



Water Resource Protection Plan
for APNs: 208-341-021, 208-341-023
and 208-071-032
Humboldt County

Submitted to:

*California Regional Water Quality Control Board -
North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403*

Prepared by:

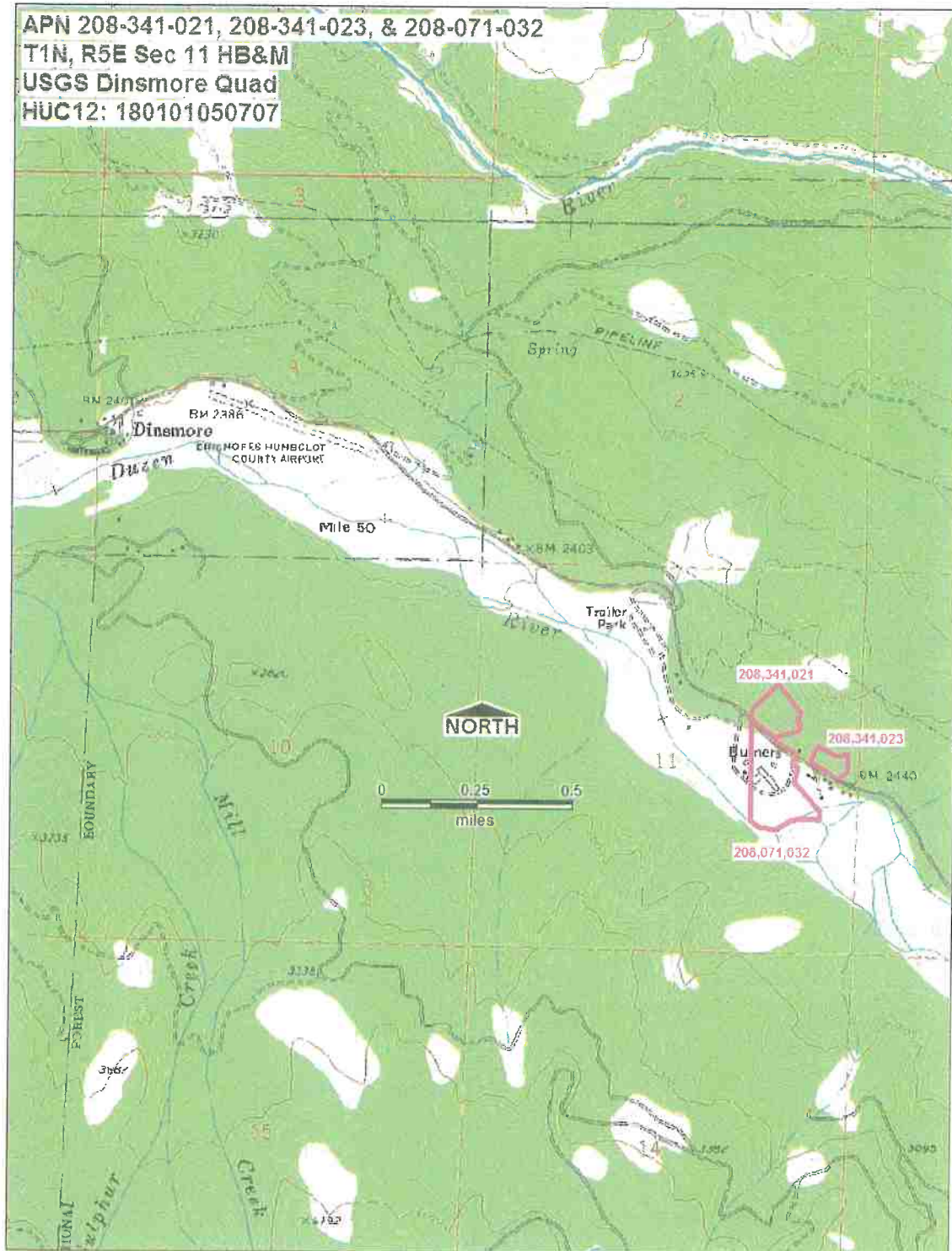
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Natural Resources Management Corporation
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Eureka, CA 95501*

February 1 2017

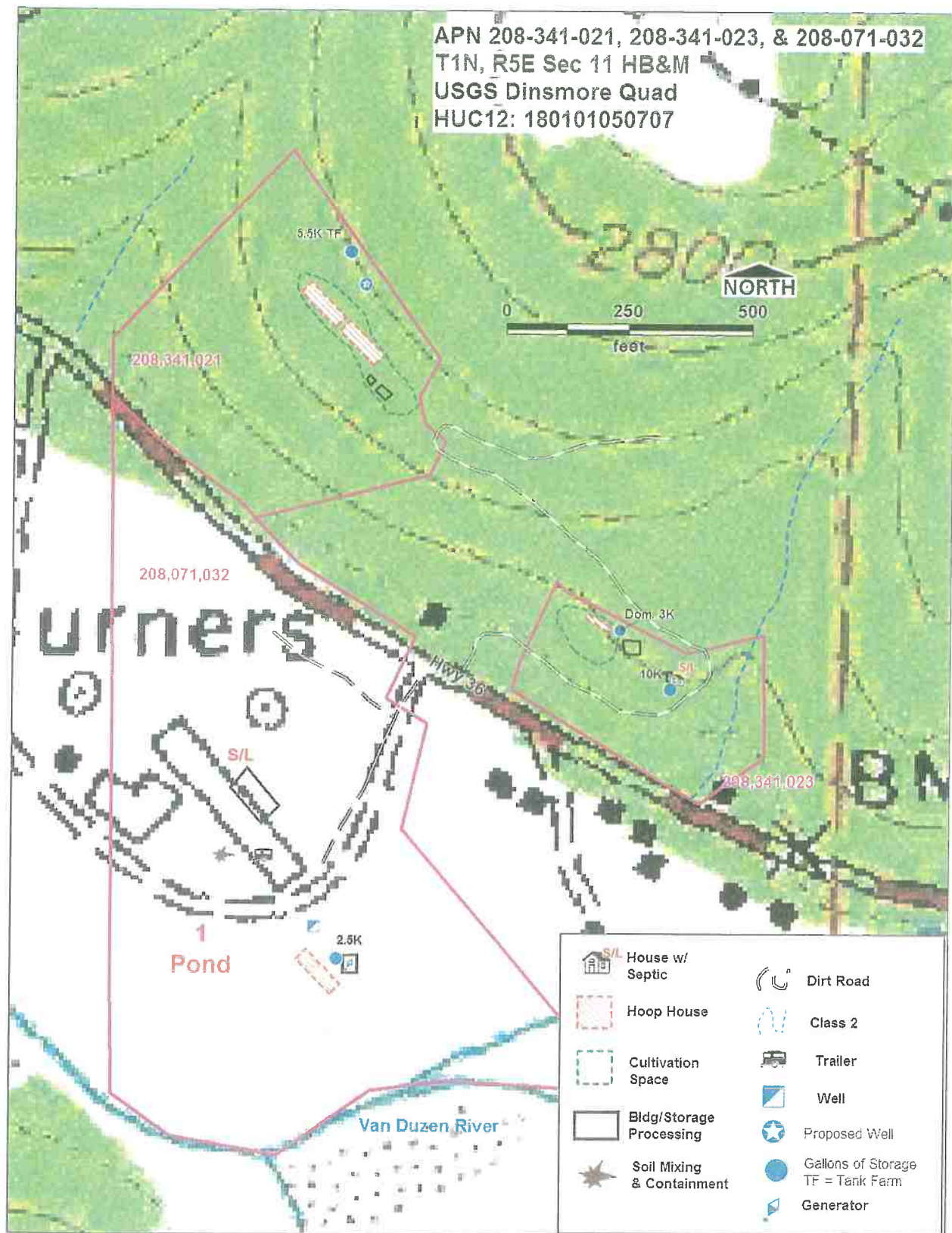


Figure 1- Site Maps for Property

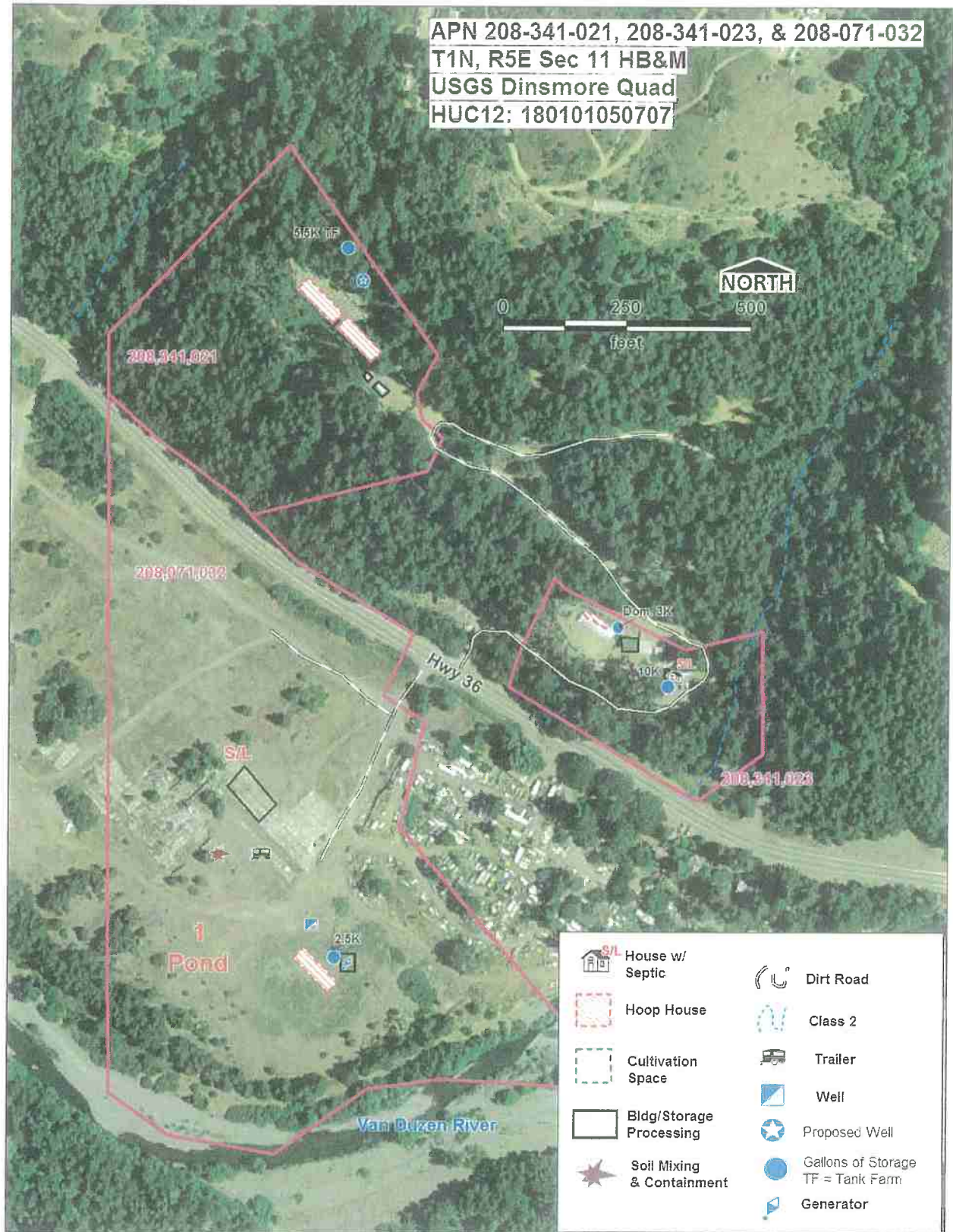
APN 208-341-021, 208-341-023, & 208-071-032
T1N, R5E Sec 11 HB&M
USGS Dinsmore Quad
HUC12: 180101050707



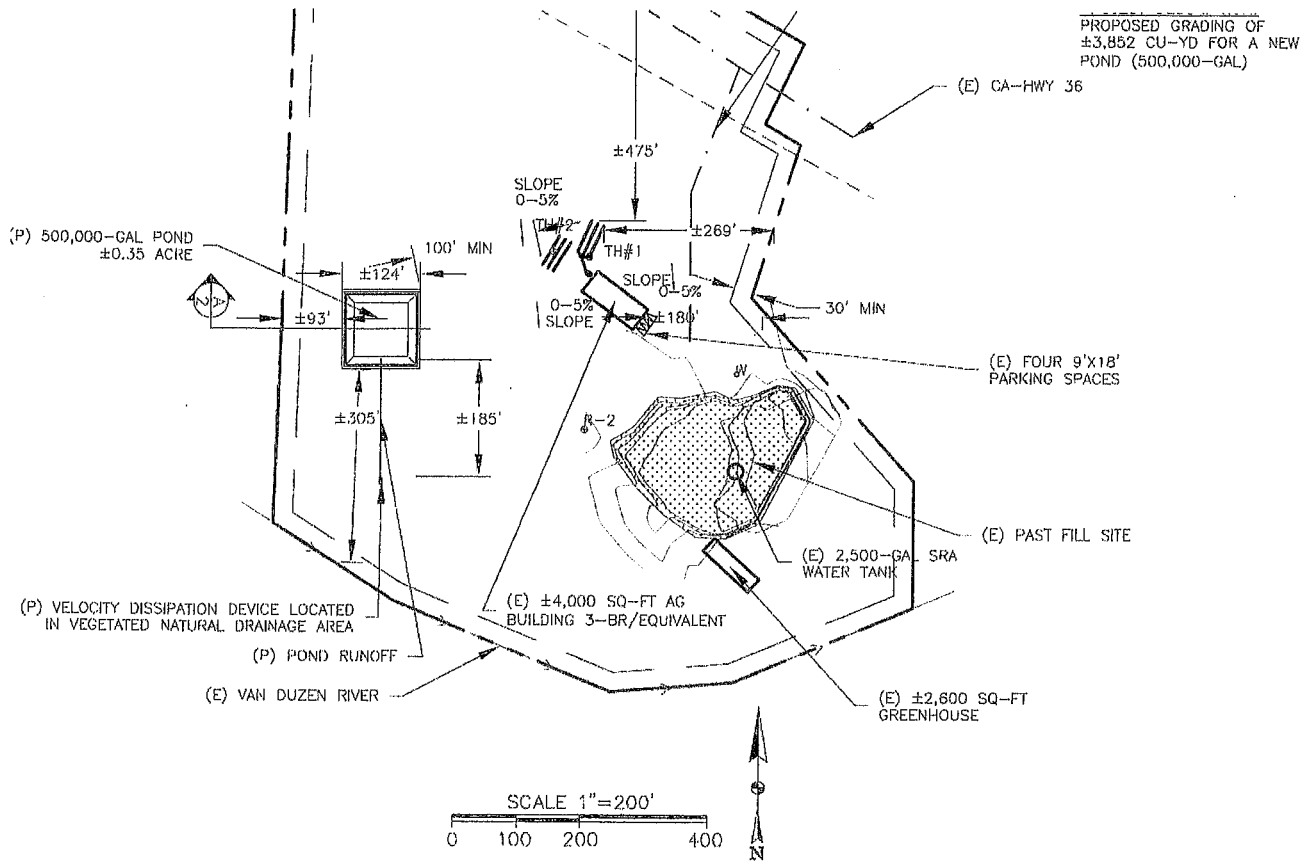
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Portion of Engineering Map for a rainwater pond on APN 208-071-032



AM RAIN

SCALE:
DRAWN:
CHKD:
DATE: 01

TRAVIS BOWEN
AP # 208-071-032

JOB #
16

Water Resource Protection Plan

This document serves as the water resource protection plan for the owner and operator for the three parcels of 208-341-021, 208-341-023 and 208-071-032 pursuant to Order No. R1-2015-0023. On August 13, 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) adopted a 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. 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.

Site Assessment

The three parcels all have portions adjacent to Highway 36, approximately four miles east of Dinsmore. The parcel on the south side of Hwy 36 is a terrace flat to the Van Duzen River. This terrace parcel has had significant industrial impacts from timberland teepee burners to being CalTrans spoils disposal site. The other two parcels are on the north side of Hwy 36 and are situated at the break in slope, going up the hillside, in generally forested terrain. All the cultivation operations on the parcels are situated approximately 200 feet or more from the nearest drainage, including the Van Duzen River.

The primary water source on the terrace parcel is a well that is hydrologically linked to the Van Duzen River. As such, a pond has been designed to provide water storage during the non-diversion period from May 15th to October 31st. Additionally, the landowner is hoping to drill a groundwater well on the uppermost parcel. There are approximately 21,000 gallons of hard storage water tanks on site.

The landowner is planning to grow on all three parcels, as the County of Humboldt is not currently allowing consolidation of the grow areas in this case.

Current Conditions – Please refer to Figure 1 site maps

Watercourses

APN 208-071-032 is situated on a terrace above the Van Duzen River. APN 208-341-023 is on the hillside above Highway 36 and has a class 2 drainage towards the eastern edge of the parcel, where the main access road, at approximately 120 feet away, is the nearest disturbance in the parcel to that draw. The third APN, 208-341-021, is on the broadside of the hillslope and has no defined watercourse drainages on it.

Watercourse Crossings

There were no watercourse crossings on any of the parcels.

Roads

Highway 36 is the primary public road that accesses the parcels. The terrace flat parcel has no more than three percent grades and can be driven across most everywhere. The footprint of established roads on this flat are compacted and benign.

The access road to the parcels above Highway 36 is a private road, not only for the two parcels in this enrollment, but to many other private land ownerships. Only a small portion (~600 feet) of this access road is contained

within APN 208-341-023. There are no drainage crossings nor erosion problems associated with this leg of the road.

Flats

The landing/clearings on the upper parcels have all been graded for slopes of less than five percent. Natural slopes tend to be more along the lines of 30%, with the clearings having a general cutbank depth of approximately 8 to 12 elevational feet. The fillslopes were overall stable, and with minimal potential sediment delivery due to the remoteness of any drainages downslope.

General Property Conditions

All of the three parcels meet the standard conditions for the cultivation of cannabis, with the exception of water storage. However, the plans for pond construction for 500,000 gallons of water storage, scheduling for another well, are being implemented by the landowner to address that issue. There is a diesel generator on the river terrace Parcel that was in need of containment during the first site visit. A shed was built for it during the summer and the generator is now properly contained. There are no fuel tanks on site.

List of Chemicals Stored Onsite & Information about Use

Landowner uses commercial nutrients including Big Bang Bloom and Maxsea veg. Plants are fertilized between 1 and 2 times a week during the growing season. Nutrients are stored in the storage processing building, or the shop adjacent to the main residence. There is also a storage shed on the upper most flat. No pesticides, herbicides, or fungicides are currently being used.

A combination of indoor cultivation is being planned for on the terrace flat; as well as outdoor/light deprivation on the all the parcels.

For future compliance, a **log of nutrient use** stating type of nutrient/amendments being added with stated NPK ratios, **for each operation/parcel**, will be provided to the client to track and monitor the amounts used and applied over the growing season. This monitoring log will be kept onsite for future reference and documentation of nutrient applications.

Water Use

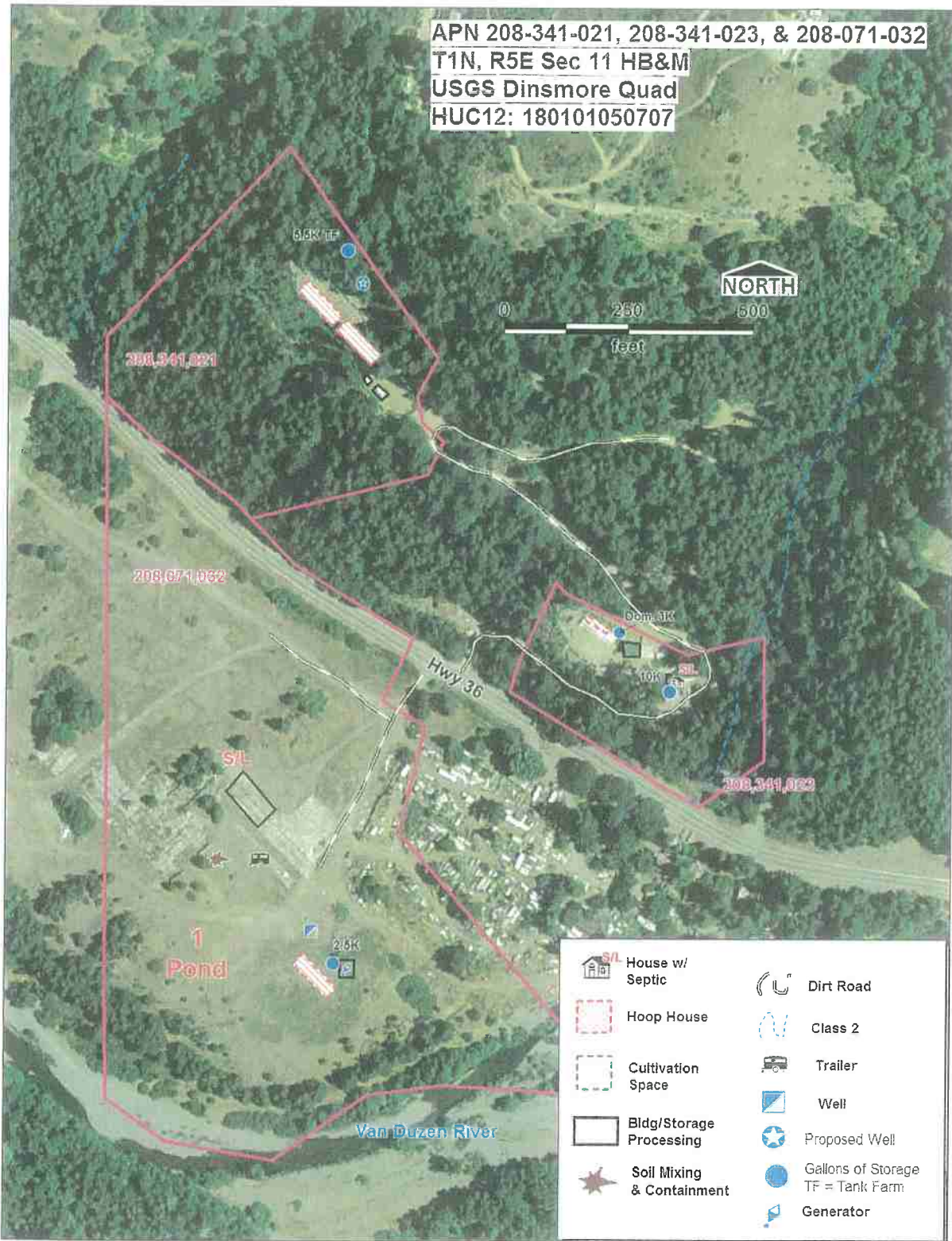
For the nearly 17,000 square feet cultivation area, the watering as reported in the Monitoring Reporting Program has a total of **46,800 gallons** from May to October. The monthly gallon totals (starting for May) are as follows: 5,200; 10,400; 10,400; 10,400; 5,200 and 5,200. The 2016 water storage capacity on the parcel was 21,000 gallons. The additional water needs for irrigation in 2016, was hauled in.

The landowner operations are in transition, including plans for an indoor operation on the river terrace property in addition to the outdoor cultivation. There are plans in motion to address the water needs of cultivation over the non-diversion period from May 15th to October 31st including a 500,000 rainwater/diversion season top-off pond, and drilling for a potential groundwater well.

Water meters will also be required to quantify the water into storage from the diversion.

Figure 2. Corrective actions map

APN 208-341-021, 208-341-023, & 208-071-032
 T1N, R5E Sec 11 HB&M
 USGS Dinsmore Quad
 HUC12: 180101050707



Corrective Actions – Please refer to Figure 2 site map

Table 1. Features that need improvement. See Appendix B for Associated Standard Conditions (A.S.C.)

Unique Map Points	Map Point Descriptions	A.S.C	Temporary BMP	Permanent BMP	Priority for Action	Time Schedule for completion of Permanent BMP	Completion Date
1	Additional Water Storage	5.c, f	N/A	500,000 gal. pond construction	2	May 15 th 2017	

Priority time frames: 1 is high priority with treatment being planned to occur immediately; 2 is a high priority for treatment to occur prior to the start of the non-diversion period; 3 is a moderate priority for treatment to occur within a year, or prior to the winter of the second season of operations; 4 is a lower priority with treatment being planned within the shortest time possible, but no later than the expiration of this Order (five years).

1) Water storage needs are being address with engineered plans for a rainwater/diversion season 500,000 gallon pond on parcel 208-071-032. Additionally, drilling a well is being scheduled in 2017 on parcel 208-341-021 in hopes of striking groundwater.

Water meters will also be installed to determine timing and quantity of diversion water into storage at each operation. A photo of the meter reading will be taken on the 1st of each month to document water use.

Monitoring element to ensure that BMPs are being implemented and to evaluate their effectiveness

Corrective Action Monitoring

Item 1 will be monitored for compliance following competition or May 15th 2017.

Annual Monitoring

Fall / Winter Monitoring

Monitoring for this site will follow the revised Appendix C from the Order No. 2015-0023. Annual monitoring will be done each year. At a minimum it will be done prior to October 15th, by December 15th, and immediately following a precipitation event with 3 inches of accumulation in 24hr period.

Each monitoring session the following items will be inspected:

1. Pumps, nutrients, fertilizers, and any petroleum products are stored in a dry, enclosed location.
2. Soil and any spoils are properly contained and covered to prevent nutrient leaching.

This monitoring may be done by the landowner/registrant. Photos will be taken at each monitoring point. These photos along with the notes taken during the monitoring will be kept on-site. The monitoring forms and photos will be submitted by the landowner/registrant to NRM or the RWQCB.

Growing Season Monitoring

During the growing season the landowner will monitor the following items at least monthly:

- Tanks and water lines to ensure there are no leaks
- Cultivation area during or immediately after watering to ensure irrigation water is soaking into the surface (not running off)

- Cultivation area to ensure that all fertilizers are properly contained in the storage shed, that all trash and debris is properly contained and secured.

The landowner/registrant will keep a record of the dates this monitoring was completed, if any corrective action was necessary, and what actions were taken. A copy will also be kept on file at NRM.

Annual monitoring reports will be submitted annually by March 31st of each year to the Water Board. The report will include the reporting from in Appendix C.

Water Resource Protection Plan

Name of Legally Responsible Person (LRP) _____

Title for LRP (owner, lease, operator, etc.) _____

Signature: _____ Date: _____

WRPP prepared by: **Natural Resources Management Corp. (NRM)**

Date: _____

NRM Signature: _____

Appendix A. Photo Documentation

Lowest (terrace) parcel – Nov. 14, 2016

Building (future indoor); trailer; and soil mixing area beyond to the left



Lowest (terrace) parcel – Soil mixing, and containment area



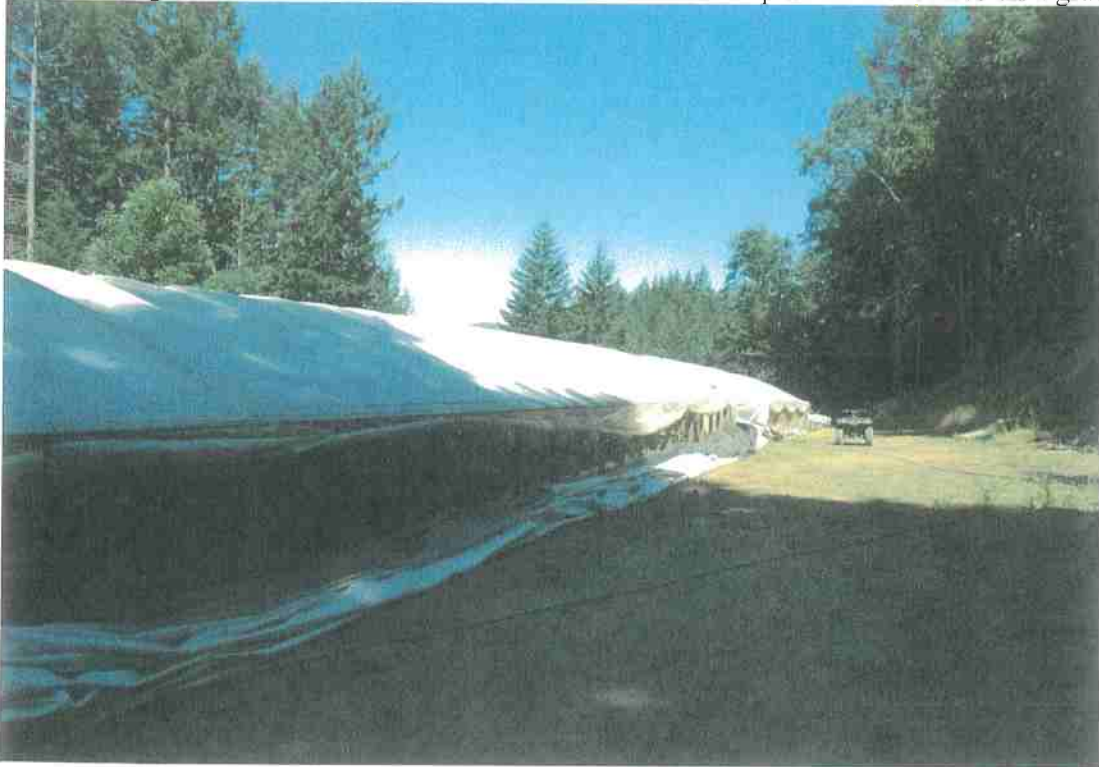
Lowest (terrace) parcel 6/28/16 – Hoop house, well location, generator (in new shed Nov. 2016)



Completed generator shed 11/14/16



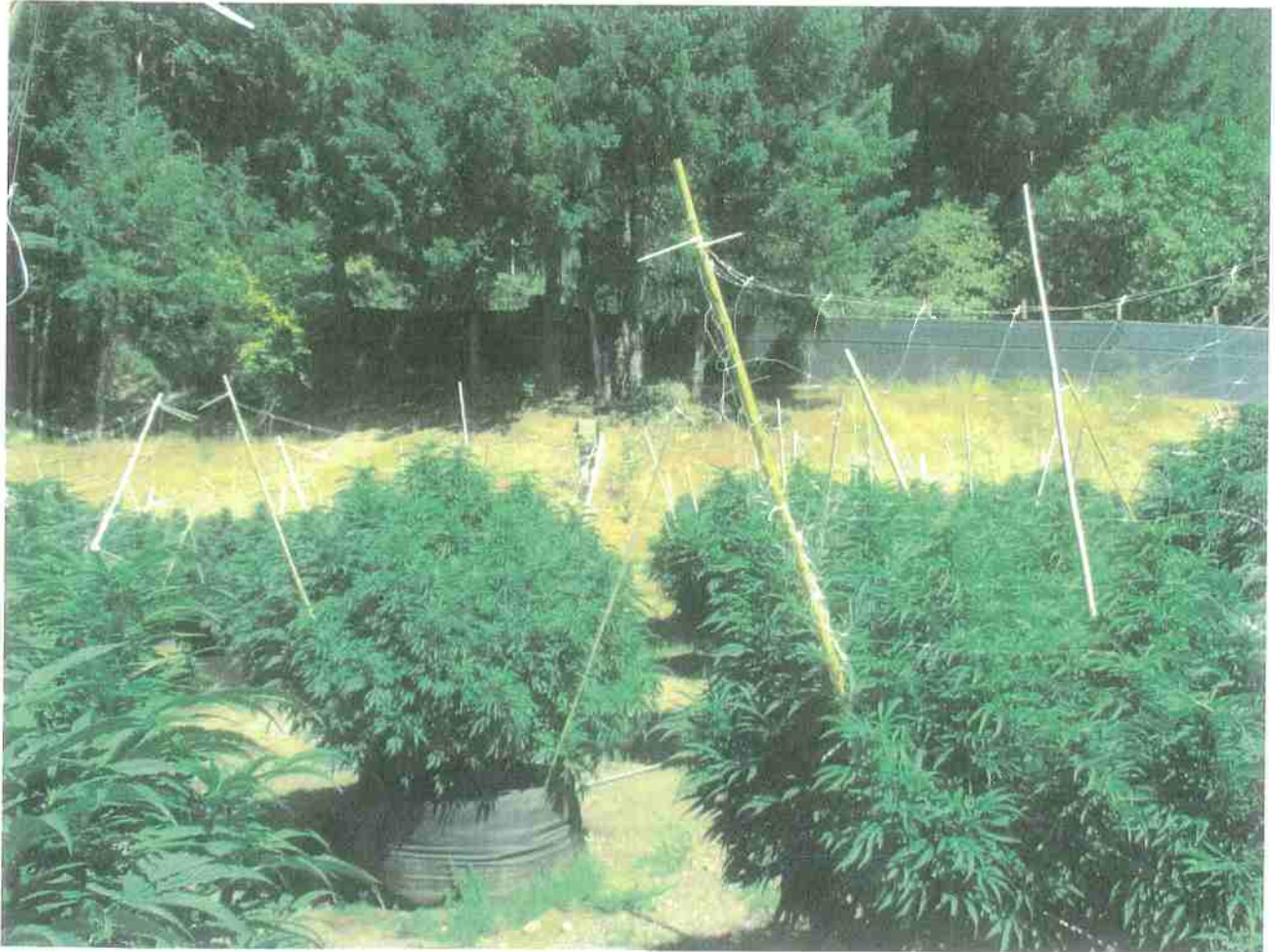
Uppermost grow area 6/28/16. APN 208-341-021. Two hoop house structures on a graded flat.



Upper Hard Tanks (2500 & 3000 gallons) on APN 208-341-021. Also general location of proposed well



Central location (house site – APN 208-341-023) with outdoor grow.



Appendix B. Associated Standard Conditions

I. As described in the Order, dischargers will fall within one of three tiers.

Discharger shall be in the tier that covers the most impactful part of the operations (i.e., different sections of a property cannot be divided among the tiers). **All dischargers**, regardless of Tier are subject to the standard conditions in section **I.A**, MRP section **I.D.**, and General Terms, Provisions and Prohibitions. **Tier 2 Dischargers** are also subject to section **I.B. (a Water Resources Protection Plan)**, and Tier 3 Dischargers are subject to sections **I.A.**, **I.B.**(if cultivating cannabis), and **I.C.**

A. Standard Conditions, Applicable to All Dischargers

1. Site maintenance, erosion control and drainage features

- a. Roads shall be maintained as appropriate (with adequate surfacing and drainage features) to avoid developing surface ruts, gullies, or surface erosion that results in sediment delivery to surface waters.
- b. Roads, driveways, trails, and other defined corridors for foot or vehicle traffic of any kind shall have adequate ditch relief drains or rolling dips and/or other measures to prevent or minimize erosion along the flow paths and at their respective outlets.
- c. Roads and other features shall be maintained so that surface runoff drains away from potentially unstable slopes or earthen fills. Where road runoff cannot be drained away from an unstable feature, an engineered structure or system shall be installed to ensure that surface flows will not cause slope failure.
- d. Roads, clearings, fill prisms, and terraced areas (cleared/developed areas with the potential for sediment erosion and transport) shall be maintained so that they are hydrologically disconnected, as feasible, from surface waters, including wetlands, ephemeral, intermittent and perennial streams. Connected roads are road segments that deliver road surface runoff, via the ditch or road surface, to a stream crossing or to a connected drain that occurs within the high delivery potential portion of the active road network. A connected drain is defined as any cross-drain culvert, water bar, rolling dip, or ditch-out that appears to deliver runoff to a defined channel. A drain is considered connected if there is evidence of surface flow connection from the road to a defined channel or if the outlet has eroded a channel that extends from the road to a defined channel (http://www.forestsandfish.com/documents/Road_Mgmt_Survey.pdf).
- e. Ditch relief drains, rolling dip outlets, and road pad or terrace surfaces shall be maintained to promote infiltration/dispersal of outflows and have no apparent erosion or evidence of soil transport to receiving waters.
- f. Stockpiled construction materials are stored in a location and manner so as to prevent their transport to receiving waters.

2. Stream Crossing Maintenance

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

- b. Culverts and stream crossings shall be designed and maintained to address debris associated with the expected 100-year peak streamflow.
- c. Culverts and stream crossings shall allow passage of all life stages of fish on fish-bearing or restorable streams, and allow passage of aquatic organisms on perennial or intermittent streams.
- d. Stream crossings shall be maintained so as to prevent or minimize erosion from exposed surfaces adjacent to, and in the channel and on the banks.
- e. Culverts shall align with the stream grade and natural stream channel at the inlet and outlet where feasible. At a minimum, the culvert shall be aligned at the inlet. If infeasible to align the culvert outlet with the stream grade or channel, outlet armoring or equivalently effective means may be applied.
- f. Stream crossings shall be maintained so as to prevent stream diversion in the event that the culvert/crossing is plugged, and critical dips shall be employed with all crossing installations where feasible. If infeasible to install a critical dip, an alternative solution may be chosen.

3. Riparian and Wetland Protection and Management

- a. For Tier 1 Dischargers, cultivation areas or associated facilities shall not be located within 200 feet of surface waters. While 200 foot buffers are preferred for Tier 2 sites, at minimum, cultivation areas and associated facilities shall not be located or occur within 100 feet of any Class I or II watercourse or within 50 feet of any Class III watercourse or wetlands. The Regional Water Board or its Executive Officer may apply additional or alternative conditions on enrollment, including site-specific riparian buffers and other BMPs beyond those identified in water resource protection plans to ensure water quality protection. Alternative site-specific riparian buffers that are equally protective of water quality may be necessary to accommodate existing permanent structures or other types of structures that cannot be relocated.
- b. Buffers shall be maintained at natural slope with native vegetation.
- c. Buffers shall be of sufficient width to filter wastes from runoff discharging from production lands and associated facilities to all wetlands, streams, drainage ditches, or other conveyances.
- d. Riparian and wetland areas shall be protected in a manner that maintains their essential functions, including temperature and microclimate control, filtration of sediment and other pollutants, nutrient cycling, woody debris recruitment, groundwater recharge, streambank stabilization, and flood peak attenuation and flood water storage.

4. Spoils Management

- a. Spoils shall not be stored or placed in or where they can enter any surface water. Spoils are waste earthen or organic materials generated through grading or excavation, or waste plant growth media or soil amendments. Spoils include but are not limited to soils, slash, bark, sawdust, potting soils, rock, and fertilizers.
- b. Spoils shall be adequately contained or stabilized to prevent sediment delivery to surface waters.

- c. Spoils generated through development or maintenance of roads, driveways, earthen fill pads, or other cleared or filled areas shall not be sidecast in any location where they can enter or be transported to surface waters.

5. Water Storage and Use

- a. Size and scope of an operation shall be such that the amount of water used shall not adversely impact water quality and/or beneficial uses, including and in consideration with other water use by operations, instream flow requirements and/or needs in the watershed, defined at the scale of a HUC-12 watershed or at a smaller hydrologic watershed as determined necessary by the Regional Water Board Executive Officer.
- b. Water conservation measures shall be implemented. Examples include use of rainwater catchment systems or watering plants with a drip irrigation system rather than with a hose or sprinkler system.
- c. For Tier 2 Dischargers, if possible, develop off-stream storage facilities to minimize surface water diversion during low flow periods.
- d. Water is applied using no more than agronomic rates. "Agronomic rates" is defined as the rates of fertilizer and irrigation water that a plant needs to enhance soil productivity and provide the crop or forage growth with needed nutrients for optimum health and growth, without having any excess water or nutrient percolate beyond the root zone.
- e. Diversion and/or storage of water from a stream should be conducted pursuant to a valid water right and in compliance with reporting requirements under Water Code section 5101.
- f. Water storage features, such as ponds, tanks, and other vessels shall be selected, sited, designed, and maintained so as to insure integrity and to prevent release into waters of the state in the event of a containment failure.

6. Irrigation Runoff

Implementing water conservation measures, irrigating at agronomic rates, applying fertilizers at agronomic rates and applying chemicals according to the label specifications, and maintaining stable soil and growth media should serve to minimize the amount of runoff and the concentration of chemicals in that water.

In the event that irrigation runoff occurs, measures shall be in place to treat/control/contain the runoff to minimize the pollutant loads in the discharge. Irrigation runoff shall be managed so that any entrained constituents, such as fertilizers, fine sediment and suspended organic particles, and other oxygen consuming materials are not discharged to nearby watercourses. Management practices include, but are not limited to, modifications to irrigation systems that reuse tailwater by constructing offstream retention basins, and active (pumping) and or passive (gravity) tailwater recapture/redistribution systems. Care shall be taken to ensure that irrigation tailwater is not discharged towards or impounded over unstable features or landslides.

7. Fertilizers and Soil Amendments

- a. Fertilizers, potting soils, compost, and other soils and soil amendments shall be stored in locations and in a manner in which they cannot enter or be transported into surface waters and such that nutrients or other pollutants cannot be leached into groundwater.
- b. Fertilizers and soil amendments shall be applied and used per packaging instructions and/or at proper agronomic rates (see footnote on previous page).
- c. Cultivation areas shall be maintained so as to prevent nutrients from leaving the site during the growing season and post-harvest.

8. Pesticides/Herbicides

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

9. Petroleum products and other chemicals

- a. Petroleum products and other liquid chemicals, including but not limited to diesel, biodiesel, gasoline, and oils shall be stored so as to prevent their spillage, discharge, or seepage into receiving waters. Storage tanks and containers must be of suitable material and construction to be compatible with the substance(s) stored and conditions of storage such as pressure and temperature.
- b. Above ground storage tanks and containers shall be provided with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation.
- c. Dischargers shall ensure that diked areas are sufficiently impervious to contain discharged chemicals.
- d. Discharger(s) shall implement spill prevention, control, and countermeasures (SPCC) and have appropriate cleanup materials available onsite.
- e. Underground storage tanks 110 gallons and larger shall be registered with the appropriate County Health Department and comply with State and local requirements for leak detection, spill overflow, corrosion protection, and insurance coverage.

10. Cultivation-related wastes

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

11. Refuse and human waste

- a. Disposal of domestic sewage shall meet applicable County health standards, local agency management plans and ordinances, and/or the Regional Water Board's Onsite Wastewater Treatment System (OWTS) policy, and shall not represent a threat to surface water or groundwater.
- b. Refuse and garbage shall be stored in a location and manner that prevents its discharge to receiving waters and prevents any leachate or contact water from entering or percolating to receiving waters.
- c. Garbage and refuse shall be disposed of at an appropriate waste disposal location.

12. Remediation/Cleanup/Restoration

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