

Water Resources Protection Plan (WRPP)

Wood Ranch, James Patterson

APN 212-233-002

Background & Purpose

On August 13, 2015, the North Coast Regional Water Quality Control Board (NCRWQCB) adopted general Waiver of Waste Discharge requirements and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region, Order No. R1-2015-0023 (the Order). One of the requirements of the Order is to prepare a water resource protection plan (WRPP) for all sites that are enrolled under Tier 2 of the Order. Wood Ranch has enrolled for coverage under the NCRWQCB as a Tier II discharger under the Order (WDID: 1B170576CHUM).

Wood Ranch is owned by James Patterson and located on APN: 212-233-002, hereafter referred to as the (Project Site). The Project Site has received an interim permit from Humboldt County pursuant to the Humboldt County Commercial Medical Marijuana Land Use Ordinance for a Conditional Use Permit application for existing cannabis cultivation and ancillary activities on. The interim permit authorizes 20,434 ft² of existing mixed light and 16,155 ft² of existing outdoor cultivation (See Appendix C: County Site Plan).

The subject parcel has also notified California Department of Fish and Wildlife for a Lake and Streambed Alteration Agreement (Notification No. 1600-2018-0374-R1_HUM). OurEvolution field staff have visited the site and documentation has been produced to support both the jurisdictional encroachments and corrective actions required to reduce potential impacts to water quality and achieve compliance with the twelve standard conditions of the Order. (See Appendix B: LSA Notification Packet).

Mapping

See the attached WRPP site map (Appendix A: WRPP Site Map). Additional details and mapping may be found in the site plan as submitted to Humboldt County (Appendix C), and the LSAA Map submitted in the LSA Notification Packet (Appendix B).



Table 1. List of Corrective actions as per order No. R1-2015-0023

Map Feature	Description	Standard Condition	Corrective Action	Priority (1 Highest – 4 Lowest) & Anticipated Completion Date.
RSDP #1	Connected IBD delivers to STX-1.	1e.	Install a sediment settling basin inline with IBD along left road approach to STX-1.	3, 12-31-20
RSDP #2	Connected IBD and road surface delivery to STX-3.	1a,e.	Install (2) type-1 rolling dips in recommended locations, rock approaches through crossing.	2, 12-31-20
RSDP #3	Connected road surface delivers to STX-7.	1a,d.	Install (2) type-1 rolling dips and (1) type-3 rolling dip in recommended locations, re-rock approaches through crossing.	1, 12-31-20
RSDP #4	Diverted surface water along road surface has resulted in minor scour leading to sediment delivery to surface waters.	1d,e.	Rip and de-compact existing road surface. Install “critical dip” and large angular riprap to redirect diverted surface flow to native channel.	2, 12-31-20
Road Gully	CA #1 Access Road lacks permanent drainage structures.	1a,e.	Install two (2) water bars at recommended locations. Install straw wattles.	2, 12-31-20
IBD POD Access Road #2	IBD crosses access road.	1e.	Install 18-inch DRC in line with IBD at recommended location.	2, 10-15-19

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STX-1 – STX -10	See LSAA Appendix B, attached.	2-	See corrective actions as per Notification No. 1600-2018-0374-R1_HUM	2
Storage Shed	Cultivation related facility within 50-foot riparian buffer.	3a	Discontinue use of shed for cultivation related activities including petroleum and fertilizer storage.	3, 10-15-18
Gas Powered Pump #1	Gasoline powered pump at CA #1 located within riparian buffer of Class III watercourse. Pump lacked containment and cover.	3c, 9a, b, d	Remove from 50-foot riparian buffer zone, utilize adequate secondary containment and cover, keep spill kit located nearby.	1, 10-15-18
CA #2	Hoop Houses at CA #2 within riparian buffer of Class II watercourse.	3a	Set back hoop houses to observe 100-foot riparian setback from Class II watercourse.	2, 12-31-19
Legacy Cultivation Area #1	Winterized smart pots within 50-foot riparian buffer of Class III watercourse.	3a	Remove all cultivation related materials from Legacy Cultivation Area #1.	1, 10-15-18
Water Works	Water diversion in forbearance period.	5a	Create a water budget, use volumes to acquire storage sufficient to forbear (not divert) (May 15-October 31).	1, 10-15-18
Legacy Ponds	See LSAA Appendix B, attached.	2-	See corrective actions as per Notification No. 1600-2018-0374-R1_HUM	2
Gas Powered Pump #2	Gasoline powered water pump lacks cover and containment.	9a, 9d	Utilize adequate secondary containment and cover, keep spill kit located nearby.	1, 10-15-18

Generator #1	Gasoline powered generator lacks adequate containment.	9a, 9d	Utilize adequate secondary containment, keep spill kit located nearby.	1, 10-15-18
Cultivation Waste #1	Plant matter located within buffer of at origin ephemeral watercourse.	10a	Remove waste plant material from riparian buffer zone and dispose of in proper location.	1, 10-15-18
Septic System	Permit status of Septic System unknown.	11a	Work with DEH to determine permit status of septic. Obtain retroactive permit, or permit design and install new system.	3, 12-31-20

Standard Conditions on Site

Standard Condition #1. Site maintenance, erosion control, and drainage features:

Existing road infrastructure on the site is primarily comprised of developments from legacy ranching activities and is generally in compliance with the Standard Conditions and the Handbook for Forest, Ranch and Rural Roads. These legacy roads follow along contour with the native hillslope and in general were observed to be in good shape. Most of these roads did not exhibit evidence of sediment delivery to surface waters, nor excessive erosion. To improve overall drainage and reduce erosion potential of the road surface, install permanent drainage features such as "Rolling Dips" at the recommended locations (See Appendix A: WRPP Map). Rolling dips are to be constructed and spaced where required as per "The Handbook for Forest, Ranch and Rural Roads (*Weaver, Weppner and Hagans, 2015*)". Portions of these roads where sediment is delivered to surface waters at "road sediment delivery points" (RSDP) were noted as follows:

At **RSDP #1**", overland flow and hillslope runoff have channelized just above a road bench and have formed a small gully. This gully then delivers to the inboard ditch (IBD) of "Lower Legacy Ranch road" along the left contributing road of Stream Crossing-1 (STX -1). At this location, the road surface itself does not appear to be hydrologically connected.

Suggested corrective action: Install and seasonally maintain a sediment settling basin along the approaching left road inboard ditch. Maintain as needed by removing aggraded sediments during the dry season

At **"RSDP #2"**, hydrologically connected IBD flow and road surface runoff deliver sediment to STX-3 at RSDP #2. Hillslope seep and overland flow converge at a small quarry on the Project Site along "Lower Legacy Ranch Road". This flow collects along the quarry before travelling approximately 200-feet along the road surface and IBD, ultimately delivering sediment to surface waters at STX-3. The road surface and inboard ditch lack formal drainage structures adequate to hydrologically disconnect the road surface and IBD, and exhibit minor rilling along the running surface of the native material road.

Suggested corrective action: To address road surface related runoff, install two (2) Type-1 rolling dips at the recommended locations such that the axis of the dip drains the inboard ditch. After shaping the permanent drainage structures, rock the shaped road surface with angular road surface rock. To reduce fine sediment delivery to surface waters at STX-3, rock both right and left road approaches with angular road surface rock.

At **"RSDP #3"**, a straight, steep section of "Access Road SW" lacks formal drainage structures adequate to hydrologically disconnect the road surface from surface waters, delivers sediment to STX-7 at RSDP #3. To minimize contribution of fine sediment during the dry season, and mud during wet weather, the road approaches through the crossing have been rocked with angular road surface rock.

Suggested corrective action: To address road surface related runoff, install 3 rolling dips up the left road to STX-7 in the following locations: Install two (2) Type-1 rolling dips up the right road approach with the axis of one dip located 95-feet from the centerline axis of the crossing, and the second dip axis located 460-feet from the axis of the crossing. Install one (1) Type-3 rolling dip up

the right road to STX-7 with the axis of the crossing located 275-feet from the axis of the crossing. See Appendix A for recommended locations. After shaping the permanent drainage structures, rock the shaped road surface with angular road surface rock. To reduce fine sediment delivery to surface waters at STX-3, re-rock both right and left road approaches to STX-7 as needed with angular road surface rock.

At “RSDP #4”, short section of road leading to a legacy cultivation area within the riparian buffer of a Class III watercourse has intercepted and diverted a small portion of the Class III watercourse. Channel dimensions indicate that approximately 10% of flow from the ephemeral watercourse diverts down this native material road surface and has resulted in minor gullying of the road surface resulting in sediment delivery to an IBD which begins upslope of the legacy cultivation area. This IBD flows downslope through thickly vegetated grassland terrain before breaking from the road surface where it confluent with the original watercourse approximately 400-feet downstream. Significant erosion was not noted along the well-established IBD. Road surface delivery from the short road section leading to the legacy cultivation area has resulted in sediment delivery to surface waters at STX-7. The use of this area has been discontinued, and initial steps to address surface erosion have been taken by the sites operators including heavily mulching the road surface. The legacy cultivation area is comprised of above ground smart pots, heavily cover cropped and not in use.

Suggested corrective action: The short road leading to the abandoned cultivation area will be decommissioned. The native material road surface will be ripped and decompacted then seeded with erosion control seed at a rate of no less than 50-lbs / acre, and mulched with straw at a rate of no less than 4,000 lbs / acre. The partially diverted watercourse will be redirected back into the native channel with the removal of fill material adjacent to the diverted location along the benched surface of the legacy road and pad surface. The right bank at the point of stream diversion will be armored with large, angular rip rap sufficient in size to withstand the expected 100-year design flows as per Caffareta et al., 2017, and shall serve to redirect oncoming flow toward the native channel.

At “Road Gully” at CA #1, “Access Road SW” winds down through the terraced garden as “CA #1 Access Road”. This steep native material road lacks formal drainage structures to break up flow along the road surface. Minor gullying has formed near the terminus of the road surface, which ultimately lays out in a small well vegetated natural flat below the cultivation area. No delivery of sediment to surface waters was noted because of this connected road stretch, but pervasive erosion of the road surface is evident.

Suggested corrective action: Install two (2) water bars placed to outlet to a vegetated buffer with straw wattles (See appendix A). This will serve to break up flow along the road surface of “CA #1 Access Road” and reduce chronic erosion potential. Waterbars will require yearly maintenance.

At “IBD POD Access Road #2”, inboard ditch flow crosses a native material road without a formal conveyance structure. Minor erosion was noted along the banks of the ditch.

Suggested corrective action: Install an 18-inch ditch relief culvert (DRC) in the IBD at the intersection of “Access Road SW” and “POD Access Road #2” to convey inboard ditch flows through the road surface mitigating erosion from exposed surface.

Installation of rolling dips where indicated on the map and described in the table above will help to hydrologically disconnect the road system where possible. Additional roads on the project site including "Legacy Lower Garden Road" exhibit surface erosion which does not appear to result in delivery of sediment to surface waters. This road will be decommissioned following guidelines set forth in the Handbook for Forest, Ranch, and Rural Roads (*Weaver et. al, 2015.*)

Standard Condition #2. Stream Crossing Maintenance

Existing stream crossings on the Project site do not comply with Standard Condition 2 as per the Order. These will be addressed, and stream crossing sites will be brought into compliance following implementation of measures covered in Appendix B: LSA Notification Narrative Section 3, attached.

Standard Condition #3. Riparian & wetland protection & management

In general, the riparian areas on the Project Site remain undisturbed by cultivation activities. Riparian buffer setbacks have not been met at the following locations:

At Cultivation Area #1, cultivation areas and associated facilities lie sandwiched between two Class III watercourses but remain outside of the 50-foot required buffer. A well vegetated buffer and intact riparian area between the cultivation sites and surface waters make the likelihood of sediment delivery to surface waters extremely low.

Associated facilities observed within riparian buffer setbacks are as follows:

At **Storage shed**, utilized to house irrigation supplies, light gardening equipment, and storage was found to be within the 40-foot setback from the Class III watercourse. The storage shed features a wooden floor, making delivery of any pollutants to surface waters unlikely in the event of a containment failure. No gasoline cans or motor oil containers were observed along with the gardening equipment. This storage shed in its current location does not appear to be a threat to water quality.

Suggested corrective action: The order requires that all riparian setbacks for associated facilities be met. Discontinue use of the storage shed for cultivation related activities, including the storage of petroleum products or fertilizers and soil amending materials.

At **Gas Powered Pump #1**, located adjacent to the tank farm at CA #1, a gasoline powered water pump was observed on native ground lacking cover within 50-feet of an emergent Class III watercourse. No gas cans were observed adjacent to the pump.

Suggested corrective action: The order requires that all riparian setbacks for associated facilities be met. Remove the gasoline powered water pump to observe the 50-foot riparian setback from the Class III watercourse. If the new pump is to remain in the general area, it must be housed with secondary containment adequate to contain the entire stored volume of both fuel and motor oils. The pump must be under cover sufficient to prevent precipitation from filling the freeboard of the containment basin.

At **CA #2**, two large hoop houses are located within the 100-foot buffer zone of a Class II watercourse. The closest corner of the northernmost hoop house measured 63-feet from the outside wall to the break

in slope of the channel. The relatively flat topography of CA #2 lowers the chance for irrigation runoff or sediment delivery related to cultivation activities at this location.

Suggested corrective action: The order requires that all riparian setbacks for associated facilities be met. Set the hoop houses back to observe the 100-foot riparian setback from the Class II watercourse. Interim best management practices (BMP)s should be employed until County approval to relocate facilities is granted. Install a straw wattle perimeter on the stream-side faces of the hoop houses.

At **Legacy Cultivation Area #1**, a small Class III watercourse passes alongside a retired garden. Soil in smart pots is heavily cover cropped, but remains within the 50-foot riparian buffer zone.

Suggested corrective action: The order requires that all riparian setbacks for associated facilities be met. Remove the soil and any remaining cultivation related equipment or materials from "Legacy Cultivation Area #1". Seed and mulch any bare soil exposed after removing grow-pots.

At **Legacy Cultivation Area #3**, a small Class III watercourse passes alongside a retired garden. Soil in smart pots is heavily cover cropped, but remains within the 50-foot riparian buffer zone.

Suggested corrective action: The order requires that all riparian setbacks for associated facilities be met. Remove the soil and any remaining cultivation related equipment or materials from "Legacy Cultivation Area #3". Seed and mulch any bare soil exposed after removing grow-pots.

Standard Condition #4. Spoils management

There are no existing issues related to spoils management. All soil and growing medium on the project site are currently in-use or were observed to be cover cropped within raised beds or pots. Any potting soil or growing medium not to be used for successive cultivation will be stored and disposed of appropriately, including tarping and or seeding and mulching. All spoils must be placed in a location that poses no threat of delivery to any surface waters, nor any threat of leachate to groundwater. Work performed on corrective measures will be done following the appropriate construction Best Management Practices necessary to prevent adverse impacts to the watershed.

Standard Condition #5. Water storage and use

Currently, water is diverted year-round for domestic and irrigation purposes on the project site. Water diversion involves the take of surface waters from three (3) points of diversion (POD) on the Project Site. Each point of diversion has been registered with the California State Division of Water rights, (see attached ISDUs) and has been listed in the notification for a Lake and Streambed Alteration Agreement (LSAA) with the California Department of Fish and Wildlife (CDFW). Each point of diversion consists of a screened inlet connected to a flexible polyethylene pipe. All diverted water is gravity fed downslope to storage tanks.

Water is stored off-stream, in rigid plastic storage tanks totaling 61,500 gallons. Legacy activities on the Project Site have left 4 ponds on the landscape. These ponds are not used as part of operations on the Project Site. Corrective actions to address any potential safety and water quality concerns have been

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addressed in the LSAA. These ponds will be addressed and brought into compliance following implementation of measures covered in Appendix B: LSA Notification Narrative Section 3, attached. OE staff was not onsite at the time of irrigation, however discussions with the landowner and onsite operators indicate that water is applied sparingly. Observed water conservation methods include the use of water holding soil amendments, incorporating / mixing native ground material with imported soil and amendments, planting in raised beds, the use of controlled hand watering, and the use of timed and volume limited drip emitter irrigation. No signs of irrigation runoff were noted, indicating that water is applied at agronomic rates specific to the localized conditions on the Project Site.

A water budget should be developed to ensure that adequate storage is made available to prevent diversion of surface waters during forbearance periods. This will be covered in a future Water Management Plan.

Standard Condition #6. Irrigation runoff

No evidence of irrigation runoff was observed at the Project Site. Drip irrigation and other management strategies currently employed are effective in controlling irrigation runoff. Additional protection will be gained by getting a further setback of cultivation to riparian areas after implementation of corrective actions related to Riparian and wetland protection, above.

Standard Condition #7. Fertilizers and soil amendments

All fertilizers and soil amendments are stored within a roofed, framed wooden building, and pose no threat of delivery to surface waters. Discussions with the operators of the site indicate that all packaging instructions are being followed. Bags of potting soil (slated to be used) were observed at various points in some of the cultivation areas. As per the Order, soils and amendments shall be stored under cover and in a location that poses no threat of delivery to surface waters, or leachate of residual nutrients into groundwater.

Standard Condition #8. Pesticides and herbicides

The use of pesticide and herbicide products shall be consistent with the California Code of Regulations, title 3, section 6147 and applied according to product labeling. No herbicides or pesticides were observed onsite.

Standard Condition #9. Petroleum products and other chemicals

All petroleum products and liquid chemicals shall be stored in secondary containers that are sufficiently impervious and compatible with the substance being stored to prevent discharge or seepage to receiving waters (adequate containment). The enrollee is storing petroleum products in a roofed and framed shop storage building. Adjacent to the garage portion of the framed shop building, a generator shed complete with a poured slab exists. The operators of this site now intend to use this area for storage of petroleum products. The slab surface lacks a containment berm and is located approximately 380-feet from the nearest surface waters.

Petroleum products observed lacking adequate secondary containment and or cover as per the Order are as follows:

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At **Gas Powered Pump# 1**, located adjacent to the tank farm at CA #1, a gasoline powered water pump was observed on native ground lacking cover within 50-feet of an emergent Class III watercourse. No gas cans were observed adjacent to the pump.

Suggested corrective action: Remove the pump to observe the 50-foot riparian setback from the Class III watercourse. Provide adequate secondary containment and cover.

At **Gas Powered Pump# 2**, located along "Access Road SW" between CA #2 and the framed shop storage building, a gasoline powered water pump was observed on native ground lacking. No gas cans were observed adjacent to the pump.

Suggested corrective action: Provide adequate secondary containment and cover.

At **Generator #1**, located adjacent to the wood framed shop storage building, a small (3 kW) gasoline powered generator was observed on wooden box under cover of a framed and shingled roof. No gas cans or motor oil containers were observed adjacent to the generator.

Suggested corrective action: Provide adequate secondary containment for the 3 kW generator.

Standard Condition #10. Cultivation Related Waste

Vegetation matter such as root balls and large branches were observed being loaded into a trailer to be taken to a licensed waste management facility off property. At one location, a pile of disposed vegetated matter was observed alongside the road, uncovered and within the riparian setbacks of an at-origin Class III watercourse. In general, the Project Site is largely free from cultivation related wastes. Tarps and poles located within the cultivation areas appear to be in use for current operations. Root balls were observed from a recent harvest stored wrapped in a tarp, ready for loading into the trailer. Spent soil is reportedly being reused and amended in garden pots, in ground rows, and in raised beds. Any excess soil shall be properly stored as needed. Cultivation wastes may be chipped, composted, and used to re-amend soil if desired. Ensure that compost piles are sited with sufficient distance to meet the required riparian setbacks of the Order.

At **Cultivation Waste #1**, located Legacy Cultivation Area #1, approximately 1-yd³ of legacy waste plant material was observed on native ground within the riparian setback of an at-origin Class III watercourse. The materials lacked cover, but did not appear to represent a threat of delivery due to the thick vegetated buffer adjacent to the at-origin watercourse.

Suggested corrective action: Remove the legacy plant materials (wastes) and dispose of at a licensed waste-management facility or remove to a compost / destruction site that is outside of the required riparian buffer.

Standard Condition #11. Refuse and human waste

Legacy ranching and cultivation activities on the project site have been mostly cleaned and removed. Minor trash exists in sparse locations but was not observed to be a threat to water quality. Discussions with onsite workers indicate that steps are being taken to remove trash and clean refuse actively. Legacy cultivation sites consist of construction materials including lumber and steel pipes. Refuse did not appear to be a threat to water quality.

At “**Septic System**”. a septic system for disposal of human waste is installed at the wood framed shop building. The permit status of the septic system is unknown.

Suggested corrective action: The Order requires a permitted onsite wastewater treatment system. Contact Humboldt County Department of Environmental Health (DEH) to determine if the septic system was permitted. If not, the system will require inspection and percolation testing for retroactive permitting with DEH. If the existing system cannot be retroactively permitted, a new system must be designed and installed to handle the maximum expected traffic related to operations on the Project Site.

Standard Condition #12. Remediation / Cleanup / Restoration

All needed corrective actions required to bring the Project Site into compliance with the Order have been addressed, with corrective/remedial actions outlined in Table. 1, above. Corrective actions required to bring the stream crossings on the Project Site into compliance with the Order are given in Appendix B (Notification for Lake and Streambed Alteration Agreement submitted to CDFW) as attached.



Appendix A: WRPP Map



Appendix B: LSA Notification Packet



Appendix C: County Site Plan

Patterson WRPP

Parcel Overview Map
APN: 214-233-002

Legend

- Label
- Parcel Boundary and Inset map

APN: 214-233-002

Map #3

Map #1

Map #2

Map #4

Google Earth

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2000 ft

Patterson WRPP

Map #1, detail view.
APN: 214-233-002

Legend

- Access Roads
- Cultivation areas (current and legacy)
- Map Features
- Storage Shed
- Watercourses and Drainage

POD #1

Water storage tanks (2 x 2,500 gallons)

Water storage tanks (5 x 5,000 gallons)

Gasoline Powered water pump #1
CA #1: 11,500 sq. ft. hoop houses & 1,310 sq. ft outdoor

Storage Shed

STX-8 CULVERT

<P> Type-4 Rolling dip Cultivation Wastes #1

Legacy CA #1

IBD, POD Access Road #2

STX-10

<P> Type-3 Rolling dip

Road Gully

<P> Straw wattles

<P> Straw wattles

<P> Waterbar

<P> Waterbar

<P> Straw wattles

Legacy CA #2

Legacy CA (not in use) 3,528 sq ft

<P> Type-1 Rolling dip

Google Earth

STX-7 CULVERT

500 ft



Patterson WRPP

Map #2, detail view.
APN: 214-233-002

Legend

- Access Road
- Watercourse
- Cultivation Areas (current and legacy)
- Map Feature

CA #2: 5,350 sq. ft. hoop houses

Gasoline powered water pump #2

3kW generator

Shop Storage Building

Septic System

<P> Type-1 Rolling dip

CA #3: 4,800 sq. ft. (hoop houses)

CA #3: 2,788 sq. ft. (outdoor)

<P> Outslope road, remove berm

Legacy CA #3
STX-9

<P> IR/D

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Map #3, detail view.
APN: 214-233-002

Legend

- Access Road
- Cultivation Area (legacy and current)
- Map Feature
- Watercourse



Patterson WRP

Map #4, detail view.
APN: 214-233-002

Legend

- Access Road
- Cultivation Area (legacy and current)
- Map Feature
- Watercourse

