TECHNICAL MEMORANDUM

To: Mr. Brian Pensack

From: Annjanette Dodd, PhD, CA PE #77756

Date: November 9, 2021

Subject: Groundwater Hydrology – 2185 Ogulin Canyon Road, Clearlake, CA

PURPOSE AND BACKGROUND

The purpose of this Technical Memorandum is to provide an evaluation of the potential impacts the proposed project would have on the surrounding groundwater resources. The project is located at 2185 Ogulin Canyon Road, Clearlake, Lake County, California. The project proposes 0.5-acres of mixed-light cannabis cultivation, 10,000 sq. ft. of manufacturing, processing, and distribution, and a 3,000 sq. ft. office, retail, and delivery building (Figure 1). A Water Availability Analysis (WAA) was prepared for the project in June 2021 by Richard Knoll Consulting and submitted to the City of Clearlake.

The estimated project water demand for cultivation (300-day cultivation period) was estimated in the WAA using standard industry values for cultivation (3,000 gallons per acre per day, or 2.1 gallons per minute) and warehouse demand (0.85 gallons per square foot, or 11,000 gallons per month). The project proposes ten employees, water demand based on the number of employees is equivalent to sanitary sewer generation for factories with shower facilities. According to the Lake County Rules and Regulations for On-Site Sewage Disposal (Lake County, 2010), the demand would be 35 gallons per day, per person. Thus, the proposed project employee demand would be 350 gallons per day or about 10,500 gallons per month, which corroborates the employee estimate provided in the WAA. The total estimated water demand for the proposed project provided in the WAA is 582,000 gallons per year or 1.8 acre-feet per year. The daily demand is about 1.3 gallons per minute (gpm).

WATER SOURCE AND SUPPLY

There is one (1) existing, permitted groundwater well (Permit Number: WE 5569AG) that will be used for cultivation (Lat/Long 38.983147, -122.604709). The well is approximately 375 feet deep and was drilled in March 2021. The well is screened between 280- and 375-feet below the ground surface. During the drilling of the well, the depth of first water was at 280-feet below the ground surface (bgs) and the static water level was estimated to be 280-feet bgs (Attachment 1 – Well Log).

The well was estimated to have a yield of 80 gpm (129.0 acre-feet per year). The potential daily demand of 1.3 gpm represents approximately 1.6% of the well yield and 2.5% of the annual well production in acre-feet.

OWNER

OGULIN HILLS HOLDINGS, LLC
BRIAN D. PENSACK
637 LINDARD ST., SUITE 201
SAN RAFAEL, CA 94901

SITE PLAN DATA

AREA OF PROPERTY	21.25 ACRES TOTAL
ZONING	C-4 CITY OF CLEARLAKE
FLOOD ZONE	X

NOTES

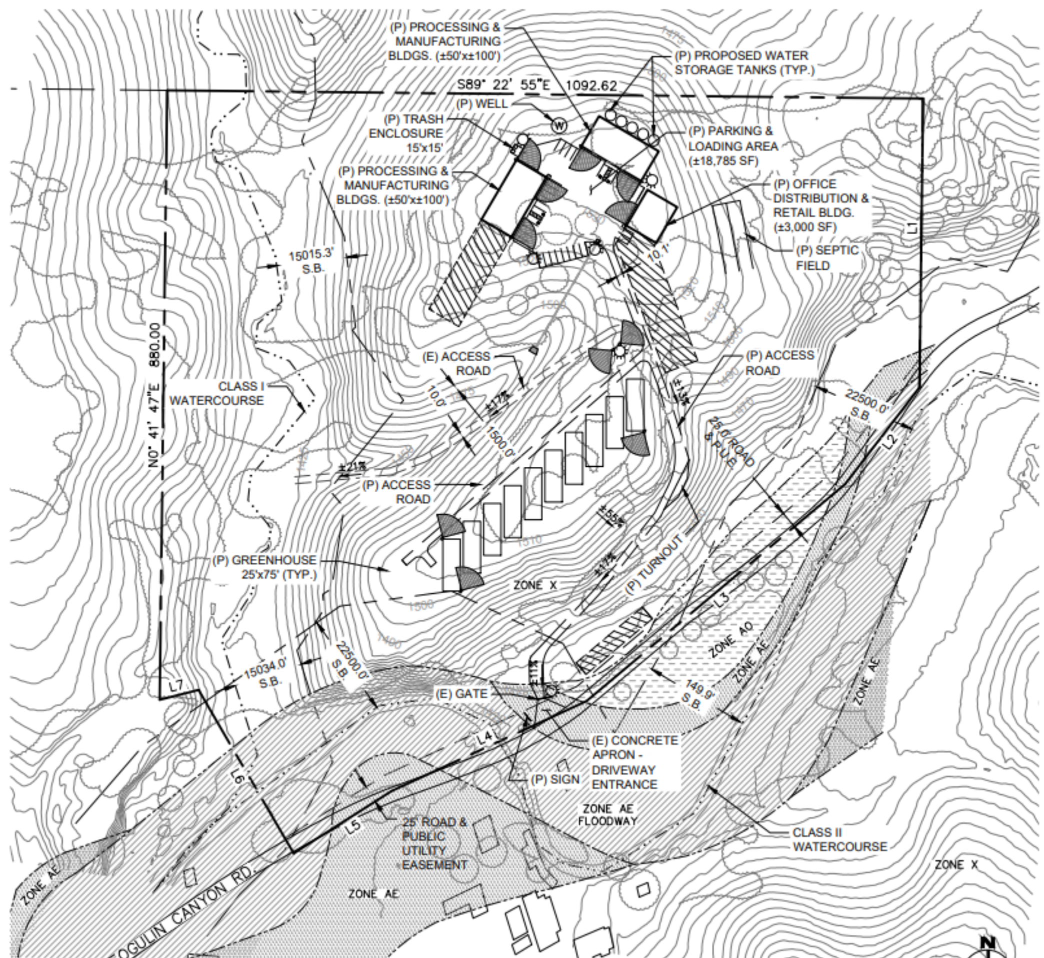
1) THIS IS NOT A BOUNDARY SURVEY. ALL LOT LINES SHOWN ARE BASED ON A.P.N. MAP.

Parcel Line Table

Line #	Length	Direction
L1	417.23	N0° 43' 08"E
L2	176.50	N37° 35' 16"E
L3	487.57	S50° 02' 51"W
L4	310.04	N65° 13' 21"E
L5	167.51	S57° 33' 36"W
L6	273.07	N30° 16' 00"W
L7	57.82	N75° 56' 03"E

LEGEND

- PROPERTY LINE
- SETBACK LINE
- EASEMENT LINE
- (P) ACCESS ROAD/DRIVEWAY
- (E) ACCESS ROAD/DRIVEWAY
- (E) TREE/BRUSH LINE
- FEMA FLOOD ZONE BOUNDARY
- (P) THERMAL CAMERA
- (P) LIGHT POLE
- (P) BUILDINGS
- (P) GREENHOUSES
- AREA FOR FUTURE BUILDINGS
- ZONE AE
- ZONE AE FLOODWAY
- ZONE AO
- ZONE X



SITE PLAN

0 150 300 Feet

5FT CONTOUR INTERVAL

SUBMITTED TO:
CITY OF CLEARLAKE
COMMUNITY DEVELOPMENT DEPT.
14050 OLYMPIC DRIVE
CLEARLAKE, CA 95422

PO BOX 431
KELSEYVILLE, CA 95451
707-279-4887

VanDerWall Engineering, Inc.

Ogulin Cannabis Facilities
SITE PLAN
APN: 010-044-17
2185 Ogulin Canyon Road
CLEARLAKE, CALIFORNIA

VanDerWall Engineering, Inc.

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	AUG 2021
PROJ	20-60
DWG	
SHEET	1 OF 4

GROUNDWATER BASIN INFORMATION AND HYDROGEOLOGY

The well site is in the Burns Valley Groundwater Basin (Basin #5-17). According to the California Department of Water Resources (DWR), almost all the groundwater in the Burns Valley Basin is derived from rain that falls within the 12.5 square mile Burns Valley Watershed drainage area (DWR Bulletin 118).

The Burns Valley Basin is within the Burns Valley Watershed. The Franciscan Formation borders the Burns Valley Basin on the north, Clear Lake borders the basin on the west, and the Cache Formation borders the basin on the south and east. The valley is drained by Burns Valley Creek, flowing southwest, and eventually into Clearlake. There are three water bearing formations in the Burns Valley Basin, the Quaternary Alluvium, Quaternary Terrace Deposits, and Lower Lake Formation. The *Quaternary Alluvium* located in the valley lowlands in the southern end of the valley are composed of silt, sand, and gravel with a thickness up to 50 feet. Groundwater in this formation is unconfined and typically provides water for domestic use. *Quaternary Terrace Deposits* have been deposited on the sides of the alluvial plain in the Burns Valley Basin. The terrace deposits are approximately 15 feet above the valley floor and slope up the valley to a similar elevation as the foothill exposures of the Cache Formation. Groundwater in this formation is not well understood. The *Lower Lake Formation*, consisting of lake deposits, underlies the alluvial and terrace deposits in the basin. The formation consists of fine sands, silts, and thick interbeds of marl and limestone, and has a maximum thickness of 200 feet. The formation has low permeability and provides water to wells at up to a few hundred gallons per minute. Based on the depth of the well, it is likely in the deeper, higher yielding, water bearing formation. The California Department of Water Resources (DWR) estimated a storage capacity of the Burns Valley Basin as 4,000 AF with a usable storage capacity of 1,400 AF. Well depths mostly range between 25- and 425-feet. (CDM 2006 and California DWR 2003, 2021)

The Burns Valley Groundwater Basin has not been identified by the California Department of Water Resources (DWR) as critically overdrafted basins. Critically overdrafted is defined by DWR as, "A basin subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." In addition, as part of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, DWR created the CASGEM Groundwater Basin Prioritization statewide ranking system to prioritize California groundwater basins in order to help identify, evaluate, and determine the need for additional groundwater level monitoring. California's groundwater basins were classified into one of four categories high-, medium-, low-, or very low-priority. The Burns Valley Groundwater Basin is ranked as very low-priority basins by the CASGEM ranking system. (DWR, 2021)

RECHARGE RATE

The annual recharge can be estimated using a water balance equation, where recharge is equal to precipitation (P) less runoff (Q) and abstractions that do not contribute to infiltration (e.g., evapotranspiration). A simple tool that can be used to estimate runoff and abstractions, that uses readily available data, is the Natural Resources Conservation Service (NRCS) Curve Number (CN) Method (NRCS, 1986). Determination of the CN depends on the watershed's soil and cover conditions, cover type, treatment, and hydrologic condition. The CN Method runoff equation is

$$Q = \frac{(P - I_a)^2}{(P - I_a) + S}$$

Where,

Q = runoff (inches)
P = rainfall (inches)
S = potential maximum retention after runoff begins (inches) and
I_a = initial abstraction (inches)

The initial abstraction (I_a) represents all losses before runoff begins, including initial infiltration, surface depression storage, evapotranspiration, and other factors. The initial abstraction is estimated as $I_a = 0.2S$. S is related to soil and cover conditions of the watershed through the CN, determined as $S = 1000/CN - 10$. Using these relations, the runoff equation becomes:

$$Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$$

The CN is estimated based on hydrologic soil group (HSG), cover type, condition, and land use over the area of recharge, which is estimated as the area of the Burns Valley Watershed. However, to be conservative, the project parcel area of 21.3 acres was used as the recharge area.

The recharge area soils are classified into four HSGs (A, B, C, and D) according to the soils ability to infiltrate water; where HSG A has the highest infiltration potential and HSG D has the lowest infiltration potential. HSGs are based on soil type and can be determined from the NRCS Web Soil Survey (Attachment 2). The recharge area is comprised of HSG C. The land use is undeveloped with a cover type of woods with grassland in fair condition (50% to 75% ground cover) and has a CN of 76 for HSG C.

The PRISM Climate Group gathers climate observations from a wide range of monitoring networks and provides time series values of precipitation for individual locations (https://prism.oregonstate.edu/explorer/). Using the annual precipitation from 1895 to 2020, as predicted by PRISM, the annual average precipitation over this period is 27.6 inches and the minimum precipitation over this period is 6.5 inches (Attachment 3).

Using the above information, and assuming that 50% of the initial abstraction infiltrates and the remainder is evapotranspiration (0.31 inches or 0.56 AF), the estimated annual recharge over the recharge area of 21.3 acres is 5.6 AF during an average year and 4.2 AF during a dry year (Table 1).

Table 1. Estimated annual recharge over the recharge area of the project's well.

Recharge Area (acres)	P (inches)	CN	S (inches)	I_a (inches)	Q (inches)	Recharge = $P - Q - 0.5*I_a$ (inches)	Recharge (AF)
21.3	6.5	76	3.16	0.63	3.81	2.37	4.2
21.3	27.6	76	3.16	0.63	24.17	3.14	5.6

CUMULATIVE IMPACT TO SURROUNDING AREAS

Annual water demand of the proposed project is approximately 1.8 AF per year. The demand represents approximately 32% and 43% of the annual recharge during an average and dry year, respectively. Recharge in the Burns Valley Groundwater Basin is derived from rain that falls within the 12.5 square mile Burns Valley Watershed. The area used to estimate the recharge for the proposed project is only 0.3% of the entire recharge area. Thus, the recharge estimate is a conservative (low) estimate of the available recharge over the entire recharge area. Overall, there is sufficient recharge, on an annual basis, to meet the project's demand during both a dry year and average year.

The estimated storage capacity of the Burns Valley Basin is 4,000 AF, with a usable storage capacity of 1,400 AF. According to DWR, the groundwater in the Burns Valley Basin is derived from rain that falls within the 12.5 square mile Burns Valley Watershed drainage area. The project's demand is only 0.1% of the usable storage capacity of the Burns Valley Groundwater Basin.

According to the Lake County Groundwater Management Plan, there are 86 domestic wells and 9 irrigation wells in the Burns Valley Groundwater Basin and the agricultural demand in the basin during an average year is 105 AF per year; of this, 14 AF is supplied from groundwater. The Groundwater Management Plan is dated 2006, and does not include the demand from additional proposed cannabis cultivation projects in the Burns Valley Groundwater Basin. The total additional proposed cannabis cultivation is unknown. Assuming there is the potential for approximately 20 to 40 acres of new cannabis cultivation, the annual agricultural demand could increase by an additional 66.3 AF. Cumulatively, with the proposed project at 2185 Ogulin Canyon Road, the annual demand could increase to 82.1 AF or up to 6.0% of the usable storage capacity of the Burns Valley Basin. However, the demand of the proposed project is only 2% of the potential future demand.

Since there is sufficient recharge and supply to meet the project's demand during average and dry years; the project's demand is only 0.1% of the usable storage capacity of the Burns Valley Groundwater Basin; and the potential future cannabis demand in the basin is a fraction of the usable storage capacity. Thus, the proposed project water use would have little to no cumulative impact on the surrounding area.

Additionally, if needed in the future to create water redundancy for the project, the project could install storage for rainwater catchment. The project proposes 31,750 sq. ft. of footprint that could be utilized as rainwater catchment. The rainwater catchment potential is approximately 0.39 acre-feet (129,000 gallons) during a dry year and up to 1.7 acre-feet (546,000 gallons) during a wet year.

Qualifications of Author

I have a PhD in Water Resources Engineering. In addition, I am a registered Professional Engineer with the State of California with 30-years of experience practicing and teaching Water Resources Engineering, including over 15 years of teaching, practicing, and modeling surface and groundwater hydrology.

LIMITATIONS

The study of groundwater hydrology is very complex and often relies on limited data, especially in rural areas. Recommendations and conclusions provided herein are based on professional judgment made using information of the groundwater systems and geology in Lake County, which is limited and allows only for a general assessment of groundwater aquifer conditions and recharge. NorthPoint Consulting Group, Inc. is making analyses, recommendations, and conclusions based on readily available data, including studies and reports conducted by other professionals, Lake County, the State of California, and other consultants hired by the project proponent to prepare technical studies for the proposed project. If additional information or data becomes available for the project area, the recommendations and conclusions presented herein may be subject to change.

Attachments

1. Well Completion Report
2. NRCS Soil Survey Results
3. PRISM Climate Precipitation 1985-2020

References

Bauer S, Olson J, Cockrill A, van Hattem M, Miller L, Tauzer M, et al. (2015). Impacts of Surface Water Diversions for Marijuana Cultivation on Aquatic Habitat in Four Northwestern California Watersheds. PLoS ONE 10(9): e0137935. https://doi.org/10.1371/journal.pone.0137935

CDFA (2017) CalCannabis Cultivation Licensing Program Draft Program Environmental Impact Report. State Clearinghouse #2016082077. Prepared by Horizon Water and Environment, LLC, Oakland, California. 484 pp.

California DWR (2003). California's Groundwater Bulletin 118 Update 2003. October 2003. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/Statewide-Reports/Bulletin_118_Update_2003.pdf

California DWR (2003). California's Groundwater Bulletin 18, Update 2003. October 2003.

California DWR (2021). California's Groundwater. https://water.ca.gov/programs/groundwater-management/bulletin-118

California DWR California Statewide Groundwater Monitoring Program (CASGEM) (2021). https://water.ca.gov/Programs/Groundwater-Management/Groundwater-Elevation-Monitoring--CASGEM. Accessed August 2021.

CDM (2006). Lake County Water Inventory Analysis. Prepared for the Lake county Watershed Protection District. March 2006. http://www.lakecountyca.gov/Assets/Departments/WaterResources/Groundwater+Management/Lake+County+Water+Inventory+and+Analysis+w+Appendices.pdf

CDM (2006). Lake County Groundwater Management Plan. Prepared for the Lake county Watershed Protection District. March 2006. http://www.lakecountyca.gov/Assets/Departments/WaterResources/IRWMP/Lake+County+Groundwater+Managment+Plan.pdf

Gupta, R.S. (2008). Hydrology and Hydraulic Systems, 3rd Edition. Waveland Press, Long Grove IL.

Natural Resources Conservation Service, NRCS< (1986) Urban Hydrology for Small Watersheds. USDFA NRCS Technical Release 55. June 1986. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf

ATTACHMENT 1

PROJECT'S WELL COMPLETION REPORT

COUNTY OF LAKE
HEALTH SERVICES DEPARTMENT
Division of Environmental Health
922 Bevins Court, Lakeport, CA 95453-9739
Telephone 707/ 263-1164 FAX: 263-1681

Denise Pomeroy
Health Services Director

Erin Gustafson
Public Health Officer

Jasjit Kang
Environmental Health Director

SEAL WITHOUT WITNESS

Permit Number: WE5569AG

Site Address: 2185 Ogulin Canyon Rd. clearlake CA

Assessor's Parcel No: 010 - 044 - 17

Owner Name: Ogulin Hills Holdings

Date: 4-1-21

REASON FOR SEAL WITHOUT WITNESS:

- ☐ **Emergency Seal – Explain:**
- ☒ **Inspector unable to witness**
- ☐ **Other:**

IMPERMEABLE LAYER in which annular space terminates:

2" **at a depth of** 23' **feet.**

SEALANT USED: Bentonite clay with concrete cap
METHOD OF PLACEMENT: Poor Down Hole Mix concrete cap

I hereby certify that I have installed the annular seal in accordance with the provisions of the Lake County Well Ordinance and unless otherwise specified in the Lake County Well Ordinance, with the California Department of Water Resources Bulletin 74-81 or as modified by subsequent revisions or supplements.

DRILLING CONTRACTOR SIGNATURE: [signature]

COMPANY: Will Peterson Well Drilling **LICENSE NO:** 1009053

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

Page 1 of 1

Owner's Well Number 1

Date Work Began 3/24/2021 Date Work Ended 3/25/2021

Local Permit Agency Environmental Health

Permit Number WE 5569 AG Permit Date 2/22/2021

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. XXXXXXX

DWR Use Only – Do Not Fill In
State Well Number/Site Number
Latitude N / Longitude W
APN/TRS/Other

Geologic Log

Orientation ● Vertical ○ Horizontal ○ Angle Specify

Drilling Method Air Rotary Drilling Fluid na

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	40	Brown Clay, some gravel
40	380	cemented franciscan gravels

Total Depth of Boring 380 Feet

Total Depth of Completed Well 375 Feet

Well Owner

Name Ogulin Hills Holdings

Mailing Address 637 Lindaro St. Ste 201

City San Rafael State CA Zip 94901

Well Location

Address 2185 Ogulin Canyon Rd.

City Clearlake County Lake

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

Datum Dec. Lat. Dec. Long.

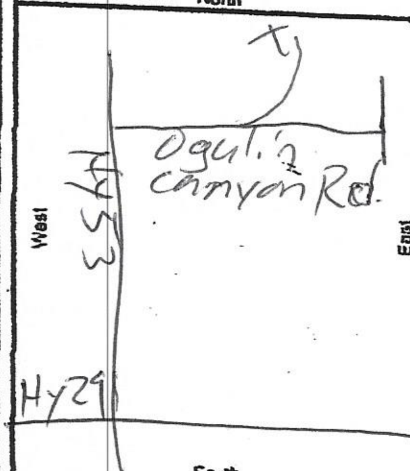
APN Book 010 Page 044 Parcel 17

Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North



West East South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

● New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

● Water Supply
☐ Domestic ☐ Public
■ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water 280 (Feet below surface)

Depth to Static Water Level 280 (Feet) Date Measured 3/25/21

Estimated Yield* 80 (GPM) Test Type Air Lift

Test Length 2 (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size If Any (Inches)
0	280	9	F480	PVC	1/4"	4 1/2	na	na
280	375	9	F480	PVC	1/4"	4 1/2	PERF	.035

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	1	Concrete	Seal
1	23	bentonite	Seal
23	375	5/16 pea	gravel pack

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Will Peterson Well Drilling

Person, Firm or Corporation

P.O. Box 1095 Kelseyville CA 95451

Address City State Zip

Signed [signature] 4-1-21 1009053

C-57 Licensed Water Well Contractor Date Signed C-57 License Number

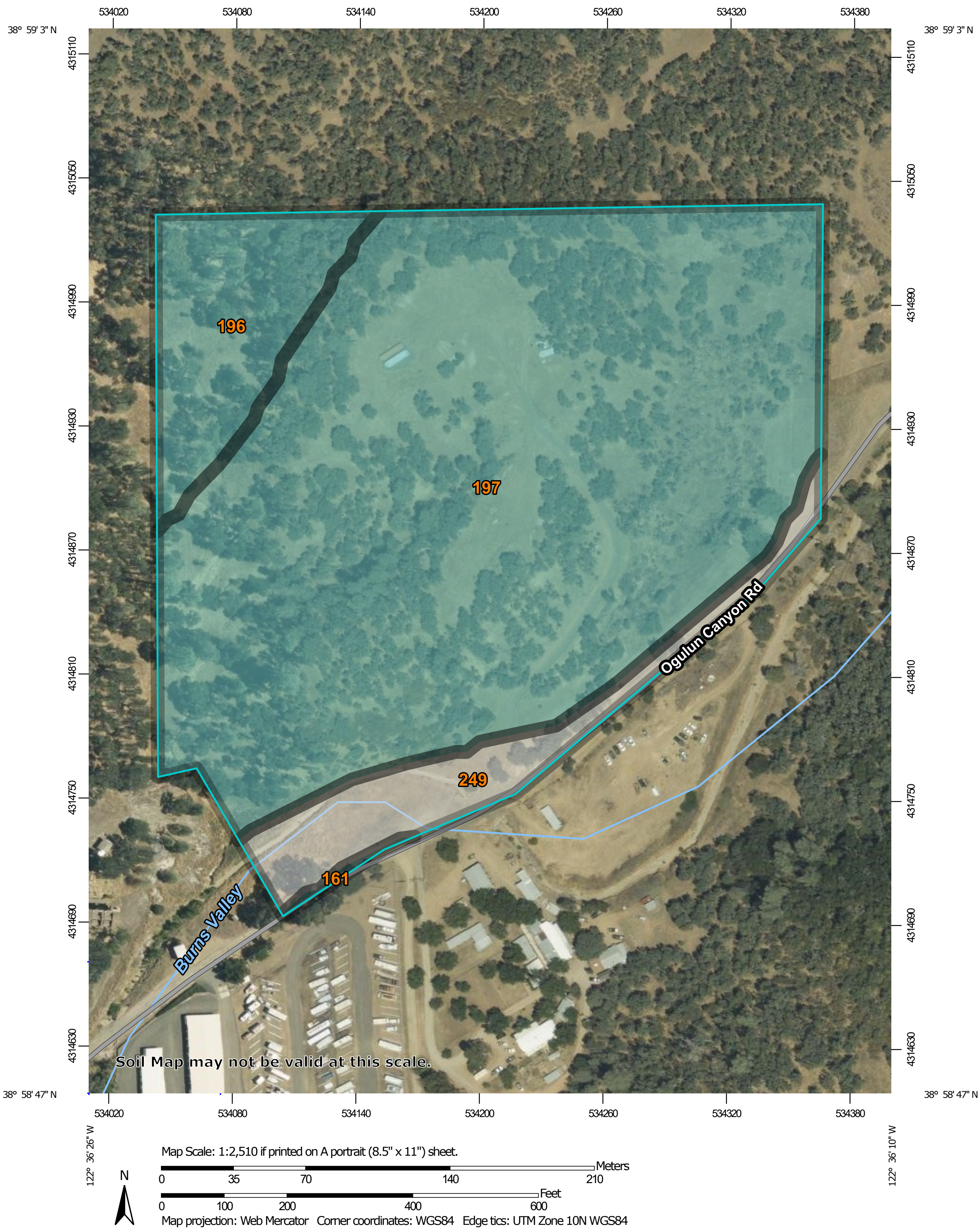
DWR 188 REV 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ATTACHMENT 2

NRCS SOIL SURVEY RESULTS

HYDROLOGIC SOIL GROUPS


122° 36' 26" W
122° 36' 10" W
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534080
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534260
534320
534380
38° 59' 3" N
38° 58' 47" N
4315110
4315050
4314990
4314930
4314870
4314810
4314750
4314690
4314630
196
197
249
161
Ogulun Canyon Rd
Burns Valley
Soil Map may not be valid at this scale.
Map Scale: 1:2,510 if printed on A portrait (8.5" x 11") sheet.
Meters
0 35 70 140 210
Feet
0 100 200 400 600
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lake County, California
Survey Area Data: Version 18, Sep 6, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 2, 2019—Jul 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
161	Manzanita loam, 15 to 25 percent slopes	C	0.0	0.2%
196	Phipps complex, 15 to 30 percent slopes	C	2.2	10.4%
197	Phipps complex, 30 to 50 percent slopes	C	17.2	81.1%
249	Xerofluvents-Riverwash complex		1.8	8.3%
Totals for Area of Interest			**21.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 3

PRISM PRECIPITATION 1895-2020

PRISM Time Series Data
Location: Lat: 38.9831 Lon: -122.6047 Elev: 1637ft
Climate variable: ppt
Spatial resolution: 4km
Period: 1895 - 2020
Dataset: AN81m
PRISM day definition: 24 hours ending at 1200 UTC on the day shown
Grid Cell Interpolation: On
Time series generated: 2021-Nov-08
Details: http://www.prism.oregonstate.edu/documents/PRISM_datasets.pdf

Date	ppt (inches)
1895	33.63
1896	39.53
1897	26.55
1898	15.13
1899	36.1
1900	24.89
1901	26.27
1902	34.58
1903	26.84
1904	42.96
1905	23.18
1906	43.17
1907	35.74
1908	18.81
1909	45.51
1910	17.48
1911	33.96
1912	20.53
1913	26.29
1914	31.26
1915	35.72
1916	30.02
1917	12.99
1918	20.6
1919	23.04
1920	29.98
1921	24.18
1922	27.47
1923	14.73
1924	21.14
1925	26.24
1926	34.63
1927	28.51
1928	20.62
1929	15.3
1930	17.4

	Precip (inches)
Average	27.63
Minimum	6.49

1931	25.04
1932	12.78
1933	20.87
1934	18.96
1935	25.54
1936	25.52
1937	34.47
1938	31.9
1939	12.63
1940	46.05
1941	45.26
1942	32.35
1943	21.27
1944	26.51
1945	29.28
1946	14.21
1947	16.82
1948	23.43
1949	16.82
1950	34.39
1951	29.8
1952	34.49
1953	21.26
1954	29.45
1955	25.1
1956	21.25
1957	30.95
1958	35.77
1959	20.73
1960	27.2
1961	20.06
1962	27.13
1963	28.56
1964	23.1
1965	26.06
1966	22.75
1967	27.62
1968	30.56
1969	34.16
1970	35.49
1971	17.75
1972	19.43
1973	41.8
1974	24.09
1975	24.41
1976	8.7
1977	19.25

1978	30.31
1979	35.17
1980	24.72
1981	31.37
1982	33.74
1983	62.67
1984	21.4
1985	16.78
1986	38.8
1987	27.96
1988	17.74
1989	21.03
1990	16.9
1991	24.2
1992	30.08
1993	36.42
1994	21.42
1995	55.55
1996	37.21
1997	30.34
1998	52.68
1999	23.66
2000	27.61
2001	36.24
2002	28.87
2003	33.08
2004	33.64
2005	39.25
2006	34.93
2007	13.8
2008	19.43
2009	17.73
2010	34.1
2011	23.25
2012	30.53
2013	6.49
2014	31.39
2015	18.19
2016	35.97
2017	43.71
2018	23.67
2019	43.27
2020	10