossings
	Streamflow diversions (e.g., temporary culverts, flex pipe, etc.)	Stream channels and stream crossings
	Surface diversion and dispersion devices (pipes, ditches, etc.)	All disturbed bare soil areas
Permanent erosion control	Road shaping	Road and landing surfaces
	Gravel surfacing	Road, landing and turnout surfaces
	Bituminous or asphalt surfacing	Road surface
	Rolling dips	Road surface
	Ditch relief culverts	Roadbed and road fill
	Downspouts and berm drains	Road fill slopes
	Waterbars	Road and landing surfaces
	Berms	Road surface and roadside areas
	Ditches	Road and landing surfaces
	Riprap	Road fill slopes, stream crossing fills, cutbanks, stream and lake banks
	Soil bioengineering	Road fill slopes, cut slopes, stream crossings, streambanks
	Tree planting	Road fill slopes, cutbanks, bare soil areas, stream crossings, streambanks

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

BMP: Permanent Culvert Crossing

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



HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

FIGURE 97. *Culvert alignment should be in relation to the stream and not the road. It is important that the stream enters and leaves the culvert in a relatively straight horizontal alignment so streamflow does not have to turn to enter the inlet or discharge into a bank as it exits. This figure shows a redesigned culvert installation that replaces the bending alignment that previously existed. Channel turns at the inlet increase plugging potential because wood going through the turn will not align with the inlet. Similarly, channel turns at the inlet and outlet are often accompanied by scour against the channel banks (Wisconsin Transportation Information Center, 2004).*

BMP: Permanent Culvert Crossing Design (Critical Dip and Hydrologic Disconnect Placement)

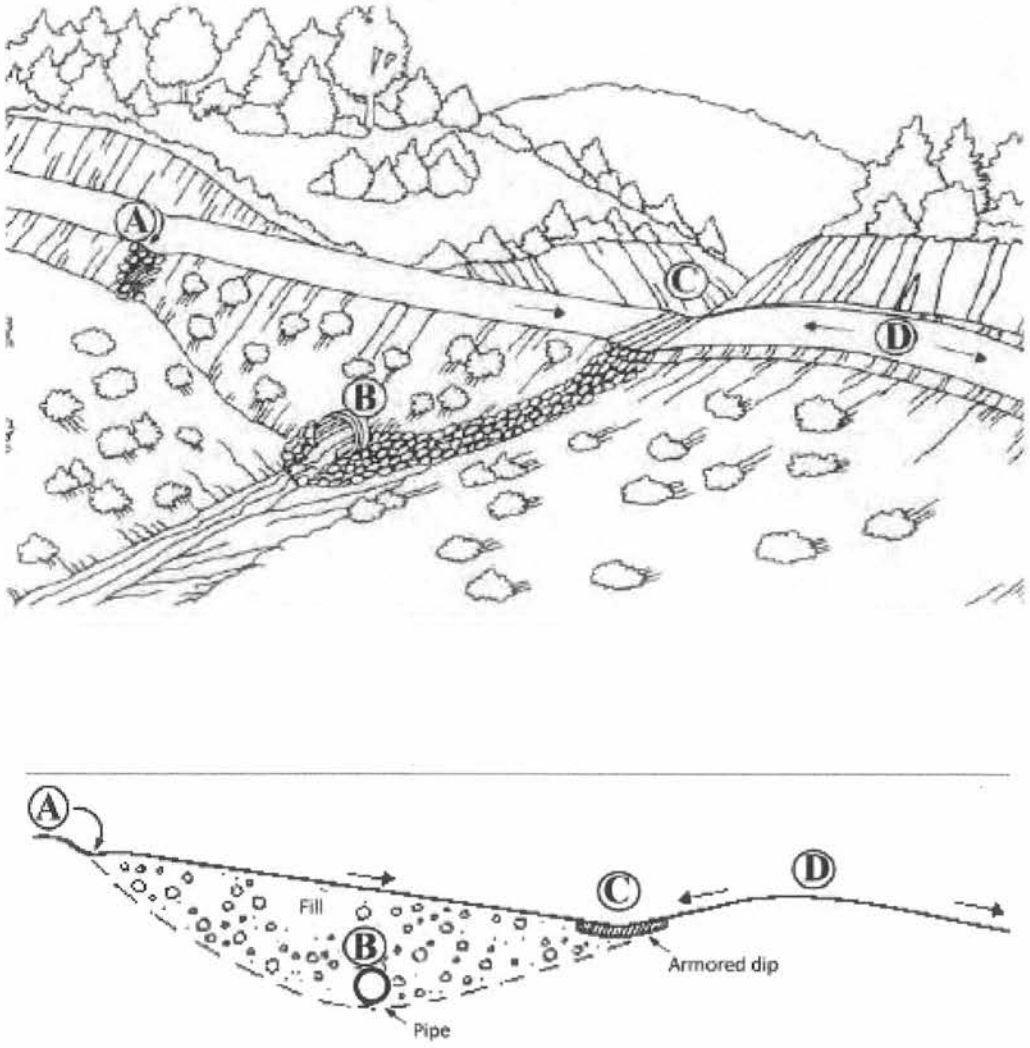
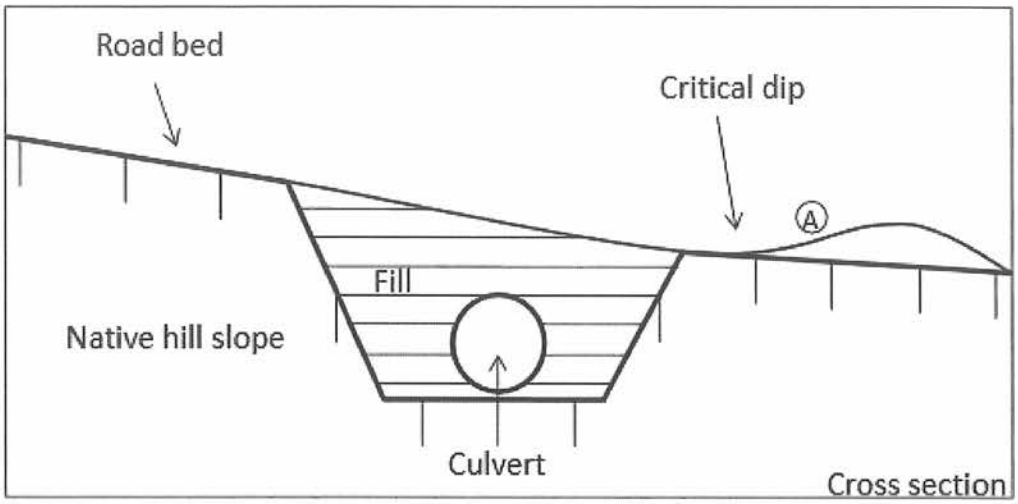


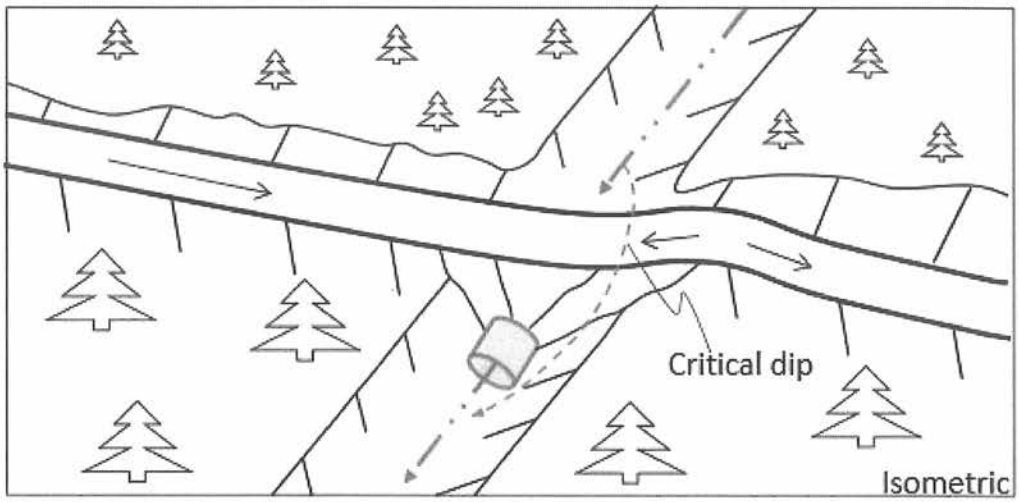
FIGURE 84. *Critical dips or dipped crossing fills should be centered near a stream crossing's down-road hingeline, not over the centerline of the crossing where overtopping could cause washout or severe erosion of the fill. If the stream crossing culvert (B) plugs, water will pond behind the fill until reaching the critical dip or low point in the crossing (C) and flowing back down into the natural stream channel. The down-road ditch must be plugged to prevent streamflow from diverting down the ditch line. For extra protection in this sketch, riprap armor has been placed at the critical dip outfall and extending downslope to the stream channel. This is only required or suggested on stream crossings where the culvert is highly likely to plug and the crossing fill overtopped. The dip at the hinge line is usually sufficient to limit erosional damage during an overtopping event. Road surface and ditch runoff is disconnected from the stream crossing by installing a rolling dip and ditch relief culvert just up-road from the crossing (A) (Keller and Sherar, 2003).*

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

BMP: Permanent Culvert Crossing Design (Critical Dip)

Typical Critical Dip Design for Stream Crossings with Diversion Potential





Critical Dip Construction:

1. Critical dip will be constructed on the lower side of crossing.
2. Critical dip will extend from the cutbank to the outside edge of the road surface. Be sure to fill inboard ditch, if present.
3. Critical dip will have a reverse grade Ⓐ from cutbank to outside edge of road to ensure flow will not divert outside of crossing.
4. The rise in the reverse grade will be carried for about 10 to 20 feet and then return to original slope.
5. The transition from axis of bottom, through rising grade, to falling grade, will be in the road distance of at least 15 to 30 feet.
6. Critical dips are usually built perpendicular to the road surface to ensure that flow is directed back into the stream channel.

BMP: Permanent Culvert Crossing Design (Culvert Orientation)

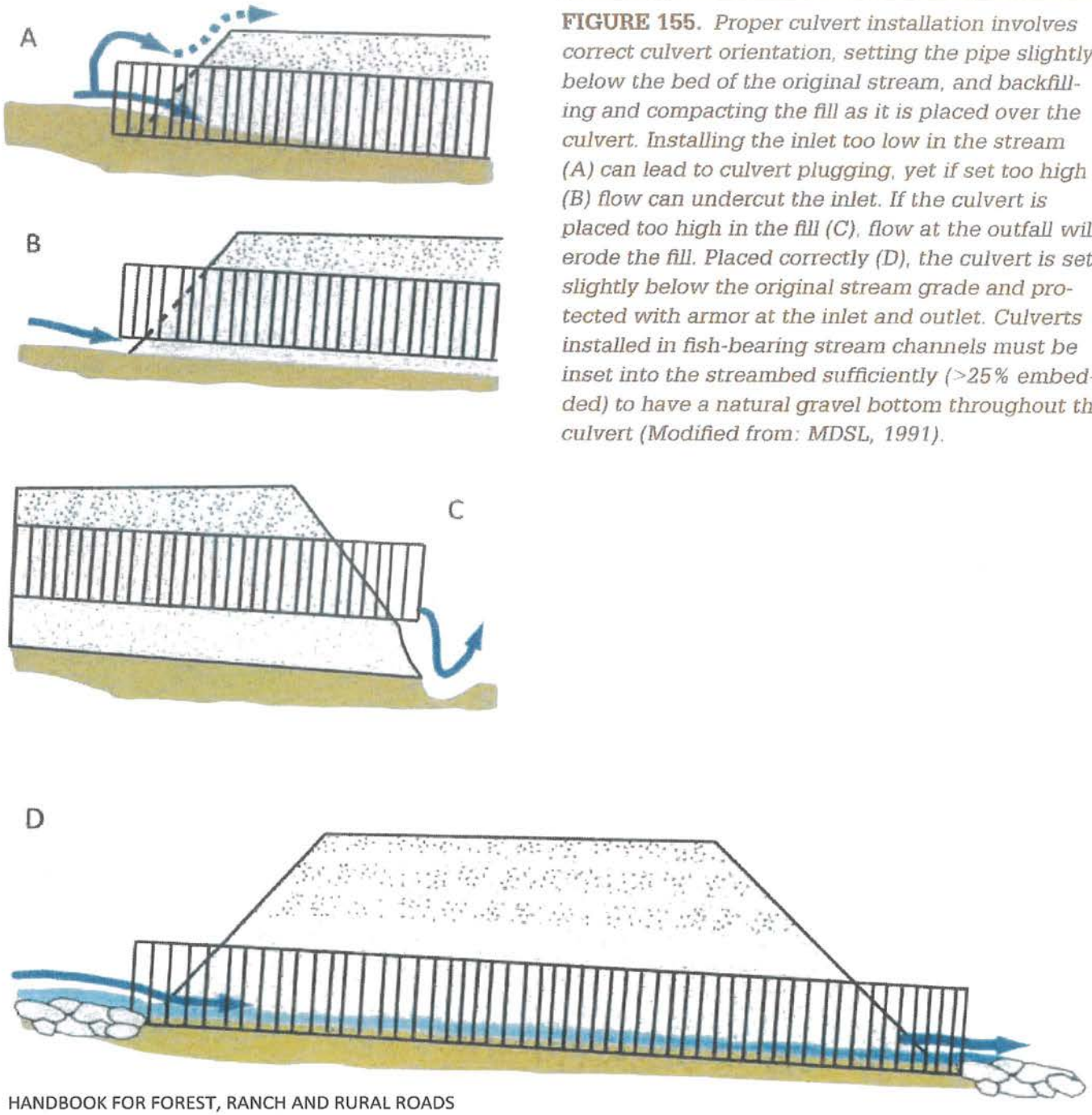
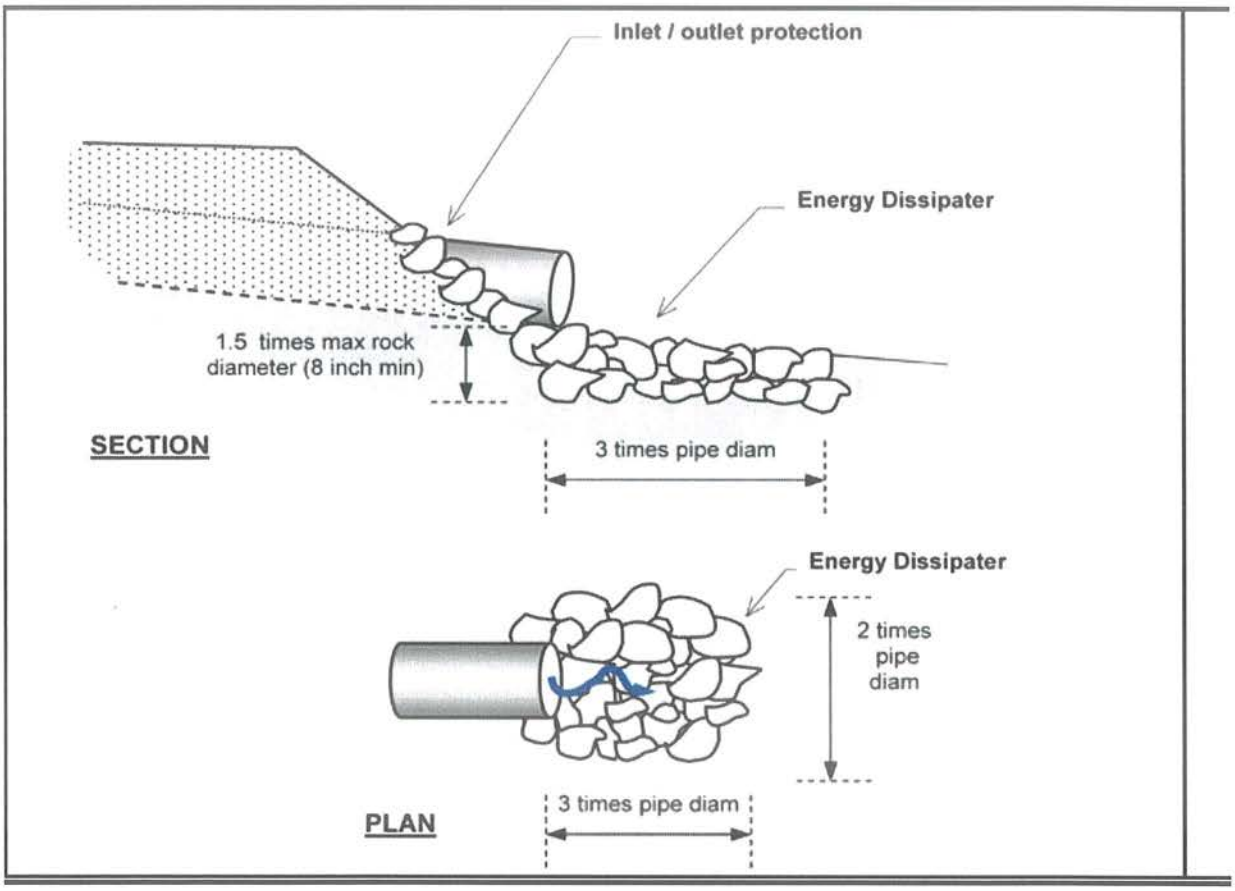
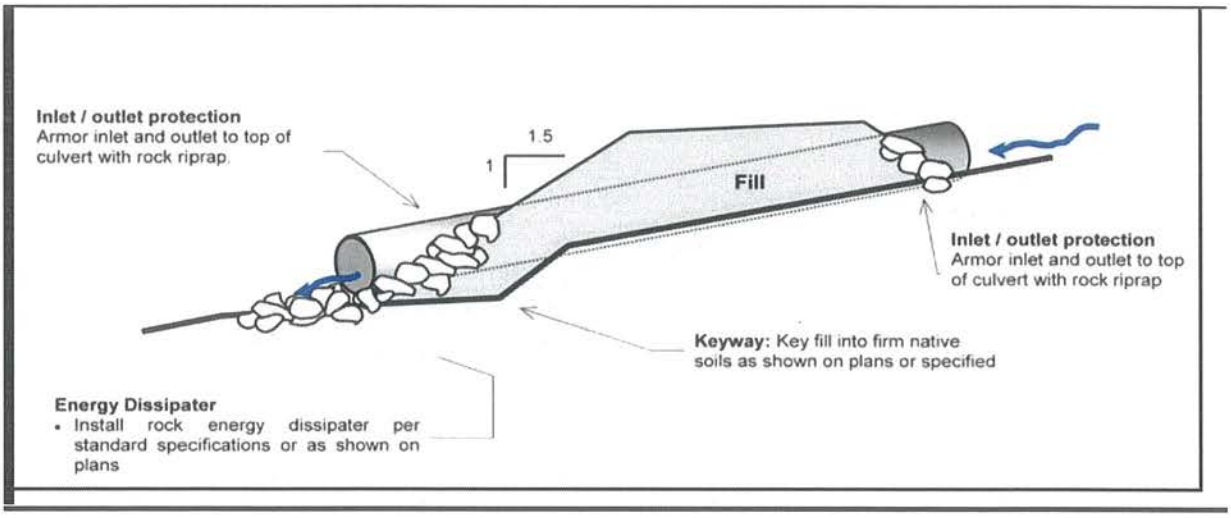


FIGURE 155. *Proper culvert installation involves correct culvert orientation, setting the pipe slightly below the bed of the original stream, and backfilling and compacting the fill as it is placed over the culvert. Installing the inlet too low in the stream (A) can lead to culvert plugging, yet if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

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

BMP: Permanent Culvert Crossing Design (Inlet and Outlet Armoring)





Riprap installed to protect the inlet and outlet of a stream crossing culvert from erosion or for energy dissipation should be keyed into the natural channel bed and banks to an approximate depth of about 1.5x the maximum rock thickness. Riprap should be placed at least up to the top of the culvert at both the inlet and outlet to protect them from splash erosion and to trap any sediment eroded from the newly constructed fill slope above.

BMP: Permanent Culvert Crossing Design (Inlet and Outlet Armoring) Cont.

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

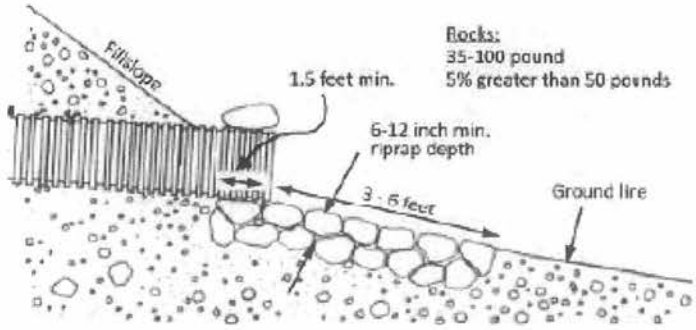


FIGURE 107A. *Riprap armor at culvert outlet (Modified from: Keller et al., 2011).*

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

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

BMP: Stream Bank Armoring (Riprap)

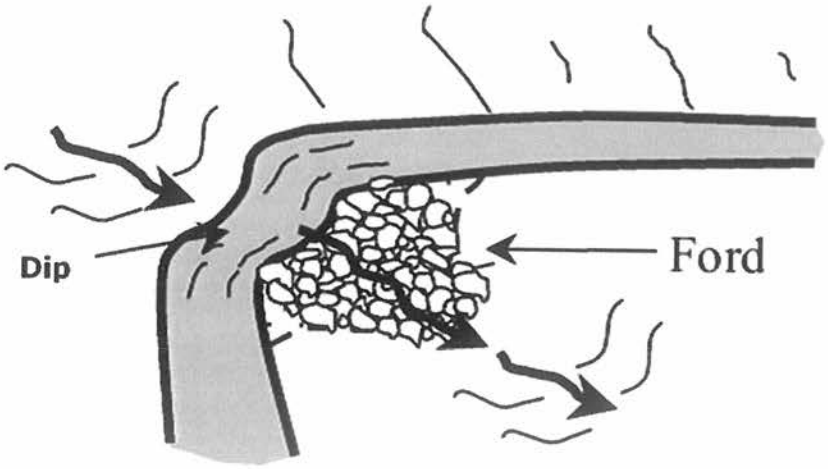
- Riprap should be installed on top of geotextile fabric or a clean mixture of coarse gravel and sand.
- The riprap should be keyed into the streambed and extend below the maximum expected scour depth with an adequately sized key base width at a thickness of a minimum of 2x the median (D50) rock diameter with the largest stone sizes placed at the base of the riprap structure.
- The armor should be set into the streambank so it does not significantly protrude into, or constrict, the natural channel, or otherwise reduce channel capacity.
- The riprap should extend along the length of unstable or over steepened bank and up the bank sufficiently to encompass the existing bank instability and/or design flood elevations.

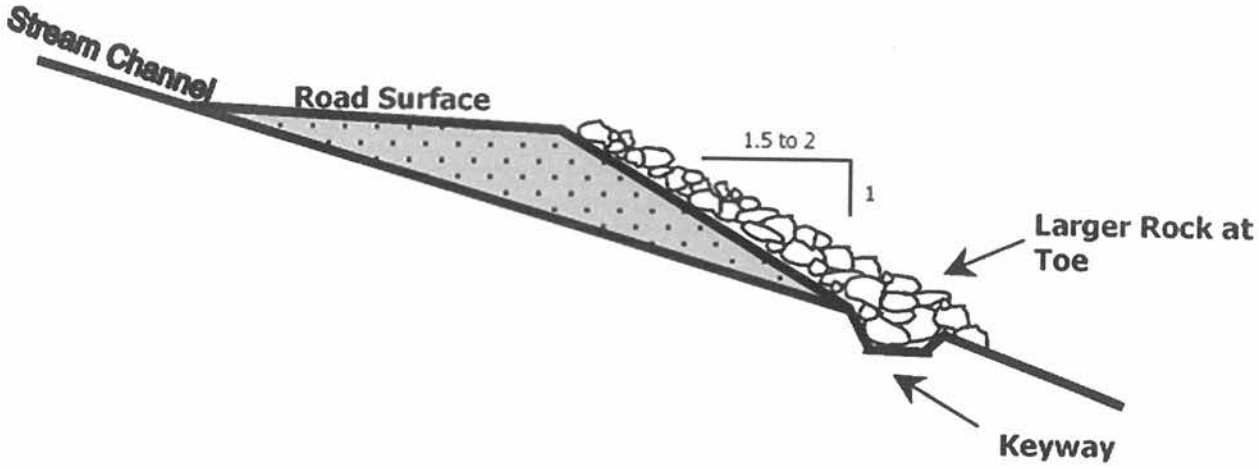
BMP: Rocked Ford

- Rocked fords are drainage structures designed to carry watercourses across roads where culvert crossings are not feasible or un-necessary.
- In channel constructed fords shall be of appropriate material that shall withstand erosion by expected velocities and placed in a U-shaped channel to create a drivable crossing.
  - The road shall dip into and out of the rocked ford to minimize diversion potential. Construct a broad rolling dip across the roadbed, centered at the crossing, which is large enough to contain the expected 100-yr flood discharge while preventing flood flow from diverting down the road or around the rock armor.
- The road surface at the ford shall be constructed with clean rock. The rock shall be applied to a minimum depth of 6 inches.
  - A range of interlocking rock armor sizes should be selected and sized so that peak flows will not pluck or transport the armor off the roadbed or the sloping fill face of the armored fill.
- The ford's outlet shall be rock armored to resist downcutting and erosion.
  - *Excavate the keyway and armored area* - Excavate a two to three-foot-deep "bed" into the dipped road surface and adjacent fillslope (to place the rock in) that extends from approximately the middle of the road, across the outer half of the road, and down the outboard road fill to where the base of the fill meets the natural channel. At the base of the fill, excavate a keyway trench extending across the channel bed.
  - *Armor the basal keyway* - Put aside the largest rock armoring to create the buttresses. Use the largest rock armor to fill the basal trench and create a buttress at the base of the fill. This should have a "U" shape to it and it will define the outlet where flow leaves the armored fill and enters the natural channel.
  - *Armor the fill* - Backfill the fill face with the remaining rock armor making sure the final armor is unsorted and well placed, the armor is two coarse-rock layers in thickness, and the armored area on the fill face also has a "U" shape that will accommodate the largest expected flow.
  - *Armor the top of the fill* - Install a second trenched buttress for large rock at the break-in-slope between the outboard road edge and the top of the fill face.
- If water is expected during the time of use, an adequately sized pipe shall be installed to handle the flow if present (min. 6 inch).
  - The pipe shall be laid over the rocked ford surface.
  - The inlet should be at grade with the upstream flow.
  - The outlet shall drain onto the outlet armoring of the rocked ford.
  - A layer of clean rock/gravel shall be installed over the pipe to establish the running surface of the truck road.
  - Following use, the temporary pipe shall be removed and the placed rock/gravel shall be graded out of the ford and used on the approaches.
  - No significant alteration to the bed and bank of the stream shall occur.
- Road approaches to rocked fords shall be rock surfaced out to the first drainage structure (i.e. waterbar) or hydrologic divide to prevent transport of sediment using rock.
- Bank and channel armoring may occur when appropriate to provide channel and bank stabilization.
- Road approach rock and rock ford armoring shall be reapplied following use as needed to maintain a permanent crossing.

BMP: Rocked Ford (Cont.)

FORD: A large dip is graded into the road at the axis of the stream channel. The outside fill face is dished out to form a spillway with large rock. On large watercourses, rock is keyed several feet into firm native soils. The road surface is rocked with 6" of minus rock .





BMP: Rolling Dip Design and Placement

- Rolling dips are drainage structures designed to force surface water to be drained from the road surface.
- The road shall dip into, and rise out of, the rolling dip to eliminate the potential of road surface runoff to run further down road way.
- The rolling dip shall be constructed with clean native materials or rock surfaced where specified.
- The rolling dips outlet may be armored to resist down-cutting and erosion of the outboard road fill.
- Do not discharge rolling dips into any areas that show signs of instability or active landsliding.
- If the rolling dip is designed to divert both road surface and ditch runoff, block the down-road ditch with compacted fill in order to force all ditch flows through the trough (low point) of the rolling dip.

BMP: Rocked Rolling Dip Design and Placement

- Rocked rolling dips are drainage structures designed to carry known sources of surface water across road ways or from known persistently wet segments of road such as swales without defined watercourses or road segments with heavy bank/road seepage.
- The road shall dip into, and rise out of, the rocked rolling dip to minimize diversion potential.
- The rocked rolling dip shall be constructed with clean rock that is large enough to remain in place during peak flows. Rock size shall vary relative to the anticipated flow through the dip with larger rock used in location where greater flow is anticipated.
- The rocked rolling dips inlet and outlet shall be armored to resist down-cutting and erosion.
- The entire width of the rocked rolling dip shall be rock armored to a minimum of 5-feet from the centerline of the dipped portion of the rolling dip.
- If a keyway is necessary, the rocked rolling dip keyway at the base of the dip shall be of sufficient size, depth and length to support materials used in the rocked rolling dip construction back up to the road crossing interface.
- Do not discharge rolling dips into any areas that show signs of instability or active landsliding.
- If the rolling dip is designed to divert both road surface and ditch runoff, block the down-road ditch with compacted fill.
- The rolling dip should be designed as a broad feature ranging from 10-100 feet long so that it is drivable by most types of vehicular traffic and not significantly inhibit traffic and road use.

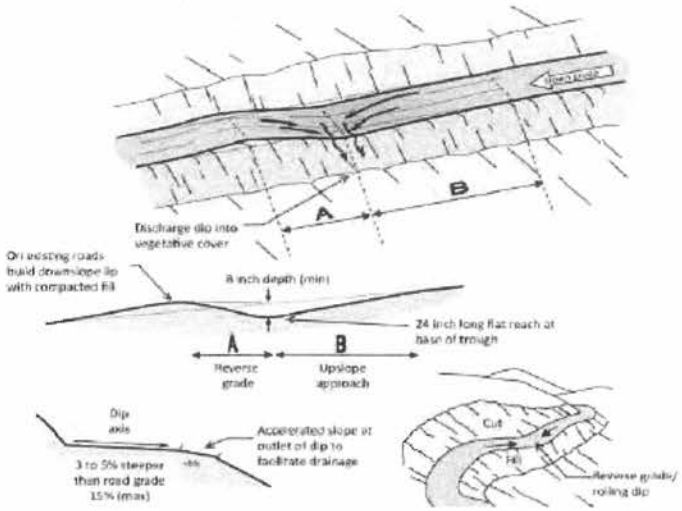


FIGURE 34. *A classic Type I rolling dip, where the excavated up-road approach (B) to the rolling dip is several percent steeper than the approaching road and extends for 60 to 80 feet to the dip axis. The lower side of the structure reverses grade (A) over approximately 15 feet or more, and then falls down to rejoin the original road grade. The dip must be deep enough that it is not obliterated by normal grading, but not so deep that it is difficult to negotiate or a hazard to normal traffic. The outward cross-slope of the dip axis should be 3% to 5% greater than the up-road grade (B) so it will drain properly. The dip axis should be out-sloped sufficiently to be self-cleaning, without triggering excessive downcutting or sediment deposition in the dip axis (Modified from: Best, 2013).*

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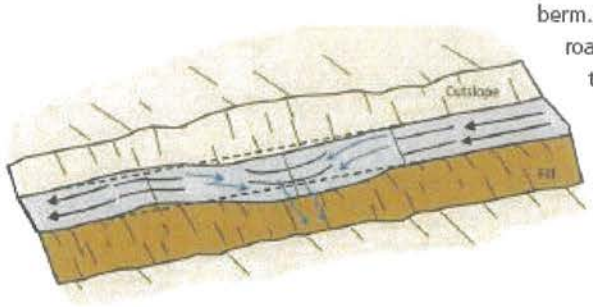
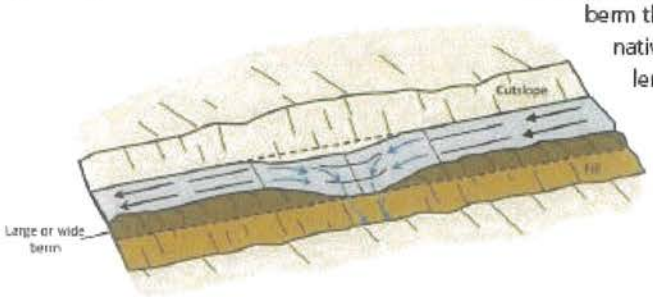
BMP: Rolling Dip Design and Placement (Types)

Type 1 Rolling Dip
(Standard)



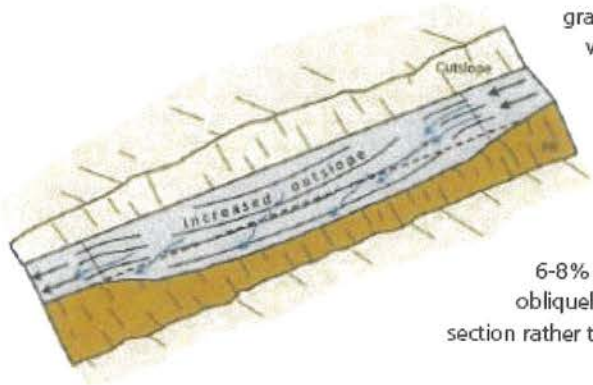
Type 1 rolling dips are used where road grades are less than about 12-14% and road runoff is not confined by a large through cut or berm. The axis of the dip should be perpendicular to the road alignment and sloped at 3-4% across the road tread. Steep roads will have longer and more abrupt dip dimensions 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*

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BMP: Rolling Dip Design and Placement

FIGURE 33A.
Rolling dip constructed on a rock surfaced rural road. The rolling dip represents a change-in-grade along the road alignment and acts to discharge water that has collected on, or is flowing down, the road surface. This road was recently converted from a high maintenance, insloped, ditched road to a low maintenance, outsloped road with rolling dips.

FIGURE 33B.
This side view of an outsloped road shows that the rolling dip does not have to be deep or abrupt to reverse road grade and effectively drain the road surface. This outsloped forest road has rolling dips that allow all traffic types to travel the route without changing speed.

BMP: Waterbar/Rolling Dip Combined with DRC

FIGURE 39.
Waterbars are often used to drain surface runoff from seasonal, unsurfaced roads. Because they are easily broken down by vehicles, waterbars are only used on unsurfaced roads where there is little or no wet weather traffic. In this photo, a waterbar and ditch relief culvert are used to drain all road surface and ditch runoff from the insloped road prism.

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Diagram shows and discussed the use of a waterbar. However, a DRC combined with a rolling dip structure provides the same surface and ditch drainage for roads used year-round. Just as with the waterbar in the photo above, The DRC is installed just upslope from the rolling dip. This also creates a fail-safe should the DRC become plugged or overwhelmed.

FIGURE 238. *Traffic and surface runoff from graveled roads often produces surface erosion, turbid runoff and fine sediment transport that can be delivered to streams. Where ditches can't be eliminated, sediment traps and roadside settling basins can be installed to capture and remove most of the eroded sediment. This settling basin has been constructed along the inside ditch just before a stream crossing culvert inlet (see arrow). Eroded sediment from the road and ditch are deposited in the basin before flow is released to the stream. Fine sediments have filled about 1/3 of this basin and vegetation is now growing. Sediment basins require periodic maintenance to maintain their storage capacity.*

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BMP: Road Outsloping

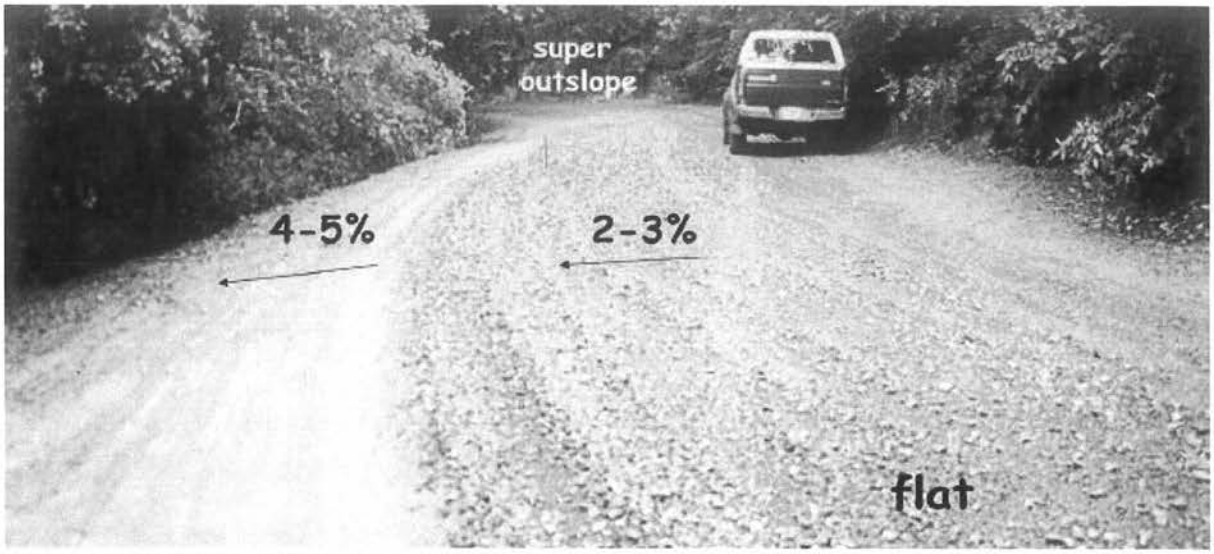

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FIGURE 29. *Road shape changes as the road travels through the landscape. For example, an outsloped road will have a steep or "banked" outslope through inside curves, a consistent outslope through straight reaches and a flat or slightly insloped shape as it goes through an outside curve. The road may have an outslope of 2-3% across the travel surface while the shoulder is more steeply outsloped to ensure runoff and sediment will leave the roadbed.*

BMP: Steep Road Drainage Structures

FIGURE 55. *Steep roads that go straight up or down a hillside are very difficult to drain. This steep, fall line road developed a through cut cross section that was drained using lead out ditches to direct runoff off the road and onto the adjacent, vegetated hillside. The road was "outsloped" to drain runoff to the right side, and the lead out ditch was built slightly steeper than the road grade, to be self-cleaning. Four lead out ditches have been constructed at 100-foot intervals to the bottom of the hillside.*

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BMP: Waterbar Construction

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 (BCMF, 1991).*

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BMP: Generator, Fuel, and Oil Management

All bulk fuel storage or petroleum products, any/all future petroleum products and other liquid chemicals, including but not limited to diesel, biodiesel, gasoline, and oils shall be stored so as to prevent their spillage, discharge, or seepage into receiving waters. Storage tanks and containers shall be of suitable material and construction to be compatible with the substance(s) stored and conditions of storage such as pressure and temperature. Above ground storage tanks and containers shall be provided with a secondary means of containment for the entire capacity of the largest single container and sufficient cover shall be provided to prevent any/all precipitation from entering said secondary containment vessel.

If the volume of a fuel container is greater than 1,320 gallons, a Spill Prevention, Control, and Countermeasures (SPCC) plan will be required for the use the fuel tank.

On-site storage of petroleum products, or other fuels used for commercial activities may require registration as hazardous materials through the California Environmental Reporting System (CERS). Additionally, the waste oil generated from commercial activities (generators) and their used oil filters are considered hazardous waste and requires additional reporting. The discharger is advised to contact local agencies to find out if such reporting is applicable to current operations.

Used motor oil is recommended to be stored in sealed containers that the oil was originally packaged in, e.g. sealed buckets/quart or gallon jugs, or other sealed containers designed to store motor oil. Stored used oil is recommended to be regularly disposed of at hazardous waste disposal sites. Used oil filters are also recommended to be stored in sealed containers, e.g. sealed plastic totes/buckets, for later disposal at a hazardous waste disposal site. These storage containers are recommended to be stored in structures where they are protected from precipitation.

Further information regarding the State of California's requirements for the managing of Used Oil and Oil Filters can be found by entering the links below or searching the corresponding titles to the links.

California Department of Toxic Substances Control - Used Oil Generator Requirements

- https://www.dtsc.ca.gov/InformationResources/upload/RAG-UsedOilforGenerators.pdf

Department of Toxic Substances Control - Managing Used Oil Filters for Generator

- https://www.dtsc.ca.gov/InformationResources/upload/RAG_Used-Oil-Filters_Generators1.pdf

BMP: Generator, Fuel, and Oil Management (Generators and Pumps)

All generators and petroleum powered pumps are recommended to have spill trays or secondary containment placed underneath them when using, fueling, or changing oil on them to prevent the potential for leeching, seepage or spillage of petroleum products. All spill trays and containment structures require cover from precipitation. All generators and petroleum powered pump locations are also recommended to have spill cleanup kits on hand.

Pre-fabricated secondary containment structures and spill trays can be purchased online or from local wholesalers of petroleum products. As an alternative to pre-fabricated secondary containment structures, structures can be constructed from wooden, cinderblock, concrete, or metal frames lined with PVC liners, e.g. pond liner/water bladder material, as long as the containment is fully sealed and constructed in a similar manner to examples of pre-fabricated containment structures found below. Ensure that diked areas are sufficiently impervious to contain discharged chemicals. All containment structures require cover from precipitation to prevent the containment from filling with water. Secondary containment for fuel tanks shall not be constructed.

As an alternative to pre-fabricated spill kits, kits can consist of sealed trashcans or buckets with industrial absorbent material (e.g. cat litter) and shovels, placed nearby any location where generators, pumps, or other petroleum products or chemicals are used.

Examples of industry standard pre-fabricated spill containment and clean-up kits can be found following or entering the links below. Pre-fabricated spill containment and clean-up kits can be purchased online, from Renner Petroleum, or other similar industry providers.

Ultratech Spill Containment

- http://www.spillcontainment.com/categories/spill-containment/

New Pig Portable and Collapsible Spill Containment

- https://www.newpig.com/collapsible-berms/c/5142?show=All

BMP: Generator, Fuel, and Oil Management

Example of a small, portable, and compact containment berm.

Example of a portable utility spill tray.

BMP: Generator, Fuel, and Oil Management

Example of secondary containment for a fuel tank. This container requires cover from precipitation.

Example of spill pallets for unused or used oil drums and other petroleum products.