

**Site Management Plan for:
Denali Farm LCC
APN: 210-250-008**

Prepared for:
State Water Resources Control Board (SWRCB)
North Coast Regional Water Quality Control Board (NCRWQCB)

Prepared by:
Margro Advisors
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Date of Completion:
1/05/2021

Introduction

This Site Management Plan (SMP) as required by the State's General Order¹, is for a cannabis cultivation site operated by Denali Farm LLC, located in the Bridgeville area, in Humboldt County. The site is located in watershed HUC12-180101050901. The purpose of this order is to provide a regulatory structure for cannabis cultivation that reduces contributions to existing water quality issues and prevents additional adverse impacts to water resources throughout California. The purpose of the SMP is to identify conditions present on a parcel that may pose a threat to water quality and resources, and establish a plan to meet or surpass requirements set forth in the order, as well as to describe how the cultivator is implementing the best practical treatment or control (BPTC) measures listed in Attachment A of the Cannabis General Order. Refer to Attachment D of the General Order for further technical report guidance.

Margro Advisors has made an initial assessment of this parcel through reference to the prior WRPP assessment from Pacific Watershed Associates, as well as, a variety of county, state, and private websites (e.g. USDA web soil survey, Google Earth, and Humboldt County Web GIS). The parcel boundaries are approximate and obtained from the site survey completed by land surveyor Ed George Jr and submitted to Humboldt County in February of 2019.

¹ Order entitled "STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2017-0023-DWQ GENERAL WASTE DISCHARGE REQUIREMENTS AND WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF WASTE ASSOCIATED WITH CANNABIS CULTIVATION ACTIVITIES"

Site Characteristics

This project is associated with Humboldt County Permit Application #10989, for 25,526ft² of cultivation.

Elevation within this parcel ranges from approximately 2,720 to 3,040 feet. Mean annual precipitation is 56 to 80 inches. Mean annual air temperature is 50 to 55 degrees Fahrenheit. The frost free period is 200 to 260 days.

Attached at the end of this document is a site map. The site map includes features such as: daccess roads, vehicle parking areas, streams, stream crossings, cultivation sites, disturbed areas, buildings, and other relevant site features.

Processing

Drying, curing, and packaging is done in the site's 1,200 sq ft lower barn. Until a commercial structure is permitted onsite, processing will be done offsite in a license facility.

Power

The site uses a 45kW MultiQuip Diesel Power generator for electricity. Usage is estimated on average to be 5.7kWh-11.4kWh per day from March to September, depending on the need for and duration of ventilation, and use of farming equipment. Usage is estimated at 34.5kWh-68.8kWh per day in October and November while harvesting. The generators are rated by the manufacturer at maximum 60dB or lower, meeting perimeter noise restrictions required by environmental regulations.

Currently water pumps use solar power and Denali Farms will install a 6kW solar solar array by 2022 in order to rely on renewal power as the primary source of energy.

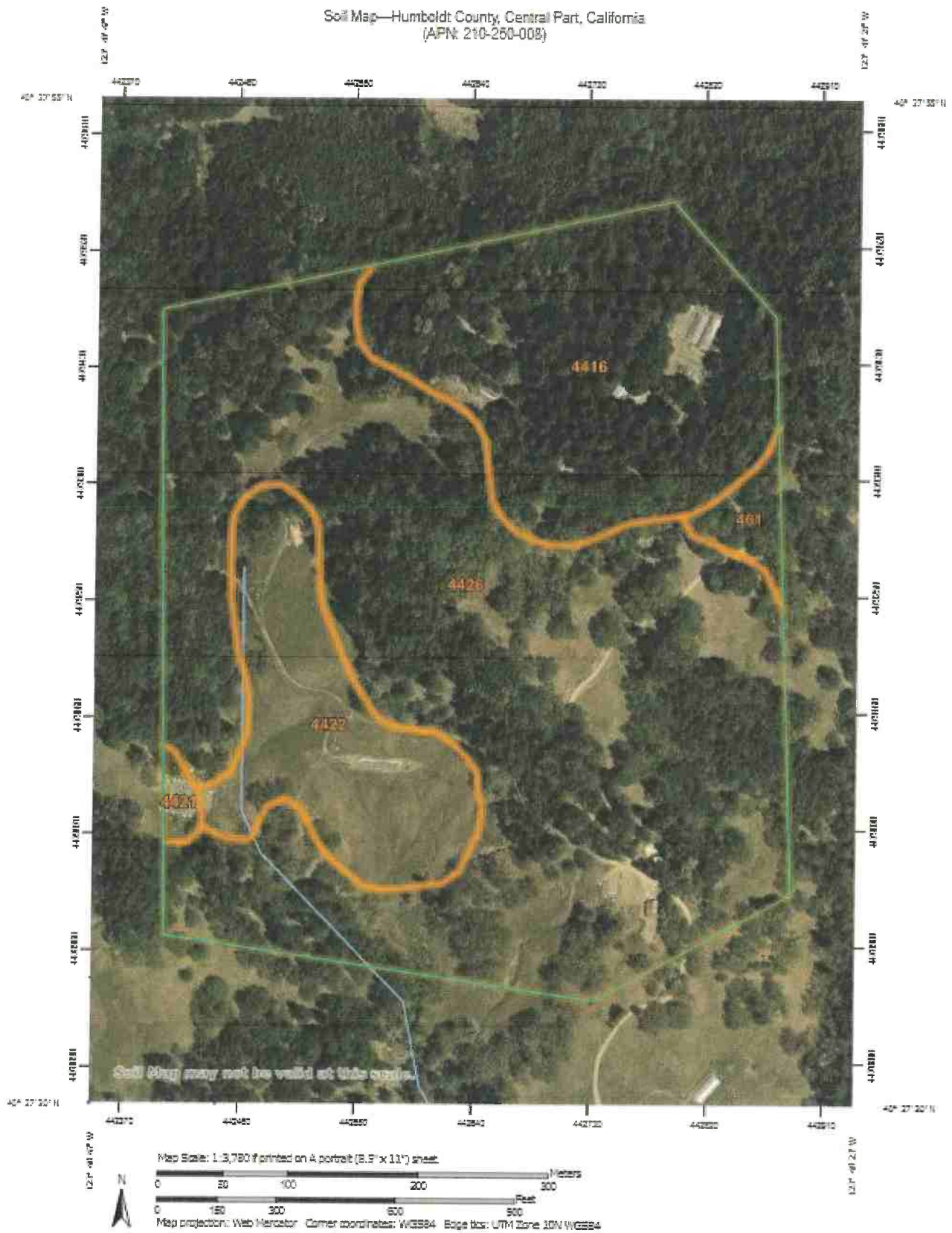
Soil Description²

Attached is a soil map of the parcel. The soils within the area are primarily Pasturerock-Coyoterock-Maneze complex (Map Unit 4426, 62% of parcel) and Rockyglen-Tannin complex (Map Unit 4416, 22.5% of parcel), with a section of Highyork-Elkcamp-Airstrip complex (Map Unit 4422, 12.6%).

Map Unit 4426

The parent rock of the Pasturerock-Coyoterock-Maneze complex is Colluvium derived from sandstone and mudstone. The natural drainage class is well drained. The capacity of the most limiting layer to transmit water (Ksat) is very low to moderately low (0.01 to 0.6 inches per hour). The frequency of flooding is none. The frequency of ponding is none. The available water capacity ranges from low (about 4.9 inches) to high (about 9.8 inches).

² Descriptions and estimates from US Department of Agriculture, Natural Resource Conservation Service, Web Soil Survey



Map Unit 4416

The parent rock of the Rockyglen-Tannin complex is Colluvium derived from mudstone or sandstone, or Residuum weathered from mudstone or sandstone. The natural drainage class is well drained. The capacity of the most limiting layer to transmit water (Ksat) is moderately high to high (0.16 to 2 inches per hour). The frequency of flooding is none. The frequency of ponding is none. The available water capacity ranges from low (about 5.8 inches) to moderate (about 8.1 inches).

Water Storage, Use, and Irrigation Runoff

Water used for cannabis cultivation is sourced from rain catchment tanks, and an onsite well. The site relies on tanks and bladders to store approximately 115,500 gallon. No surface water is diverted for irrigation. A summary of water storage is shown below in Table 1.

Water Storage Type	Size (Gallons)	Number	Total (Gallons)
Bladder	50,000	1	50,000
Tank	3,100	18	55,800
Tank	4,800	1	4,800
Tank	2,500	1	2,500
Tank	550	2	1,100
Tank	500	1	500
Tank	250	2	500
Tank	300	1	300
Total			115,500

Table 1: Summary of water storage on the parcel.

Irrigation water is used at agronomic rates to minimize overwatering cannabis plants to prevent irrigation runoff. Cannabis plants will be watered every third day progressing to daily watering during the growing season. Irrigation is applied by traditional drip irrigation and by hand-watering. Watering occurs in the morning or early evening hours to reduce evaporative loss. Site has areas with smart pots and raised beds enhanced with natural soil amendments. Cultivation areas are surrounded by vegetation to improve water retention and avoid runoff. A summary of estimated water use in gallons by month for irrigation is shown below in Table 2.

Jan	Feb	Mar	Apr	May	June
0	0	0	5,000	5,000	10,000

Product Name	Chemical Type	N-P-K or Primary Active Ingredient(s)	Annual Use
Biomarine	Nutrient	2-3-1	2.5 gal
Fulvex	Nutrient	.3-.5-1	2.5 gal
Maxsea	Nutrient	16-16-16	50 lbs
Silica	Nutrient	Silicon Dioxide	2 lbs
Kelp	Nutrient	1-0-4	2 lbs
Cal Mag	Nutrient	2-0-0	2 lbs
Plant Therapy	Pesticide	Soy Oil, Peppermint Essential Oil, Citric Acid	1 gal
Suffoil-X	Pesticide	Mineral Oil	2.5 gal
H202	Pesticide	Hydrogen, Oxygen	1 L
Dr. Bronners Soap	Pesticide	Soap, Peppermint Oil	1 gal

Table 4: Overview of estimated annual chemical product usage.

Products are brought to the site as needed. Products which are not consumed during the growing season are kept in the amendment storage shed to prevent discharge, including over the winter season. Any materials that are hazardous will be stored in secondary containment. Bulk fertilizers and chemical concentrates are stored, mixed, and applied per packaging instructions and/or at proper agronomic rates. Empty containers are disposed of in trash containers with covers. Application rates will be tracked and reported with the end of the year monitoring. EPA registered pesticide use will be reported by the 10th of the month following its use, to the Department of Pesticide Regulations as required.

Petroleum Products

Petroleum products are kept in a storage tank and cans in the garage on site. An overview of estimated annual petroleum usage is shown below in Table 5.

Product	Chemical Type	Storage (gal)	Annual Use (gal)
Diesel	Petroleum	450	10
Gasoline	Petroleum	10	10

Table 5: Overview of estimated annual petroleum usage.

Petroleum products are brought to the site as needed. Products which are not consumed during the growing season are kept in secondary containment to prevent discharge, including over the winter season. Petroleum, petroleum products, and similar fluids are stored in a manner that provides chemical compatibility, provides secondary containment, and protection from accidental ignition, the sun, wind, and rain. Fuels, lubricants, and other petroleum products are stored and applied per packaging instructions. Vehicles or equipment are only refueled outside of riparian setbacks. A Spill Prevention, Countermeasures, and Cleanup (SPCC) kit is kept with fuel storage. As a safety measure, SPCC kits provide a supply of clean-up materials in the event of accidents.

Trash/Refuse and Domestic Wastewater

On an average day, there are up to five family members, visitors, and/or residents at the site. Human waste, domestic wastewater, packaging, organic materials, plastic, paper, glass, clay, spent growth media will be generated at this site. Trash is kept in closed-lid, wildlife-proof, non-permeable garbage cans which are kept to prevent leaching and transport of foreign materials to groundwater and are located outside of riparian setbacks. Trash is delivered to Fortuna Transfer Station on a weekly basis. Recycling is delivered on a monthly basis, or more frequently if needed.

The domestic wastewater generated at the site is household-generated wastewater. The wastewater is disposed of via on-site wastewater treatment system.

Winterization




















The property owner keeps a copy of Winterization Protocols for Statewide Cannabis Order onsite. BPTC measures outlined in this document will be performed to winterize the site and prevent discharges of waste. The property owners do not operate heavy equipment of any kind at the cannabis cultivation site during the winter period unless authorized for emergency repairs contained in an enforcement order issued by the State Water Board, Regional Water Board, or other agency having jurisdiction. In addition, if there is construction, all construction entrances and exits are stabilized to control erosion and sediment discharges from land disturbance. All loose stockpiled construction materials (e.g. soil, spoils, aggregate, etc.) that are not scheduled for use within 48 hours are covered and bermed. Erosion repair and control measures to the bare ground (e.g. cultivation area, access paths, etc.) are applied to prevent discharge of sediment to waters of the state. If any BPTC measure cannot be completed before the onset of the winter period, the property owner will contact the Regional Water Board to establish a compliance schedule.

Remediation

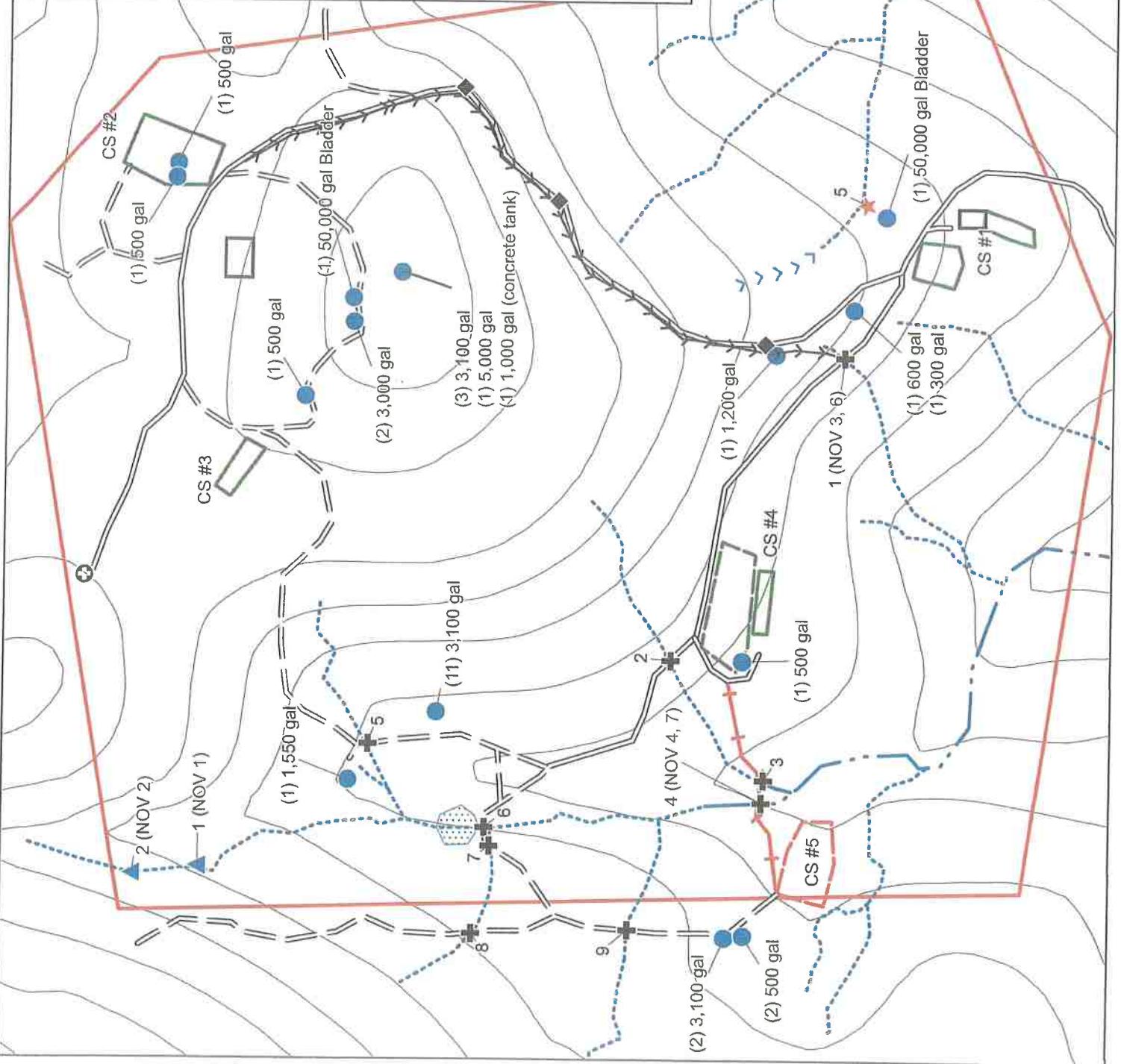
The site requires improvements to ensure stability of water flow with the natural environment. The following table lists proposed projects and their planned completion dates.

Project	Description	Proposed End Date
Stream Crossing #1	Implement proper road drainage features, armored ditch relief culverts and crown the road to prevent sediment from entering the waterway.	10/15/2021
Stream Crossing #2	Install armored 18 inch culvert sized for a 100-year flood event	10/15/2022
Stream Crossing #3	Decommission ATV road and install water bars on road approaches. Straw mulch bare soil areas.	10/15/2022
Stream Crossing #4	Decommission ATV road, remove fill, and install water bars on road approaches. Straw mulch bare soil areas.	10/15/2022
Stream Crossing #5	Create rocked ford to improve Class III flow	10/15/2022
Stream Crossing #6	Replace existing culvert with properly armored 36 inch culvert sized for a 100-year flood event	10/15/2023
Stream Crossing #7	Create rocked ford to improve Class III flow and critical dip to improve drainage	10/15/2023

APN 210-250-008 1600 Map

-  Property Boundary
-  Cultivation To Be Relocated
-  Proposed Relocation Area
-  Cultivation Area
-  Structure
-  Pond
-  Swale
-  Class III Watercourse
-  Class II Watercourse
-  Permanent Road
-  Seasonal Road
-  Abandon, Cease Use
-  Ditch
-  Install DRC
-  Watercourse Crossing
-  NOV Point
-  Groundwater Well
-  POD
-  Water Storage

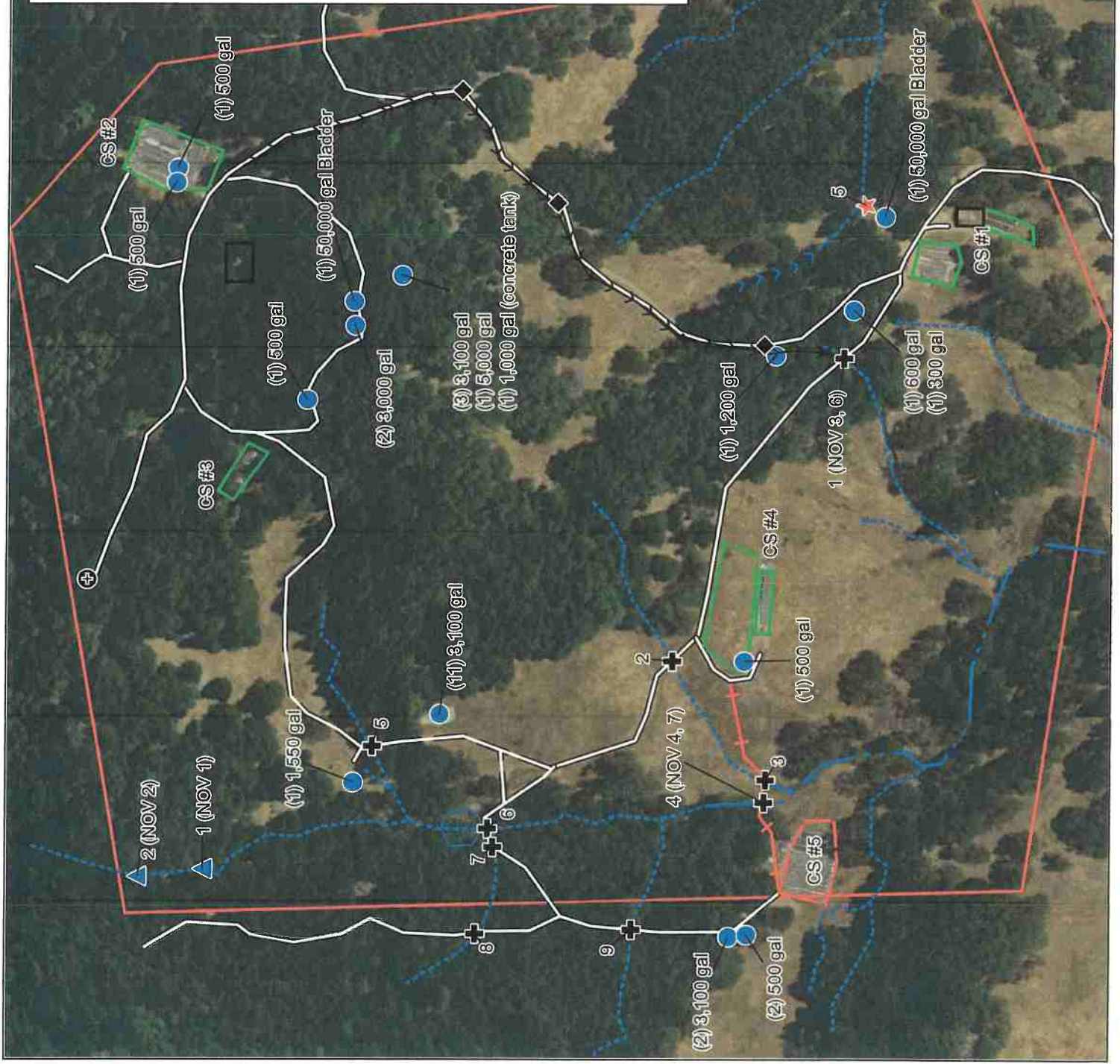
Map Scale 1" = 190'






















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