Water Resource Protection Plan

WDID# - 1B161035CHUM

**APN 216-025-009, 216-025-002,
216-025-011, 216-025-016**

Prepared by:

Timberland Resource Consultants

165 South Fortuna Blvd

Fortuna, CA 95540

10-26-2016

Purpose

This Water Resource Protection Plan (WRPP) has been prepared on behalf of the discharger, for the Humboldt County property identified as parcel numbers 216-025-009, 216-025-002, 216-025-011, and 216-025-016 by agreement and in response to the California Water Code Section 13260(a), which requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the state, other than into a community sewer system, shall file with the appropriate regional water board a Report of Waste Discharge (ROWD) containing such information and data as may be required by the Regional Water Board. The Regional Water Board may waive the requirements of Water Code section 13260 for specific types of discharges if the waiver is consistent with the Basin Plan and in the public interest. Any waiver is conditional and may be terminated at any time. A waiver should include monitoring requirements to verify the adequacy and effectiveness of the waiver's conditions. California Regional Water Quality Control Board, North Coast Region, Order R1-2015-0023, conditionally waives the requirement for the property owner to file an ROWD for discharges and associated activities described in Finding-4.

Scope of Report

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

Methods

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

Property Description

The property assessed consists of four parcels totaling 227 acres located in primarily Douglas-fir timberland. All watercourses on the property are tributary to Tom Long Creek. The property is located in Sec 20, T5S, R5E, HB&M, Humboldt County, from the Harris 7.5' USGS Quad Map and is approximately 8.8 miles SWW of Benbow. Access to the property is from US Highway 101 to Alderpoint Rd to Bell Springs Road to a private drive.

Project Description

There are currently seven cultivation areas located on the property. Cultivation Area A is 7,000 ft^2 and consists of a clearing with two graded flats, each with a greenhouse containing raised beds. Cultivation Area B is 8,200 ft^2 and consists of one greenhouse containing raised beds. Cultivation Area C is 9,700 ft^2 and consists of individual plants in raised beds and a greenhouse containing raised beds. Cultivation Area D is 20,200 ft^2 and consists of individual plants in raised beds and a greenhouse containing raised beds. Cultivation Area E is 5,200 ft^2 and consists of plants in raised beds. Cultivation Area F is 6,000 ft^2 and consists of a clearing on a natural flat on a ridgetop, with hoop-houses containing raised beds. Cultivation Area G is 2,000 ft^2 and consists of a raised beds in an open area, along a ridgetop. All water used for the irrigation of cannabis is currently derived from a spring and a diversion on the property.

Monitoring Plan

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

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

Monitoring Plan Reporting Requirements

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

Assessment of the Standard Conditions

Assessment of Standard Conditions consisted of field examinations in the winter of 2017. The examination evaluated areas near, and areas with the potential to directly impact, watercourses for sensitive conditions including, but not limited to, existing and proposed roads, skid trails and landings, unstable and erodible watercourse banks, unstable upslope areas, debris, jam potential, inadequate flow capacity, changeable channels, overflow channels, flood prone areas, and riparian zones. Field examinations also evaluated all roads and trails on the property, developed areas, cultivation sites, and any structures and facilities appurtenant to cultivation on the property. Anywhere the Standard Conditions are not met on the property, descriptions of the assessments and the prescribed treatments are outlined in the Mitigation Report to follow.

Summary of Standard Conditions Compliance

1. Site Maintenance, Erosion Control, and Drainage Features Y☐/N☒
2. Stream Crossing Maintenance Y☒/N☐
3. Riparian And Wetland Protection and Management Y☒/N☐
4. Spoils Management Y☒/N☐
5. Water Storage and Use Y☒/N☐
6. Irrigation Runoff Y☒/N☐
7. Fertilizers and Soil Amendments Y☒/N☐
8. Pesticides and Herbicides Y☒/N☐
9. Petroleum Products and Other Chemicals Y☒/N☐
10. Cultivation-Related Wastes Y☒/N☐
11. Refuse and Human Waste Y☐/N☒

1. Site Maintenance, Erosion Control, and Drainage Features

The majority of roads on the property were constructed in the past for timber harvesting and the rest are associated with homestead land use. The road system is generally well laid out with minimal stream crossings and roads within riparian areas. However, 13 sites were identified as needing repair to existing road surface drainage structures or addition structures installed to prevent the concentration of road surface runoff or erosion of the road surface.

Cultivation Area A is 7,000 ft^2 and consists of a clearing with two graded flats, each with a greenhouse containing raised beds in a clearing bordered by conifer and tanoak forest. The graded areas appear stable with well vegetated cut banks and fill slopes. The cultivation area does not drain to a watercourse and no erosion was observed as a result of said drainage. The graded flats are both less than 5% slope and are cut from adjoining, natural slopes of approximately 30%.

Cultivation Area B is 8,200 ft^2 and consists of one greenhouse containing raised beds in a clearing bordered by conifer and tanoak forest. The graded flat is less than 5% slope and is cut from adjoining, natural slopes

Assessment of the Standard Conditions (cont.)

of approximately 20%. The graded area appears stable with well vegetated fill slopes. However, two small (<1 yd^3) cut bank slumps were noted on each side of the DRC at Site 3. These slumps will be treated with erosion control measures. The DRC drains cutbank seeps along the inboard edge of the cultivation area. However, the cultivation area does not drain to this DRC, but flows off the north edge of the cultivation area where no erosion is occurring. The DRC drains to the road below, flows through a DRC at Site 4, which then drains to a Class III watercourse. Though there is no evidence of sediment delivery associated with these DRC's, preventative mitigation is prescribed below the outlet of the lower DRC.

Cultivation Area C is 9,700 ft^2 and consists of individual plants in raised beds and a greenhouse containing raised beds in open grassland with plants grown on natural slopes of approximately 20%. The cultivation area does not drain to a watercourse and no erosion was observed as a result of said drainage.

Cultivation Area D is 20,200 ft^2 and consists of individual plants in pots and a greenhouse containing raised beds in open grassland with plants grown on natural slopes of approximately 10%. The cultivation area does not drain to a watercourse and no erosion was observed as a result of said drainage.

Cultivation Area E is 5,200 ft^2 and consists of plants in raised beds, on a graded flat, in a clearing bordered by conifer and tanoak forest. The graded area appears stable with well vegetated cut banks and fill slopes. The north-east portion of the cultivation area drains to an inboard ditch along the cutbank that ultimately flows to a Class III watercourse. A drainage ditch is prescribed to drain water from the cultivation area away from the inboard ditch and associated watercourse. The graded flat is less than 5% slope and cut from adjoining, natural slopes of approximately 30%.

Cultivation Area F is 6,000 ft^2 and consists of plants in raised beds in an opening on a ridgetop with plants grown on natural slopes of <5%. The cultivation area does not drain to a watercourse and no erosion was observed as a result of said drainage.

Cultivation Area G is 2,000 ft^2 and consists of plants in raised beds, in an opening, on a ridgetop with plants grown on natural slopes of approximately 10%. The cultivation area does not drain to a watercourse and no erosion was observed as a result of said drainage.

2. Stream Crossing Maintenance

There are two stream crossings located on the road network in use on property. Both crossings are sized for a 100-year storm event and functioning adequately. Five sites were observed on the property where relic, timber harvest related, skid roads crossed watercourses.

At Site 5, a skid road crossed a Class III watercourse. This crossing consisted of less than 5 yd^3 of fill and little to no erosion was occurring as a result. There was no diversion potential at this crossing and the site has no impact on water quality. This site is not to be treated.

Assessment of the Standard Conditions (cont.)

At Site 6, a Class III watercourse diverts out of its natural channel down a skid road, approximately 200' before returning to the natural channel. This diversion is not feasible to access. The diverted portion of channel is now well established and, though there has been obvious erosion in the past, currently the diverted channel shows no signs of active erosion following a series of strong winter storms. This site is not to be treated.

An un-classified watercourse intersects relic, timber harvest, skid roads at Site 12. The watercourse flow over the road at Site 12 and then is diverted when it is intercepted by a lower skid road. There is evidence of past erosion along the diversion, however, there is no evidence that water currently reaches more than approximately 30' beyond the diversion point. The old diversion channel continues down slope approximately 850' before it ends in a grassy, flat area. It did not appear that water has flowed down this portion of the channel in decades. Work, by hand or with small equipment, is being prescribed to remove diversion potential on the upper road at Site 12. However, equipment access to the diversion point on the skid road below is not feasible. Because the unclassified watercourse does not connect to another watercourse, this diversion has no impact on water quality and is not to be treated.

3. Riparian and Wetland Protection and Management

During multiple inspections of the roads, cultivation areas, and watercourses, all cultivation areas are located greater than 200' from any watercourse. At Site 19, the road runs parallel with a Class III watercourse. Some road surface runoff delivers sediment at a point where an existing inside berm is breached. A new rolling dip is to be installed to minimize road surface runoff and the inside berm is to be repaired and maintained.

4. Spoils Management

No construction related spoils were noted on the property during our assessments. Future spoils generated as a result of any future construction projects stored on the property shall be done so in accordance with the BMP's.

5. Water Storage and Use

Water on the property is currently derived from two points of diversion and two rain-catchment ponds located on the property. Water from the diversion is stored in 37,000 gallons of hard plastic storage tanks. In the past, this water has been used for both domestic and cultivation use. However, the discharger has had two rain-catchment ponds constructed in 2016. The northern pond holds approximately 965,000 gallons and was full at the time of our assessment. The construction of the southern pond was not completed. The pond requires a liner and will not be utilized as a water source until 2018. The pond is calculated to hold approximately 200,000 gallons. It is the intent of the discharger to use these ponds to fill 37,000 gallons of hard plastic storage tank from the pond during the winter to supplement water for cultivation related use and use pond water exclusively in the future for all cultivation related water needs. The historic diversion (POD 2) that can be seen on the Harris 7.5' USGS Quad Map is the primary water source for domestic water and will no longer be used for cultivation. With the single pond and additional storage, water needs for cultivation are adequate as the discharger uses approximately 186,000 gallons annually. Water usage estimates for 2016 are as follows:

Assessment of the Standard Conditions (cont.)

Apr	5,000 gallons
May	30,500 gallons
Jun	35,400 gallons
Jul	39,200 gallons
Aug	32,200 gallons
Sep	27,900 gallons
Oct	16,500 gallons

Prior to cultivation in 2017, the discharger is to install water metering devices to record water usage associated with the cultivation of cannabis.

6. Irrigation Runoff

During multiple visits to the property, no irrigation runoff, or evidence of such runoff, was observed at any of the five cultivation sites.

7. Fertilizers and Soil Amendments

All fertilizers and amendments are stored appropriately in multiple structures on the property.

8. Pesticides and Herbicides

No pesticides or herbicides are used on the property. The discharger uses natural pest prevention measures and products that are stored appropriately in multiple storage structures on the property.

9. Petroleum Products and Other Chemicals

The discharger has a 1000-gallon fuel tank with secondary containment as well as other smaller containers of petroleum products stored in a shipping container. The container provides excellent cover and protection. In a separate shipping container, a permanent diesel generator is stored. This container also provides adequate cover for the generator.

10. Cultivation-Related Wastes

Cultivation related waste was noted at Sites two sites on the property. Both of these sites are well outside of any riparian area and cannot be transported to a watercourse.

11. Refuse and Human Waste

Garbage and refuse is stored temporarily in garbage cans until it is hauled away to a landfill transfer station. Human waste is currently managed by a toilets inside the houses. These structures have unpermitted septic systems. The landowner shall install a human waste disposal systems approved or permitted by Humboldt County. Pit-type toilets were also noted near Cultivation Areas A & E. Use of these facilities is to be discontinued and serviced portable toilets are to be used where additional facilities are needed during the cultivation season.

12. Remediation/Clean-up/Restoration

Currently, two of the Standard Conditions are not being met; Site Maintenance, Erosion Control, and Drainage Features, and Refuse and Human Waste. Sites will be treated in accordance with regulations, following

Assessment of the Standard Conditions (cont.)

approval of any and/or all necessary permits, and done in accordance with the BMP's listed in Appendix B of the Order and those included in this WRPP. Additionally, several other general recommendations have been made as follows:

General Recommendations

- ☐ Collect and store cultivation related wastes tidily in acceptable locations greater than 200' from any watercourse where they cannot be transported to a watercourse via wind or rain.
- ☐ Water use shall be designed and metered such that water used for the irrigation of cannabis will be meter separately from water used for domestic use.
- ☐ Frequent, winter use of un-surfaced, seasonal roads should be avoided as much as possible, particularly when road surfaces are soft/saturated.
- ☐ All culverts should be inspected regularly during the winter months to check for plugging, blockage, or other issues.

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

Prepared by Timberland Resource Consultants

1. This Water Resource Protection Plan has been prepared for the property within APN's 216-025-009, 216-025-002, 216-025-011, and 216-025-016, in Humboldt County, at the request of the Client.

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

3. The information is based upon conditions apparent to Timberland Resource Consultants at the time the inspection was conducted. Changes due to land use activities or environmental factors occurring after this inspection, have not been considered in this Water Resource Protection Plan.

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

5. The conditions presented in this Water Resource Protection Plan may differ from those made by others or from changes on the property occurring after the inspection was conducted. Timberland Resource Consultants does not guarantee this work against such differences.

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

7. Persons using this Water Resource Protection Plan are advised to contact Timberland Resource Consultants prior to such use.

8. Timberland Resource Consultants will not discuss this report or reproduce it for anyone other than the Client named in this report without authorization from the Client.

Jessie Cahill
Timberland Resource Consultants

Water Resource Protection Plan

General Location Map [WDID# - 1B16640CHUM]

Property Boundary

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N
W E
S

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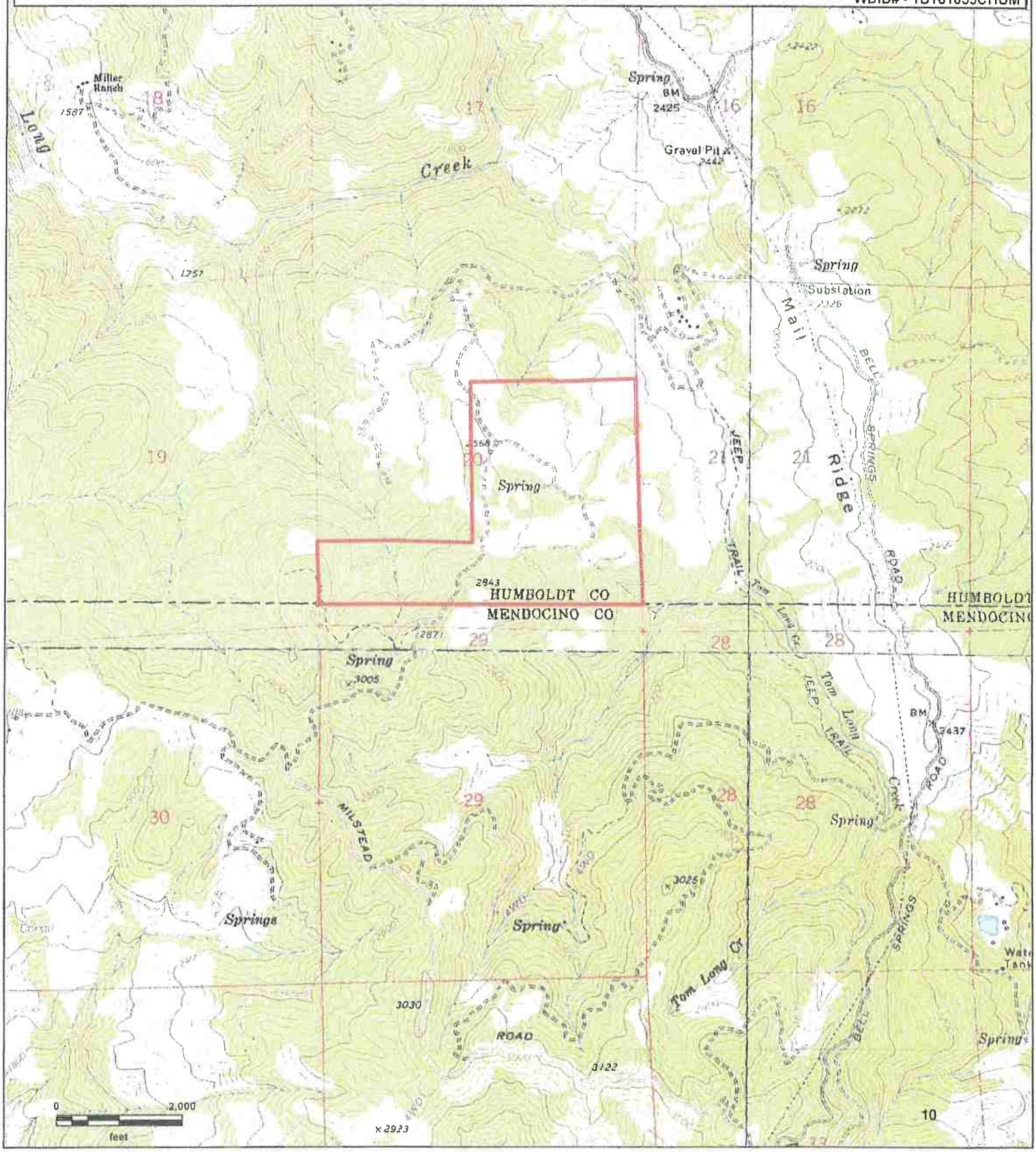

Water Resource Protection Plan

Site Map [WDID# - 1B16640CHUM]

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Property Boundary

Cultivation Area

Pond

Roads
- Permanent
- Seasonal
- Legacy Timber

Watercourses
- Class II
- Class III
- Un-classified

House

POD

Site

Structure

Tank

N W E S

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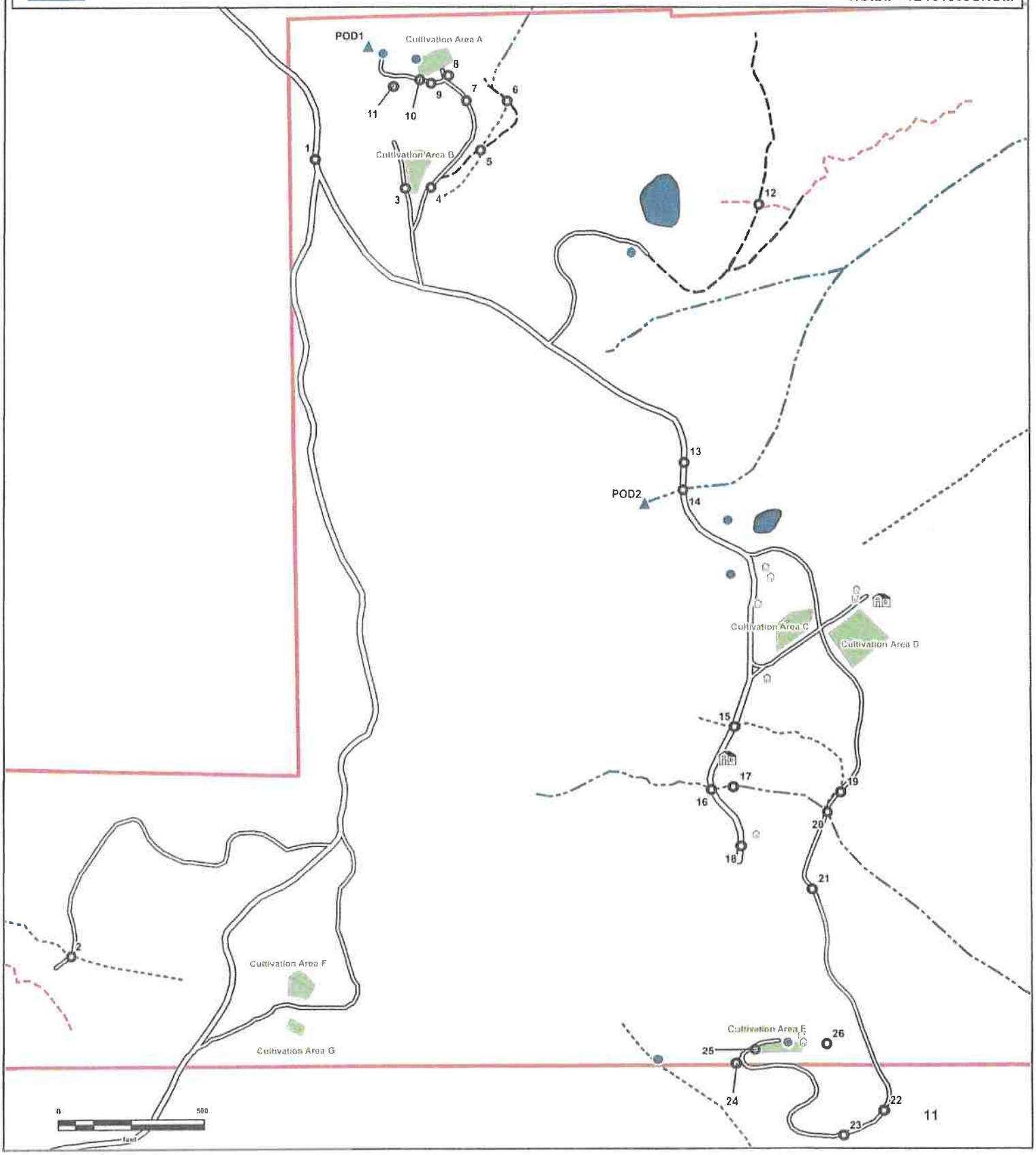

Water Resource Protection Plan

Site Map [WDID# - 1B16640CHUM]

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Property Boundary

Cultivation Area

Pond

Roads
- Permanent
- Seasonal
- Legacy Timber

Watercourses
- Class II
- Class III
- Un-classified

House

POD

Site

Structure

Tank

N
W E
S

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WRPP - Mitigation Report

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Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
1	-123.641596 40.010189	Permanent	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing 12" plastic DRC is filled with sediment.

Prescribed Action: The culvert is to be cleaned out or replaced with a new DRC with a minimum of 12" in diameter.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
2	-123.644431 40.00288	Seasonal		X		A.2.		

Current Condition: Existing Class III watercourse crossing with an 12" plastic culvert. The culvert is adequately sized and functioning well.

Prescribed Action: None

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
3	-123.640515 40.009927	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing 12" plastic DRC drains cutbank seeps and hillslope runoff adjacent to cultivation area. The cultivation area itself does not drain to this DRC. Minor cutbank slumps have occurred on both sides of the DRC and partially obstruct the associated ditch.

Prescribed Action: Cutbank slumps obstructing the drainage ditch shall be removed and the slumping areas are to be seeded and mulched.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
4	-123.64021 40.009938	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing 12" plastic DRC drains toward the head of a Class III watercourse.

Prescribed Action: Organic materials are to be placed below the outlet of the DRC to facilitate the deposition of any potential sediment before it reaches the watercourse below.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
5	-123.63961 40.010282	Skid		X		A.2.		

Current Condition: Existing skid trail crossing on a Class III watercourse. The potentially erodible fill is less than 1 cubic yard and little to no active erosion is occurring. There is no potential for diversion at this crossing.

Prescribed Action: None

Timberland Resource Consultants

WRPP - Mitigation Report

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Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
6	-123.639297 40.010732	Skid		X		A.2.		
Current Condition: A Class III watercourse is diverted out of its natural channel and down a skid road, approximately 200' before returning to the natural channel. The diverted portion of channel is now well established and, though there has been obvious erosion in the past, currently the diverted channel shows no signs of active erosion following a series of strong winter storms. This diversion is not feasible to access.						Prescribed Action: None		

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
7	-123.63979 40.010732	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	
Current Condition: At this location a steep section of road lacks adequate surface drainage and water is being concentrated.						Prescribed Action: A waterbar and 120' of new inboard ditch shall be installed at this location.		

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
8	-123.640013 40.010963	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	
Current Condition: At this location water from portions of the cultivation area and adjacent road and trail drain off the road edge.						Prescribed Action: A straw or fabric wattle shall be installed at the edge of the road to minimize sediment leaving the road surface.		

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
9	-123.640218 40.01089	Trail	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	
Current Condition: Some rilling is occurring near the base of a steep access trail.						Prescribed Action: The rilled road surface is to be reshaped/repaired and seeded and strawmulched. At the upper extent of past rilling, a straw/fabric wattle is to be installed at an angle across the road draining to the north.		

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
10	-123.640357 40.01092	Trail	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	
Current Condition: Steep trail concentrates surface runoff and rills below.						Prescribed Action: On the road, a waterbar shall be installed to drain to a drainage ditch which is to be installed along the extent of cutbank of the cultivation area to drain water north.		

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
11	-123.640667 40.010858					A.11.		
Current Condition: Spatial reference to a pit toilet.						Prescribed Action: Use of the pit toilet is to be discontinued immediately.		

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WRPP - Mitigation Report

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Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
12	-123.636263 40.009803	Skid	X	X		A.2.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing skid trail crossing on an un-classified watercourse. While the watercourse is not currently diverted, potential deposition of sediment on the road surface could create potential for diversion.

Prescribed Action: The existing dip in which the watercourse flows is to be improved to minimize diversion potential.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
13	-123.637143 40.007433	Permanent	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: The adjacent watercourse crossing lacks adequate hydrologic disconnection from the road surface.

Prescribed Action: The road shall be out-sloped for a minimum of 50' to drain the road surface.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
14	-123.637155 40.007182	Permanent		X		A.2.		

Current Condition: Existing Class II watercourse crossing with a 24" plastic culvert. The crossing fill faces are armored. The culvert is properly sized and functioning well.

Prescribed Action: None

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
15	-123.636528 40.005012	Permanent	X	X		A.2.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing Class III watercourse crossing with an 18" plastic culvert just below the head of the watercourse. The culvert is properly sized and functioning well. The road surface associated with the crossing is frequently used as a turnaround area and some erosion of the surface is occuring where less road rock has been installed.

Prescribed Action: The turnaround area is to be surfaced with road rock to prevent erosion from use.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
16	-123.636797 40.004433	Permanent		X		A.2.		

Current Condition: Existing Class III watercourse crossing with a 36" plastic culvert. The culvert is adequately sized and functioning well.

Prescribed Action: None

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
17	-123.636537 40.00446			X		A.2.		

Current Condition: Existing 30" plastic culvert installed at the base of a fill slope to increase slope stability. The culvert is adequately sized and functioning well.

Prescribed Action: None

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WRPP - Mitigation Report

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Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
18	-123.63645 40.003918	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Road surface and hillslope runoff concentrate and erode the road surface.

Prescribed Action: A waterbar shall be installed to drain road surface runoff.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
19	-123.635256 40.004418	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Road segment runs adjacent to Class III watercourse. Concentrated road runoff delivers sediment to the watercourse.

Prescribed Action: A rolling dip shall be installed at this location to drain the surface of the road. Additionally, from this point to the watercourse crossing at Site 20, the existing inboard berm shall be maintained so that road runoff does not drain directly to the adjacent Class III watercourse.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
20	-123 635419 40.004235	Seasonal		X		A.2.		

Current Condition: Existing Class II watercourse crossing with a 48" plastic culvert. The culvert is properly sized and functioning well.

Prescribed Action: None

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
21	-123.635596 40.003526	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing 12" plastic DRC is partially obstructed by a cutbank slump.

Prescribed Action: Obstructing debris shall be removed and the inboard ditch shall be extended 20' south to capture and drain cutbank seeps to the existing DRC.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
22	-123.634727 40.001506	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing rolling dip is not functioning sufficiently allowing water to bypass in the wheel path.

Prescribed Action: The rolling dip shall be repaired to functional status so that no road surface runoff can bypass the structure.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
23	-123.635211 40.001276	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Existing rolling dip drains cutbanks seeps across road surface. The road surface is muddy and saturated and pot holes have formed.

Prescribed Action: The road surface shall be repaired/reshaped. Geotextile fabric shall be installed across the extent of the rolling dip and road rock shall be installed overtop the fabric.

Timberland Resource Consultants

WRPP - Mitigation Report

WDID# - 1B161035CHUM

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
24	-123.636494 40.001926	Seasonal	X	X		A.1.	Prior to 10/15/18 pending the approval of any required permits	

Current Condition: Un-surfaced turnaround area is adjacent to a Class III watercourse and some erosion is occurring from use.

Prescribed Action: The turnaround area is to be surface with road rock to prevent erosion.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
25	-123.636273 40.002057	Seasonal	X	X		A.1.	Prior to 10/15/19 pending the approval of any required permits	

Current Condition: A portion of the cultivation area has the potential to drain to an inboard ditch that ultimately drains to a Class III watercourse.

Prescribed Action: An L-shaped drainage ditch along the north and west sides of the cultivation area shall be constructed to capture any runoff from the cultivaion area and drain it away from the inboard ditch.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
26	-123.63542 40.002115	Seasonal	X			A.1.		

Current Condition: Spatial reference to a pit toilet.

Prescribed Action: Use of the pit toilet is to be discontinued immediately.

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
POD1	-123.640975 40.011217				X	A.1.		

Current Condition: Existing non-jurisdictional spring. A buried 5-gallon bucket is buried at the outlet of the spring to collect water. The water is collected and drained from the bucket approximately 8" below the surface. This site was previously used for cultivation.

Prescribed Action: None

Unique Point	Lat-Long NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
POD2	-123.637612 40.007045		X	X	X	A.1.	Prior to 10/15/17 pending the approval of any required permits	

Current Condition: Existing point of diversion with three different structures: A historic cistern approximately 2' in diameter of unknown depth collects water from approximately 6" below the surface, a 12" diameter concrete cistern located within the channel collects water from the surface flows, and a concrete cistern on the bank, approximately 30" in diameter, collects water from approximately 6" below the surface. These diversions are currently used for domestic water supply only, but have been used for cultivation in the past.

Prescribed Action: The 12" cistern and associated plumbing is to be removed.

BMP: General 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: Rolling Dip

- Rolling dips are drainage structures designed to carry surface water across roads.
- The truck road shall dip into and out of the rolling dip to minimize diversion potential.
- The rolling dip shall be constructed with clean native materials.
- The rolling dips outlet may be armored to resist downcutting and erosion.
- Do not discharge rolling dips into swales 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.

BMP: Rocked Rolling Dip

- Rocked rolling dips are drainage structures designed to carry surface water across roads.
- The truck road shall dip into and out of the rocked rolling dip to minimize diversion potential.
- The rocked rolling dip shall be constructed with clean native rock that is large enough to remain in place during peak flows. Rock size shall vary relative to the size of the watercourse; however an average 6" sized rock shall be used.
- The rocked rolling dips inlet and outlet shall be armored to resist downcutting 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 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 swales 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 must be drivable and not significantly inhibit traffic and road use.

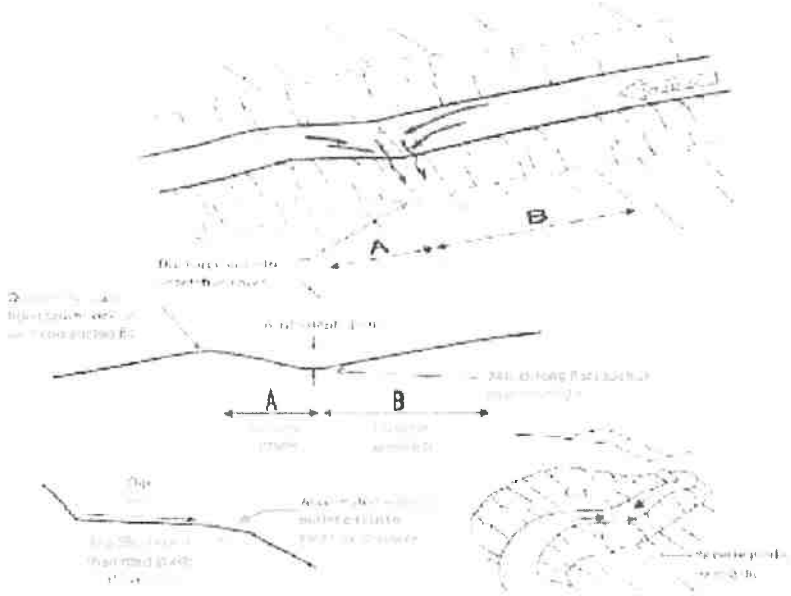

FIGURE 34. *A classic Type I rolling dip, where the excavated up-road approach (B) to the rolling dip is several percent steeper than the approaching road and extends for 60 to 80 feet to the dip axis. The lower side of the structure forms grade (A) of approximately 15 feet or more, and then falls down 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 6% 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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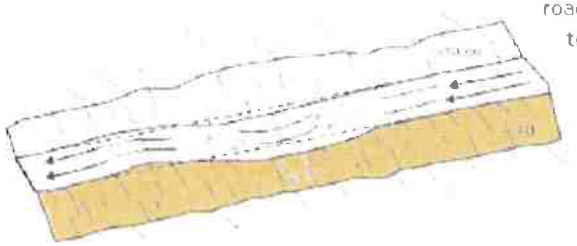
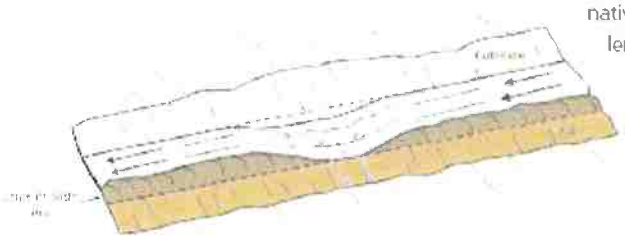
BMP: (Rocked) Rolling Dip (Cont.)

Type 1 Rolling Dip
(St nd rd)



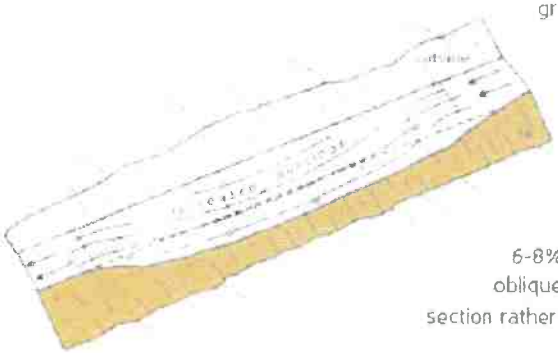
Type 1 rolling dips are used where road grades are less than about 12-14% and road runoff is not confined by a large through cut or berm. The axis of the dip should be perpendicular to the road alignment and sloped at 3-4% across the road tread. Steep roads will have longer and more abrupt dip dimensions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

BMP: (Rocked) Rolling Dip (Cont.)

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 r 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: Ditch Relief Culvert

- Install ditch relief culverts at an oblique (typically 30 degree) angle to the road so that ditch flow does not have to make a sharp angle turn to enter the pipe. On low gradient roads (<5%), where ditch flow is slow, ditch relief culverts can be installed at right angles to the road.
- Install ditch relief culverts (DRC) to outlet at, and drain to, the base of the fill.
- If it cannot be installed at the base of the fill, install the DRC with a grade steeper than the inboard ditch draining to the culvert inlet, and then install a downspout on the outlet to carry the culverted flow to the base of the fillslope.
- Downspouts longer than 20 feet should be secured to the hillslope for stability.
- Ditch relief culverts should not carry excessive flow such that gullying occurs below the culvert outlet.
- Do not discharge flows from ditch relief culverts onto unstable or highly erodible hillslopes.
- If the ditch is on an insloped or crowned road, consider using outsloping to drain the road surface. The ditch and the ditch relief culvert would then convey only spring flow from the cutbank and upslope ditch, and not turbid runoff from the road surface.

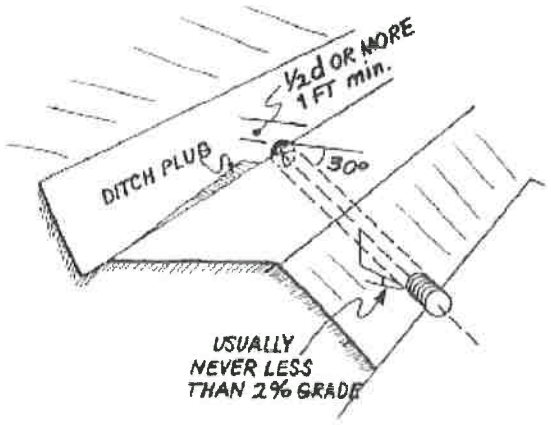
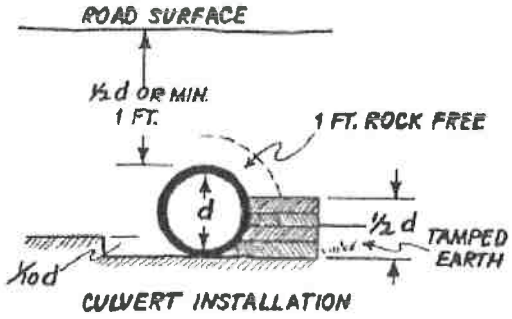


FIGURE 48. *The elements of a properly installed ditch relief culvert. The culvert is angled at about 30 degrees to the road alignment to help capture flow and prevent culvert plugging or erosion of the inlet area. It is set at the base of the fill (ideally) or with a grade slightly steeper than the grade of the contributing ditch (but never with a grade less than 2 percent) (USDA-SCS, 1983). At a minimum, the grade of the ditch relief culvert should be sufficient to prevent sediment accumulation at the inlet or deposition within the culvert itself (it should be self-cleaning) (USDA-SCS, 1983).*



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BMP: Ditch Relief Culvert (Cont.)

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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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: Inlet and Outlet Armoring

- Inlets of culverts and associate fills shall be protected with rock armoring that extends at least as high as the top of the culvert.
- Outlets of culverts shall be provided a 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.

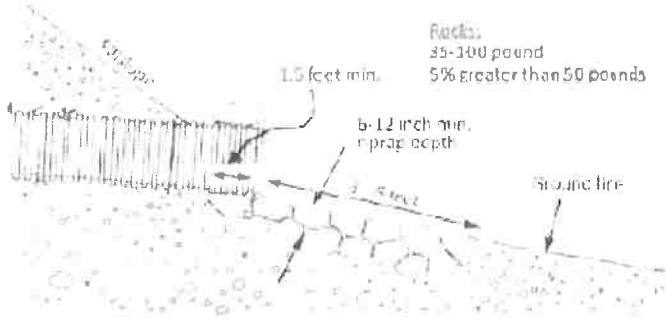

FIGURE 107A. *Riprap armor at culvert outlet (Modified from Keller et al., 2011).*

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

BMP: Waterbar Construction

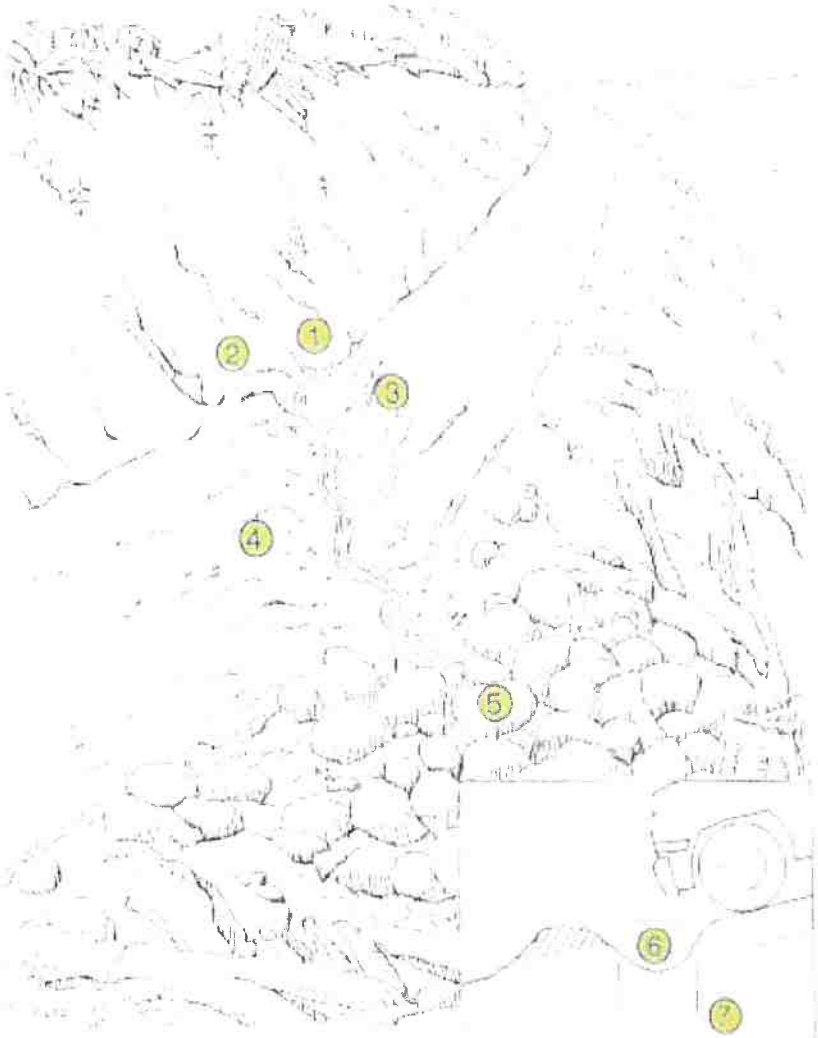

FIGURE 40. Waterbars are constructed on unsurfaced forest and ranch roads that will have little or no traffic during the wet season. The waterbar should be extended to the cutbank to intercept all ditch flow (1) and extend beyond the shoulder of the road. A berm (2) must block and prevent ditch flow 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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