Operations/Cultivation Plan

Carlotta Gardens

APN 206-331-028-000

(1) Premises Diagram

Please see attached for a detailed premises diagram showing all boundaries and dimensions in feet of the canopy area, designated pesticide and other agricultural chemical storage area; designated processing area; designated packaging area; designated composting area; designated secured area for cannabis waste and designated area for harvested cannabis storage.

Mixed-Light Cultivation activities shall occur in one (1) two-hundred-sixteen-foot-by-ninety-two-foot (216' x 92') heated, non-air-conditioned greenhouse totaling twenty-thousand square feet (20,000'²) and Outdoor Cultivation shall occur in the field in the total amount of fifty-thousand square feet (50,000'²). Appurtenant on-site propagation occurs in two (2) heated non-air-conditioned ag-exempt greenhouses totaling five thousand square feet (5,000'²).

All proposed greenhouses shall be lit with one thousand watt (1,000w) high intensity discharge (HID) lighting fixtures on timers. Power shall be provided by a Pacific Gas & Electric (PGE) specifically for the cannabis cultivation operations as a separate connection. This connection shall be engineered to be connected at the well location and then be distributed through a transformer to the cultivation area.

(2) Lighting Diagram

Please see attached for a lighting diagram with the location of all lights in the canopy area; and the maximum wattage, or wattage equivalent, of each light.

(3) Pest Management Plan

Carlotta Gardens intends to use organic farming practices. They do not intend to be using regulated products, such as pesticides or herbicides, on a regular basis. The following are proposed protocols:

1. Storage of all fertilizers or other regulated and non-regulated organic products shall occur utilizing cargo container(s). Products shall be stored according to manufacturer requirements.
2. Clean-up and containment protocols shall be developed and implemented.
3. Clean-up and containment equipment shall be maintained in good operating condition on-site at all times.
4. Employees shall be trained in safe handling practices and protocols for using clean-up and containment equipment.

Carlotta Gardens shall be utilizing the following certified organic amendments and fertilizers identified in Table 1.

Table 1: Organic Soil Fertilizers and Amendments

1. Bat Guano	6. Fishbone	11. MycoApply Endo Ultra *
2. Bone Meal	7. Grape Compost	13. Neem Meal
3. Cascade Worm Castings	8. Gypsum	14. Phytamin Fish 3-2-0*
4. Crab Shell	9. Kelp Meal	15. Seabird Guano
5. Epsom Salt	10. Kickstart 6-1-2*	16. Shrimp Meal
*Organic Material Review Institute listed and California Department of Food & Agriculture registered organic input material.		

Carlotta Gardens methods and care during cultivation typically require minimal pest management, though, there may be situations requiring the potential use of any the following agriculturally exempt products in Table 2.

Table 2: Legal Pest Management Practices for Marijuana Growers in California	
Active Ingredient	Pest or Disease
Azadirachtin	Aphids, Whiteflies, Fungus Gnats, Leafminers, Cutworms
Bacillus subtilis QST	Root Diseases, Powdery Mildew
Bacillus thuringiensis subsp. aizawai or kurstaki	Moth Larvae (E.G., Cutworms, Budworms, Borer)
Bacillus thuringiensis subsp. Israelensis	Fly Larvae (E.G., Fungus Gnats)
Beauveria bassiana	Whiteflies, Aphids, Thrips
Cinnamon oil	Whiteflies
Gliocladium virens	Root Diseases
Horticultural Oils (Petroleum Oil)	Mites, Aphids, Whiteflies, Thrips; Powdery Mildew
Insecticidal Soaps (Potassium Salts of Fatty Acids)	Aphids, Whiteflies, Cutworms, Budworms
Iron phosphate, sodium ferric EDTA	Slugs And Snails
Neem Oil	Mites; Powdery Mildew
Potassium bicarbonate; sodium bicarbonate	Powdery Mildew
Predatory nematodes	Fungus Gnats
Rosemary + peppermint essential oils	Whiteflies
Sulfur	Mites, Flea Beetles
Trichoderma harzianum	Root Diseases
Active ingredients that are exempt from residue tolerance requirements and either exempt from registration requirements or registered for a use broad enough to include use on marijuana. http://www.waterboards.ca.gov/water_issues/programs/enforcement/docs/cannabis_enfrcmnt/pest_mgmt_practices.pdf	

Carlotta Gardens will comply with all pesticide laws and regulations enforced by the Department of Pesticide Regulation. For all pesticides exempt from registration

requirements, Carlotta Gardens will comply with all pesticide laws and regulations enforced by the Department of Pesticide Regulation and with the following pesticide application and storage protocols:

- Comply with all pesticide label directions;
- Store chemicals in a secure building or shed to prevent access by wildlife;
- Contain any chemical leaks and immediately clean up any spills;
- Apply the minimum amount of product necessary to control the target pest;
- Prevent offsite drift;
- Do not apply pesticides when pollinators are present;
- Do not allow drift to flowering plants attractive to pollinators;
- Do not spray directly to surface water or allow pesticide product to drift to surface water. Spray only when wind is blowing away from surface water bodies;
- Do not apply pesticides when they may reach surface water or groundwater; and
- Only use properly labeled pesticides. If no label is available consult the Department of Pesticide Regulation.

(4) Cannabis Waste Management Plan

Carlotta Gardens will manage all cannabis waste in compliance with the Public Resources Code. In addition, Carlotta Gardens will obtain all required permits, licenses, or other clearances and comply with all orders, laws, regulations, or other requirements of other regulatory agencies, including, but not limited to, local health agencies, regional water quality control boards, air quality management districts, or air pollution control districts, local land use authorities, and fire authorities.

Carlotta Gardens will dispose of cannabis waste in a secured waste receptacle or in a secured area on the premises where physical access to the receptacle or area is restricted only to Carlotta Gardens and their employees. Public access to the designated receptacle or area will be strictly prohibited. Carlotta Gardens will compost cannabis waste in compliance with title 14 of the California Code of Regulations, division 7, chapter 3.1 (commencing with section 17850).

In addition to all other tracking requirements, Carlotta Gardens will use the track-and-trace system and documentation to ensure that cannabis waste is identified, weighed, and tracked while on Carlotta Gardens' premises and when disposed of. Carlotta Gardens will maintain accurate and comprehensive records regarding cannabis waste that account for, reconcile, and evidence all activity related to the generation or disposition of cannabis waste.

Cannabis Composting Protocol

Carlotta Gardens will conduct all composting activity in compliance with all regulations promulgated by the California Integrated Waste Management Board. Carlotta Gardens

will conduct on-premises composting of cannabis waste, using both open piles and compost bins, in a location that is flat, well-drained and sunny. Carlotta Gardens will start with a layer of course materials (like twigs) to allow for drainage and aeration and then cover this layer with leaves. Then Carlotta Gardens will alternate between layers of greens materials (nitrogen-rich material), including cannabis waste, and browns (carbon-rich material), to fill the bin or stack the open pile.

Carlotta Gardens will collect kitchen compostables in a container and empty its contents into the compost bin or open pile, making sure to top it with a layer of brown material. To accumulate brown material, Carlotta Gardens will collect and store dry leaves in garbage bags in the fall so they can use these in their compost year round. Carlotta Gardens will continue to add alternating layers of greens and browns as the contents of bins and opens piles begin to decompose and will make sure the following conditions are met:

- When adding fresh material, employees will mix it in with the lower layers.
- Materials should be as wet as a rung-out sponge, and employees will add dry materials or water – whichever is needed – to reach this moisture level.
- Employees will mix or turn the compost once a week to help the breakdown process and eliminate odor.

When the compost is dark, crumbly and smells like earth, approximately four to six months from starting each bin or open pile, employees will remove all the finished compost from the bin/open pile, leaving unfinished materials in the bin to continue decomposing. Employees will be sure the decomposition process is complete before using the compost, and Carlotta Gardens will sprinkle its lawn a few times a year, will use compost as top dressing for flower beds and at the base of trees and shrubs, will mix compost in with garden and flower bed soil, will use as a soil conditioner when planting or transplanting trees, flowers and shrubs by filling the hole with half compost and half soil, will make ‘compost tea' by filling cheesecloth with 1 liter of compost and steeping the bag overnight in a garbage can filled with water.

(5) Irrigation and Water Source Used For Cultivation Activities

Carlotta Gardens utilizes a permitted water well drilled to a depth of 170 feet with a logged output of approximately 15 gal/min. This well is specifically used for cannabis cultivation, is not connected to any other systems on the property, and shall be metered with monthly monitoring. From the well, the water shall connect to the following:

1. A two-thousand-five-hundred-gallon (2,500 gal) water storage tank with a two-inch (2”) connection for fire suppression purposes.
2. Five-hundred-gallon (500 gal) mixing tanks connected to the greenhouse irrigation system.
3. Multiple standard water outlets and/or hose connections.

Storage of water shall not be for long-term use and is only for operational purposes. It is intended that the mixing tanks shall be used to add compost tea and liquid fertilizer to the irrigation system. More water tanks will be added as licenses are approved and operational.

Carlotta Gardens recognizes the benefits of water conservation to their business, community, and shared environment. Cultivation is proposed to utilize drip irrigation controlled by a timer and irrigation shall be at an agronomic rate not to go beyond the root zone. Further water conservation methods, such as the use of hygrometers and infra-red spectrum analysis, may be implemented in the future. A detailed daily schedule of watering activities shall be developed conspicuously posted on-site.

The peak monthly water demand anticipated to maintain mixed light and outdoor cultivation during the warmest summer months is 235,970 gallons/month. The “Monthly Water Use” table below shows water use at different growth stages during the grow season.

	70,000 ft^2	*Plant Stage*	*Gallons*
January	*115,000*	*Veg/Flwr*	*115,000*
February	*115,000*	*Veg/Flwr*	*115,000*
March	*115,000*	*Veg/Flwr*	*115,000*
April	*118,960*	*Veg/Flwr*	*118,960*
May	*124,926*	*Veg/Flwr*	*124,926*
June	*120,576*	*Veg/Flwr*	*120,576*
July	*124,881*	*Veg/Flwr*	*124,881*
August	*233,092*	*Veg/Flwr*	*233,092*
September	*235,970*	*Veg/Flwr*	*235,970*
October	*215,366*	*Veg/Flwr*	*215,366*
November	*121,941*	*Veg/Flwr*	*121,941*
December	*119,540*	*Veg/Flwr*	*119,540*

To ensure compliance with North Coast Regional Water Quality Control Board Orders, Carlotta Gardens has installed a water meter on the well, and is monitoring withdrawals. Monthly monitoring shall include a date stamped digital photograph of the meter to be taken at the first of the month for Waiver of Discharge purposes. Carlotta Gardens has and will continue to provide updates of actual water usage in annual cultivation licensing submittals.

(6) Description of Dark Sky Standards

Carlotta Gardens is dedicated to being a good neighbor and minimizing light pollution from the site prior to sunrise and after sunset. Our dark sky standards include the following:

1. The smaller greenhouses for the propagation shall consist of light-inhibiting covers being pulled over each structure manually by employees.
2. The larger greenhouse for mixed light cultivation shall have light inhibiting covers to be pulled over automatically.

Carlotta Gardens Dark Sky policies shall consist of:

1. The removal of covers shall begin at least fifteen (15) minutes after sunrise and thirty (30) minutes prior to sunset everyday supplemental lighting is in use.
2. A diurnal calendar shall be conspicuously posted on site.
3. Daily times for cover installation or removal shall be noted on the diurnal calendar.

(7) Site Drainage, Runoff, and Erosion Control Measures

Carlotta Gardens is located on the historic Van Duzen River alluvial floodplain. It has been plowed and used for grazing in the past, further leveling the parcel, and is practically flat. As such, runoff from the site is minimal, and the on-site alluvium soil has high infiltration rates.

Carlotta Gardens recognizes the benefits of minimizing discharge to local watersheds and anadromous fisheries. The following erosion control measures are proposed to be implemented:

1. Internal policies and training to employees that shall minimize discharge from farm related activities.
2. Road surfaces shall be graveled.
3. Soil beds within the enclosed greenhouses shall be contained and methods implemented to reduce soils loss to the outside.
4. The area between Wilson Creek and the driveway on the northeast side of the parcel shall be revegetated with riparian vegetation, such as willows and other native species.
5. Cover crops shall be utilized.

(8) Watershed and Nearby Habitat Protection

Carlotta Gardens shall be utilizing the following to ensure protection of the watershed and nearby habitat:

1. A cultivation site setback further than local code requirements from Wilson Creek to minimize impacts.
2. Internal policies and training to employees that shall minimize farm related activities more than one-hundred-feet (100’) away from the Wilson Creek Streamside Management Area.

3. Revegetation of Wilson Creek with native riparian species.
4. Graveling of the driveway.
5. All enclosures shall have doors.
6. Compost bin located close to farm operations and sufficiently away from Wilson Creek.
7. Trash bins shall be secured.
8. Pro-active management of cultivation areas and surrounding ground surface.
9. Cover crops shall be utilized.

(9) Soil Management and/or Permaculture Methods.

Carlotta Gardens is located on prime agricultural soils and shall be cultivating other agricultural products besides cannabis. Native soils are a key component of their business. Soils shall be protected for current and future agricultural use through the following means:

1. All farming on-site shall be organic.
2. Greenhouses shall only have minimal perimeter foundations and the native soils shall remain exposed.
3. Cannabis in the greenhouses shall be cultivated in raised beds that contain a proprietary mix of mediums brought in from off-site.
4. Mixing, tilling, and amending of mediums shall occur within the raised beds.
5. Mediums shall be reused, composted on-site, and no dumping off-site shall occur.
6. Cover crops shall be utilized when not in cultivation for a month or more to reduce medium loss.

(10) Cultivation Operations/Practices

Mixed Light Cultivation

In order to maximize efficiency, a system of staggered harvests utilizing mixed light and light deprivation techniques will be used. Each harvest will be offset which will reduce the need for required drying space and limit the energy inputs for drying. All mixed lighting activities shall adhere to the International Dark Sky Association Standards and control light spillage as required.

(11) Employee Standards, Employee Safety Practices, and Emergency Contacts

Carlotta Gardens shall be employing persons for hire as allowable by law. Carlotta Gardens shall comply with all applicable federal, state, and local laws and regulations

governing California Agricultural Employers, which may include: federal and state wage and hour laws, CAL/OSHA, OSHA, California Agricultural Labor Relations Act, and the Humboldt County Code (including the Building Code).

At all times, employees shall have access to safe drinking water and toilets and handwashing facilities that comply with applicable federal, state, and local laws and regulations. On site-housing provided to employees shall comply with all applicable federal, state, and local laws and regulations.

Potable water for employees shall be provided on-site dependent upon:

a. Bottled water shall be provided..

Carlotta Gardens operations shall implement safety protocols to protect the health and safety of its employees. All employees shall be provided with adequate safety training relevant to their specific job functions, which may include:

1. Employee accident reporting and investigation policies.
    a. All accidents shall be reported to management.
    b. Management shall investigate and keep written reports of accidents.
    c. Reporting to authorities shall be accordingly to the requirements of law.
2. Fire prevention.
    a. All employees shall be trained with fire safe methods and in the proper use of fire extinguishers.
    b. Fire extinguishers shall be maintained and certified on an annual basis.
3. Hazard communication policies, including maintenance of material safety data sheets (MSDS).
    a. Employees shall be trained in the proper handling of all hazardous materials, if any are ever used.
    b. Employees shall be provided secure communication devices for communication and emergencies.
    c. If any regulated substances are ever used, MSDS of any applicable hazardous materials shall be posted visibly on-site at all times.
4. Materials handling policies.
    a. Employees shall be trained on handling cannabis and other related materials on an annual basis.
5. Job hazard analysis.
    a. Employees may be exposed to agricultural related risks.
    b. Within the first-year risks shall be assessed by an independent expert to reduce job hazards as applicable by law.
    c. A risk management plan shall be implemented to reduce identified issues.
6. Personal protective equipment policies; including respiratory protection.

a. Carlotta Gardens shall provide personal safety equipment for use such as OSHA certified safety glasses (tinted and clear), hats, disposable and reusable gloves, disposable face masks, and filtered respiratory protection.
b. Employees shall be trained in the use, expected to make use, and shall have ample access personal protective equipment provided by Carlotta Gardens.
c. Storage areas for personal safety equipment shall be provided.

Carlotta Gardens operations and processing facilities shall visibly post and maintain an emergency contact list which includes at a minimum:

1. Operation manager contact(s):
    a. Owner: Irene Levi
    b. Manager: Joe Miller (707) 599-9827
2. Emergency responder contact(s):
    a. EMERGENCY CALL 911
    b. Non-emergency Sheriff: (707) 445-7251
    c. Carlotta Fire Department: (707) 768-1714
    d. City Ambulance: (707) 445-4907
3. Poison control contact(s):
    a. EMERGENCY CALL 911
    b. Poison Control Centers 1-800-222-1222

(12) Processing Practices and Plan

Carlotta Gardens shall implement and practice the following Processing Practices on-site at all times:

1. All work surfaces and equipment shall be maintained in a clean and sanitary condition.
2. Prevention against contamination, mold, and mildew growth on processed cannabis.
3. Employees shall clean hands sufficiently when handling cannabis or use gloves.

In 2018 Carlotta Gardens shall undertake appurtenant on-site processing of cultivated cannabis consisting of:

1. Harvesting cannabis up to five (5) times a year.
2. Drying of the harvested cannabis shall occur in the facility which shall be heated and dehumidified.
3. Other processing options Carlotta Gardens may engage in, as allowable under California and Humboldt County law, include, and are not limited to:
    a. Sending untrimmed cannabis to a licensed processor under contract; and/or,

b. Sold to a licensed manufacturer or distributor as raw product in bulk

(13) Processing Practices and Plan

1. All cannabis products will be sold to licensed distributors.

(14) Parking and Road Usage

Carlotta Gardens is proposing to employ multiple employees which may impact roads due to daily activities. As such, there shall be an increase in traffic and usage. The following shall be undertaken to minimize traffic:

1. The entrance shall be engineered according to code requirements for approach and departure from a highway zone.
2. The driveway shall be ten-feet (10') wide, with two-foot (2') shoulders, graveled, and have a pullout passing at the midway point.
3. There shall be a total of eleven (11) standard sized parking stalls and one (1) van accessible ADA compliant parking stall.
4. Employees shall be encouraged to carpool to the site when possible.

(15) Security Plan

Carlotta Gardens shall secure the cannabis cultivation and associated activities using the following means:

1. The cultivation site shall be secured behind a primary locked gate to the property.
2. The large greenhouses shall be a permanent structure that is nondescript on the outside.
3. The cultivation site shall be monitored by an independent security company.
4. The cultivation site may have a camera surveillance system.
5. Operations shall be discreet and not draw attention.

(16) Reservation of Operational Changes

Carlotta Gardens Cultivation and Operations Plan is an estimate of the first two (2) years of operations. When operationally feasible and advantageous, or required, this plan may be altered. These alterations shall be provided to the County and State.