

**ATTACHMENT 1A**

**Cultivation & Operations Plan**

# Cultivation and Operations Plan

Revised 11/13/2018



## Ecoyard, Inc.

## APN 217-381-008

## APPS # 12452

Humboldt County Commercial Medical Cannabis Permit Application

Section 4: Cultivation and Operations Plan

**RAIN & ZEPP**  
A PROFESSIONAL LAW CORPORATION

517 3rd St Ste 30 Eureka, CA 95501 Tel: (707) 442-3034 Fax: (707) 445-5925  
Email: [tracyrain@rainzepplaw.com](mailto:tracyrain@rainzepplaw.com) [beornzepp@rainzepplaw.com](mailto:beornzepp@rainzepplaw.com)

### **Description of Water Source, Storage, Irrigation Plan, and Project Water Usage**

Water source is a permitted well on the parcel.

Water storage includes one 50,000 gallon corrugated metal tank, a 200,000 gallon pond, nine 5,000 gallon hard poly tanks, four 2,500 gallon hard poly tanks, three 1,500 gallon hard poly tanks, three 1,100 gallon hard poly tanks, and two 250 gallon hard poly tanks. Total storage equals 313,300 gallons.

Projected water use for 2019 for the parcel leased by Ecoyard, Inc. is as follows:

<u>Month</u>	<u>Monthly Total</u>
February	16,400 gal
March	21,400
April	30,000
May	36,750
June	41,400
July	50,200
August	52,500
September	40,200
October	22,600
November	17,000
December	6,200

Total water usage for commercial cultivation in 2019 will be approximately 314,310 gallons. Though a permitted well is the water source, currently there is sufficient storage on site to sustain the operation for the full forbearance period.

### **Method of Irrigation**

A combination of drip irrigation and hand watering will be implemented. Generally, plants will be watered with drip irrigation to conserve water. Hand watering will be implemented when supplemental watering is needed. Liquid feeding will be done primarily through the drip system with additional hand watering and feeding performed as needed.

### **Description of Site Drainage**

Site has minimal new grading. Cultivation is done in Smart Pots or in raised beds with ground cloth for gopher and weed control. Site is on a hill; drainage measures include French drains, ditch relief culverts, and hydrologically disconnected sediment deposition retention areas.

### **Detail of Measures taken to Ensure Protection of the Watershed and Nearby Habitat**

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The only road has appropriate water bars which have been in place for at least 5 years. Said water bars release water to appropriate areas where potential suspended sediment can settle and be retained out of any water course.

Used cultivation soil is reclaimed: soil is kept in place with hay bale barriers and covered with green manure (a variety of legumes and clover). After the green manure has been dug back into the soil, it is re-used in cultivation. Before the time of planting (see table of Schedule of Activities) the soil is amended with Azymite to provide a naturally pest free and micro-nutrient rich soil medium.

All areas with structures are appropriately graded; otherwise the natural contours of the parcel have not been altered.

#### **Protocols for Proper Storage and Use of Fertilizers, Pesticides, and Other Regulated Products**

All chemicals used in cultivation are stored in secure storage shed (see Site Plan). Proposed chemicals include Safer Soap, Trifecta, Maxsea, Neem, Gnatrol and Nematodes (please see attached product safety and content information sheets). Ecoyard, Inc., also use a natural compost heap.

Diesel fuel is kept either in the diesel generator, which is housed in a shed. There is also a diesel fuel storage tank which is contained within a secondary metal containment tank. The capacity of the secondary metal containment tank is at least 110% of the capacity of the diesel fuel storage tank.

All reasonable measures are taken to ensure no leak may occur. A spill kit will be maintained on site.

#### **Description of Cultivation Activities**

The project is 30,563 square feet of existing outdoor cultivation and 4,700 square feet of existing mixed-light cultivation.

#### **International Dark Sky Association Standards**

Greenhouses shall be shielded such that little to no light escapes. Light from greenhouses shall not be visible from neighboring properties between sunset and sunrise. The project will comply with the Dark Sky Standards as required by the Humboldt County Medical Marijuana Land Use Ordinance.

#### **Employees**

During the bulk of the growing season (April-August) corporate officers will be on site and perform all cultivation activities. When additional staff is needed at peak season, until such time as employees are hired, an appropriate staffing agency shall be used to provide staff.

#### **Schedule of Activities During the Season**

For each mixed light cycle, plants are kept in vegetative growth for 3 – 20 days. The lighting is set at 20 hours on, 4 hours of dark and the nutrient is a high nitrogen mix.



For 12 – 16 weeks, plants convert to flower. Lighting is switched to 12 hours on, 12 hours dark and the nutrient is switched to a lower nitrogen / higher phosphorous mix.

Once the plants are ready for harvest, they are cut down, dried and cured in the on-site processing facility for up to 3 months. The used soil is reclaimed per discussion above (see Detail of Measures taken to Ensure Protection of the Watershed and Nearby Habitat).

The noise produced by the generator used in cannabis cultivation shall not be audible by humans from neighboring residences. The decibel level for generators at the property line shall be no more than 60 decibels. The generators are housed in a shed to help minimize noise and is a low noise Whisper Watt model.

All cultivation lighting shall be shielded such that little to no light shall escape. No light from the cultivation shall be visible from neighboring properties from sunset to sunrise.

**Table Describing Detailed Schedule of Activities During the Season**

<b>Month</b>	<b>Activities</b>
February	Begin cultivation activities by cutting starts from pre-existing mother stock. Transplant into pots as conditions require. At time of transplant lower fan leaves are removed to help prevent disease.
March	Continue developing plants by cutting more starts from the mother plants and transplanting to larger pots as plants require. Annual weather dependent, a first round of mixed light may be panted.
April	Continue developing plants by cutting more starts from the mother plants and transplanting to larger pots as plants require. If weather permitted an early mixed light crop, covers will begin to be drawn to manipulate the light cycle and trigger flower.
May	Begin full-term outdoor soil conditioning tasks. Mix the previously reclaimed soil with the green manure cover crop as discussed above and add to that, Azymite to provide micro nutrients and support a strong plant immune system there by providing both health and disease prevention. Have all full-term raised beds and smart pots ready for planting by mid to late May so as to be ready to plant out by June 7 <sup>th</sup> . Continue the mix light process if it was possible or begin preparation for mix light if the early crop was not possible due to weather condition.
June	Plant out full-term outdoor plants on or about June 7 <sup>th</sup> . Plants will be in a strong vegetative state. Structural support netting will be put in place to support the plants as they develop. A high nitrogen feeding solution will be applied. One-way Grow will be the nutrient solution for full-term plants at this time and will be applied at rates consistent with the manufacturer's suggested application rate.

	<p>If an early mix light crop was successful, harvest will take place and drying will begin in accord with the procedure described above.</p> <p>Assuming early mix light success, a second round of mix light plants will be planted and lights will be run to extend the vegetative life cycle of the plants.</p>
July	<p>Begin light deprivation when plants have developed sufficiently. Continue with high nitrogen liquid fertilizer applications to full-term outdoor plants and begin high phosphorus liquid fertilizer application as flowers begin to develop. Add top dressing soil conditioners as plant conditions indicate. Apply pest management techniques as needed in accord with the pest management plan.</p>
August	<p>Begin processing dry flowers in accord with processing protocol if first mix light crop was possible. Apply liquid fertilizer as conditions indicate. Use One-Way Grow on vegetative stage plants and use One-Way Bloom for any plants beginning to develop flowers. Apply foliar treatments of Dr. Zymes for disease control as conditions indicate unless substantially developed flowers exist. Remove lower fan leaves as conditions indicate.</p>
September	<p>Harvest cycle number two of light deprivation crop and dry in accord with drying protocol. Apply liquid fertilizer as conditions indicate. Continue preventative foliar applications unless substantially developed flowers exist. Continue feeding plants liquid fertilizer applications. At this time give all plants One-Way Bloom.</p>
October	<p>Finish processing any remaining mix light crop in accord with processing plan. Cease Feeding plants prior to harvest to allow sufficient time to flush nutrients from crop. Begin harvesting full term plants. Dry in accord with drying procedure discussed above. Begin processing while continuing to harvest as conditions and time permit.</p>
November	<p>Remove and compost any post-harvest remaining plant material. Begin planting cover crop for winter. Finish drying any remaining flowers. Begin processing full-term dry flowers in accord with processing plan.</p>
December	<p>Finish planting cover crop. Put away irrigation system for winter.</p>
January	<p>General property maintenance including proper waste disposal, road and site run off mitigation.</p>

\*Note: At all times when lights are run in the greenhouses, light shielding cover is implemented to prevent light escape and to comply with International Dark Sky Association Standards.

\*\* Irrigation is installed at the time of planning in each mix light and full term planting cycle.

**Number of Mixed Light Cultivation Cycles Proposed**

Proposed mixed light cultivation will be limited seasonally by weather conditions. Under any condition that will be less than 5 cycles per year and more than likely 1 or 2.

**Processing Plan**

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All drying and processing will be done in the metal drying shed depicted on the site plan. Until such time as employees can be established, all drying will be performed by corporate officers and additional staff will be procured at an appropriate staffing agency. At harvest, plants will be cut down and brought to the metal drying shed and processing will be conducted. Flowers will be hug dry and will be machine trimmed minimizing the labor intensive process of trimming.

In the future when employees are hired safety protocol will be an initial element of new hire training. Procedures for emergency will be prominently posted. MSDS sheets will be maintained in a binder and available for inspection by employees.

No substantial increase in traffic is anticipated, but the road is well maintained and capable of safely handling additional traffic if such should arise in the future.

The on-site home is used as a residence for family members. No on site housing will provided for future employees.

#### **Domestic Water**

Bottled Drinking water is provided.

The current plumbing and septic are sufficient to handle the additional load required to support all family members at the residence and corporate officers who work on site. Hand washing facilities are readily available on site. If additional facilities are needed portable facilities will be delivered and maintenance by a local provider.

The long term plan includes permitting the residence which will include a contractor's assessment of the existing functioning plumbing and septic.

#### **Power Source**

A low noise model Whisper Watt generator will be used. The manufacturers noise specifications indicate noise production of 63 dB(A) under load. As discussed above the generator is housed in a shed. This serves both to protect the generator from the elements, potential spill containment, and sound reduction. The noise produced by the generator used in cannabis cultivation shall not be audible by humans from neighboring residences. The decibel level for generators at the property line shall be less than 60 decibels (dB) at all times.

#### **Security Plan**

There is only one road leading to the cultivation areas, which are accessible only through two locked gates. The road terminates on the parcel. The parcel is monitored using electronic surveillance.