NORTHPOINT
CONSULTING GROUP, INC.

MEMORANDUM

FROM: Annje Dodd, PhD, PE
NorthPoint Consulting Group, Inc.

TO: Mary Claybon, Senior Planner
Lake County Community Development Department

RE: Water Demand Update – UP 23-08 – Wellness Ranch, LLC

DATE: **March 5, 2025**

The subject project has modified their current application, UP 23-08, to reduce the request for new outdoor canopy from 130,680 square feet (sf) to 87,120 sf and increase the request for new indoor cultivation canopy from 2,400 sf to 6,420 sf. Provided below is the summary of existing (already approved) cultivation and new cultivation:

1) Total Outdoor Canopy, upon approval of UP 23-08
    a. 10,000 sf at Site 1 (approved)
    b. 97,120 sf at Site 2 (10,000 sf approved, 87,120 sf new)
2) Total Indoor Canopy, upon approval of UP 23-08
    a. Within the existing 2,400 sf barn: two tiers of canopy within 90% of the floor area to allow for aisles = 90% of 4,800 sf = 4,320 sf (2,400 sf is already approved)
    b. Within the proposed 2,500 sf barn: two tiers of canopy within 90% of the floor area to allow for aisles = 90% of 5,000 sf = 4,500 sf

Thus, upon approval UP 23-08, at buildout, there will be a total of 107,120 sf of outdoor canopy (20,000 sf approved and 87,120 sf new) and 8,820 sf of indoor canopy (2,400 sf approved and 6,420 sf new).

The purpose of this Memorandum is to provide an update to the hydrology analysis due to the change in canopy areas. Demand is estimated here utilizing the same methodology as the Ordinance 3106 Hydrology Report and Drought Management Plan prepared for Wellness Ranch dated April 2024 (April 2024 Report).

Revised Project Water Demand

Table 1. Estimated annual residential and irrigation demand in Area 1 – Well #1 Source.

Source	# days	Annual Demand (gallons)	Annual Demand (acre-feet)	Change from April 2024 Report
Residence	365	109,500	0.34	No Change
10,000 sf Outdoor	150	108,030	0.33	No Change
8,820 sf Indoor	365	231,854	0.71	Increase
	Total	**449,384**	**1.38**	**+100,417 gallons (0.31 acre-feet)**

Table 2. Estimated annual irrigation demand in Area 2 – Well #2, #3, and #4 Source.

Source	# days	Annual Demand (gallons)	Annual Demand (acre-feet)	Change from April 2024 Report
97,120 SF (2.23 Acre) Outdoor	150	**1,049,188**	**3.22**	**Decrease by 470,578 gallons (1.44 acre-feet)**

The estimated demand is an average over the cultivation period which is lower during seedling/vegetative states and higher during the flowering period. Using the 2022 monthly demand distribution to estimate the distribution of demand for the outdoor cultivation, and assuming indoor demand remains constant year-round, the total monthly demand is summarized in Table 3. The total revised projected annual demand, including residential demand, is approximately 1,498,572 gallons or 4.6 acre-feet, which is an overall reduction of water demand of 370,161 gallons (~1.1 acre-feet).

The estimated irrigation water demand is an average daily rate over the course of the growing season; however, seasonal water demand likely varies in response to temporal and environmental variables (e.g., temperature, relative humidity, wind, plant age and size, etc.).

Table 3. Estimated projected monthly water use (1,000 gallons).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Area 1	29	26	29	28	29	45	58	55	52	40	28	29	449
Area 2	0	0	0	0	4	169	281	255	234	107	0	0	1,049
Total	29	26	29	28	33	215	338	310	287	147	28	29	1,499

Project Water Storage and Wells

The project proposes to use the existing groundwater well #1 to fill one (1) 5,000-gallon water tank near the residence and four (4) 2,500-gallon tanks near the western, 10,000 SF outdoor grow site, for a total of 15,000 gallons of water storage for Area 1. The approximate peak daily demand, including residential demand, for Area 1 is 1,870 gallons, which is an increase of 278 gallons. Well #1 has a yield of 10 gpm, and is sufficient to meet the maximum daily demand in about 3.1 hrs. The storage provided in Area 1 represents about 8 days of water storage during peak demand in Area 1. The drawdown analysis in the April 2024 Report for Well #1 was conducted using 3-hours of pumping. The change in the estimated radius of influence is negligible and no nearby offsite wells are within the radius of influence for Well #1.

The project proposes to use wells #2, 3 and 4 to fill up eleven (11) 5,000-gallon water tanks to be used for irrigation and one (1) 5,000-gallon tank to be used for fire suppression, for a total 55,000 gallons of water storage for irrigation in Area 2. The approximate peak daily demand for Area 2 is 9,051 gallons which is 4,060 gallons per day less than what was evaluated in the April 2024 Report.

Conclusions

- The change in the project results in an increase in demand to Area 1 and a decrease in demand to Area 2 with an overall reduction in water demand of 370,428 gallons (~1.1 acre-feet).
- The increase in demand to Area 1 results in a negligible change to the estimated radius of influence and would not impact nearby wells.
- Based on the information provided herein and in the April 2024 Report, the project would have sufficient water and would not have a significant impact on the surrounding area.

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.

Wellness Ranch, LLC
Ordinance 3106 Hydrology Report and Drought Management Plan

Lead Agency:

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April 2024

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1. INTRODUCTION

1.1. PURPOSE

The purpose of this report is to present the assessment and requirements of Ordinance 3106. On July 27, 2021, the Lake County Board of Supervisors passed an Ordinance 3106, an Urgency Ordinance requiring land use applicants to provide enhanced water analysis during a declared drought emergency. Ordinance 3106 requires all projects that require a California Environmental Quality Act (CEQA) analysis of water use include the following items in a Hydrology Report prepared by a licensed professional experienced in water resources:

- Approximate amount of water available for the project's identified water source,
- Approximate recharge rate for the project's identified water source,
- Cumulative impact of water use to surrounding areas due to the project, and
- A Drought Management Plan (DMP) depicting how the applicant proposes to reduce water use during a declared drought emergency.

1.2. PROJECT LOCATION AND SITE DESCRIPTION

The project is located at 6751 Ridge Road, Lakeport CA (APN: 007-045-16), approximately 5.5 miles southwest of the town of Lakeport. (Figure 1)

1.3. EXISTING AND PROPOSED PROJECT

Existing Conditions: Existing onsite permitted cultivation includes 20,000 square feet (SF) of outdoor cultivation and 2,500 SF of indoor cultivation. Existing development on the property includes a small two-bedroom single-family residence, barn, four (4) wells, septic system, water storage tanks, and existing gravel access roads (Appendix A). The applicant cultivated 10,000 sf of the outdoor canopy during the 2021, 2022, and 2023 cultivation seasons.

Proposed Project: The proposed project is a Major Use Permit to allow an additional 3.0 acres of outdoor cannabis cultivation and an additional 2,500 SF of indoor cultivation.

2. WATER SOURCE AND SUPPLY

There are four (4) existing, onsite groundwater wells that would be used for cultivation irrigation. The estimated yield reported on the Well Completion Report (WCR) for each well is summarized in Table 1.

The well locations are shown on the Site Plan in Appendix A and Figure 6. The WCR's for each well are provided in Appendix B. Production tests were conducted on wells #2, 3 and 4 and the results are provided in Appendix C and summarized in Table 2. The wells range in depth from 160 ft to 300 ft and have a combined yield of about 38 gpm (61.3 acre-feet/year or AFY).

Well #1 will be used to source water for the existing residence, nearby 10,000 SF of outdoor cultivation and 5,000 SF of indoor cultivation. This is referred to as Area 1 herein.

Well #2, #3, and #4 will be used to source water for the existing 10,000 SF and new 3.0 acre outdoor cultivation. This is referred to as Area 2 herein.

Table 1. Summary of project well information (WCRs in Appendix B).

Well #	Year Drilled	Depth (ft)	Yield (gpm)		Yield (AFY)	
			WCR	Pump Test	WCR	Pump Test
1	2018	300	10	n/a	16.1	n/a
2	2021	280	8	6	12.9	9.7
3	2023	300	12	8	19.4	12.9
4	2023	160	17	14	27.4	22.6

Table 2. Summary well production test results (Results in Appendix C).

Well	Static Water Level (ft bgs)		Test		Recovery	
	WCR	Pump Test	Duration (hrs)	Water Level at End of Test (ft bgs)	# hrs After End of Test	Water Level (ft bgs)
1	100	n/a	--	--	--	--
2	0	0	5	191	1.5	121.2
3	40	7.6	3.6	70	0.4	22.9
4	20	11.9	2.3	35.1	0.2	21.1

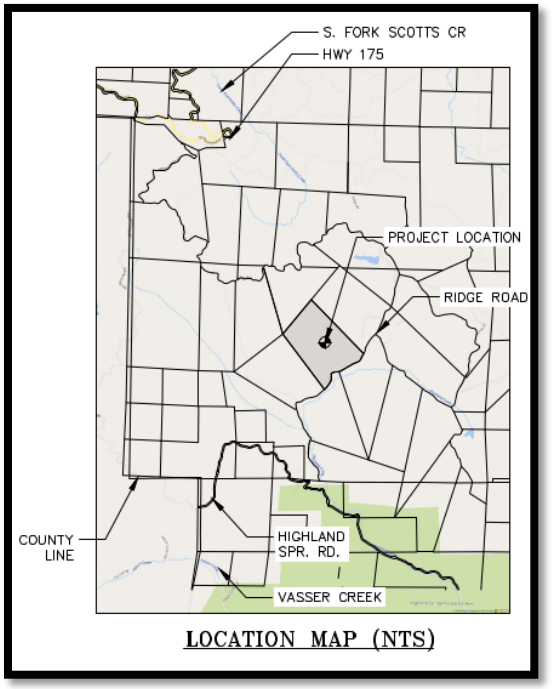

Figure 1. Location Map.

3. WATER DEMAND AND STORAGE

3.1. PROJECT WATER DEMAND

Records of water use (provided by the applicant, Appendix D) recorded during the 2021, 2022, and 2023 cultivation seasons were used to estimate the water demand for the proposed cultivation activities. During 2021, a total of 122,215 gallons of water were used over 129 days (Table 3); the cultivation canopy during 2021 was 10,000 SF, equating to approximately 0.095 gallons per day (gpd) per SF of canopy. During 2022, a total of 103,190 gallons of water were used over 147 days (Table 4); the cultivation canopy during 2022 was 10,000 SF, equating to approximately 0.07 gpd per SF of canopy. Less water was used in 2022 due to improved irrigation and water conservation measures and September 2022 rainfall (Appendix D). During 2023, a total of 75,150 gallons of water were used over 147 days (Table 5); the cultivation canopy during 2023 was 10,000 SF, equating to approximately 0.05 gpd per SF of canopy. The lower demand in 2023 was attributed to favorable weather conditions, improved irrigation methods, and addressing plant disease (Appendix D). The maximum daily demand was recorded as 2,500 gallons (0.25 gpd per SF of canopy).

Table 3. Record of water use during 2021 cultivation season.

	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Irrigation (gallons)	0	9,090	32,500	37,500	35,000	8,125	0	122,215
# days	0	20	31	30	30	18	0	129
gpd	0	455	1,048	1,250	1,167	451	0	947

Table 4. Record of water use during 2022 cultivation season.

	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Irrigation (gallons)	350	16,660	27,596	25,036	23,048	10,500	0	103,190
# days	1	30	31	30	30	25	0	147
gpd	350	555	890	835	768	420	0	702

Table 5. Record of water use during 2023 cultivation season.

	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Irrigation (gallons)	200	9,700	21,000	20,000	16,750	7,500	0	75,150
# days	1	30	31	30	30	25	0	147
gpd	200	323	677	667	558	300	0	511

The CalCannabis Environmental Impact Report (CDFA, 2017) uses 6.0 gallons per day per plant as an estimated water demand for cannabis cultivation. This is 1.0 gallon (gpd) per plant more than reported by Bauer et. el. (2015), who reported up to 5.0 (gpd) per plant (18.9 Liters/day/plant). Using the more conservative estimate of 6.0 gpd (CDFA, 2017), the demand is 3,000 gpd (2.1 gallons per minute [gpm]) per acre of canopy (or 0.069 gpd per SF of canopy). The estimate of 6.0 gpd is a largely conservative estimate for a large outdoor plant, measured in the driest period of the season. Another estimate that is used for outdoor cultivation is 1.2 to 14.7 gallons per canopy square foot per year (Ascent, 2017) which equates to 290-3,560 gpd per acre of canopy. Actual demand at Wellness Ranch, averaged over the three years of record, averages to 0.072 gpd/SF or 3,137 gpd per acre of canopy. Using the actual daily demand provided by the applicant, the estimated irrigation demand, assuming a 150-day outdoor cultivation season and year-round indoor cultivation, is summarized in Table 6 and Table 7. Residential demand is included. According to the EPA (https://www.epa.gov/watersense/our-water), the average residential demand is 300 gpd.

Table 6. Estimated annual residential and irrigation demand in Area 1 – Well #1 Source.

Source	# days	Annual Demand (gallons)	Annual Demand (acre-feet)
Residence	365	109,500	0.34
10,000 SF Outdoor	150	108,030	0.33
5,000 SF Indoor	365	131,437	0.40
	Total	**348,967**	**1.07**

Table 7. Estimated annual irrigation demand in Area 2 – Well #2, #3, and #4 Source.

Source	# days	Annual Demand (gallons)	Annual Demand (acre-feet)
140,680 SF (3.23 Acre) Outdoor	150	**1,519,766**	**4.66**

The estimated demand is an average over the cultivation period which is lower during seedling/vegetative states and higher during the flowering period. Using the 2022 monthly demand distribution to estimate the distribution of demand for the outdoor cultivation, and assuming indoor demand remains constant year-round, the total monthly demand is summarized in Table 8. The total projected annual demand, including residential demand, is approximately 1,869,000 gallons or 5.7 acre-feet.

The estimated irrigation water demand is an average daily rate over the course of the growing season; however, seasonal water demand likely varies in response to temporal and environmental variables (e.g., temperature, relative humidity, wind, plant age and size, etc.).

Table 8. Estimated projected monthly water use (1,000 gallons).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Area 1	20	18	20	20	21	37	49	47	44	31	20	20	349
Area 2	0	0	0	0	5	245	406	369	339	155	0	0	1,520
Total	20	18	20	20	26	283	456	415	383	186	20	20	1,869

3.2. IRRIGATION METHOD AND WATER STORAGE

The project proposes to use the existing groundwater well #1 to fill one (1) 5,000-gallon water tank near the residence and four (4) 2,500-gallon tanks near the western, 10,000 SF outdoor grow site, for a total of 15,000 gallons of water storage for Area 1 (Site 1, Appendix A).

The project proposes to use wells #2, 3 and 4 to fill up eleven (11) 5,000-gallon water tanks to be used for irrigation and one (1) 5,000-gallon tank to be used for fire suppression, for a total 55,000 gallons of water storage for irrigation in Area 2 (Site 2, Appendix A).

Water from the storage tanks will be piped to drip irrigation systems at the cultivation areas. Drip lines will be sized to irrigate the cultivation areas at a slow rate to maximize absorption and prevent runoff. Drip irrigation systems, when implemented properly, conserve water compared to other irrigation techniques.

4. GEOLOGY AND HYDROGEOLOGY

The project is in the Lakeport region of Lake County, between Lakeport and Kelseyville, CA. The project is situated in Donovan Valley of the Mayacamas Mountains, within the Northern California Coast Range. The California Geologic Survey[1] maps the area as Cretaceous-Jurassic marine sedimentary and metasedimentary sandstone with smaller amounts of shale, chert, limestone, and conglomerate, and Mesozoic volcanic and metavolcanic rocks, such as andesite, rhyolite flow rocks, greenstone, volcanic breccia, and other pyroclastic rocks and volcanic rocks of Franciscan Complex. There are multiple faults and contacts mapped within the vicinity of the project site (Figure 2).

The project wells are not located within a California Department of Water Resources (DWR) Bulletin 118 mapped groundwater basin. The nearest mapped groundwater basin is the Big Valley Basin (#5-15), located approximately 1-mile east. The well is located in the Donovan Valley area, within the Highland Creek watershed that drains to Adobe Creek and, eventually, into Clear Lake, approximately 11 stream-miles to the northeast. The upland areas of Donovan Valley, including where the wells are located, are described as Lower unit Jurassic-Cretaceous (JKl) muscovite bearing sandstones and shales, whereas the lowland/valley portions of Donovan Valley are comprised of Holocene aged alluvium (Qal). Groundwater levels in upper geologic units are described as occurring in deeper, bedrock fracture zones; whereas alluvial aquifers generally occur nearer the ground surface[2] (Figure 3).

According to the WCR geologic log information for the wells, the water bearing unit of the wells is comprised primarily of sandstone and shale (Table 9), which is consistent with the Lower unit Jurassic-Cretaceous, a confined water bearing unit.

Table 9. Summary of project well geologic information.

Well	Depth (ft bgs)	Screening Interval (ft bgs)	Screened Interval Geology
1	300	20-300	Sandstone/Shale
2	280	40 - 280	Sandstone/Shale
3	300	60 – 80; 200 - 300	Sandstone/Shale
4	160	50 - 160	Sandstone/Shale

[1] Geologic Map of California
[2] USGS National Geologic Map Database – Geology of the Kelseyville quadrangle (McNitt, 1968)

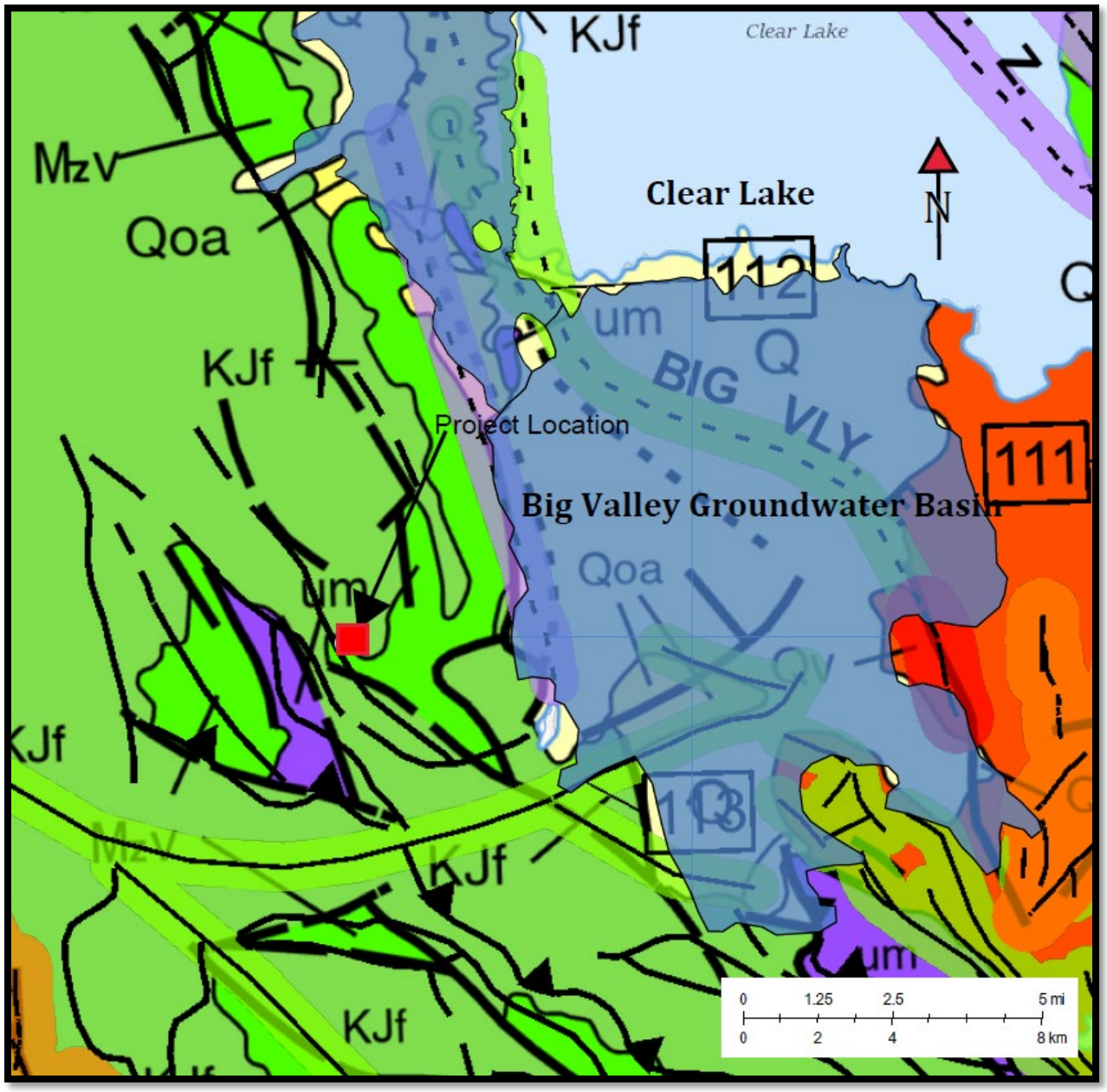

Figure 2. California Geologic Map showing the project is mapped as 'KJf', comprised of Cretaceous-Jurassic Marine sedimentary and metasedimentary sandstones with minor amounts of shale, chert, limestone, and conglomerate, and as 'Mzv', comprised of Mesozoic volcanic and metavolcanic rocks[1].

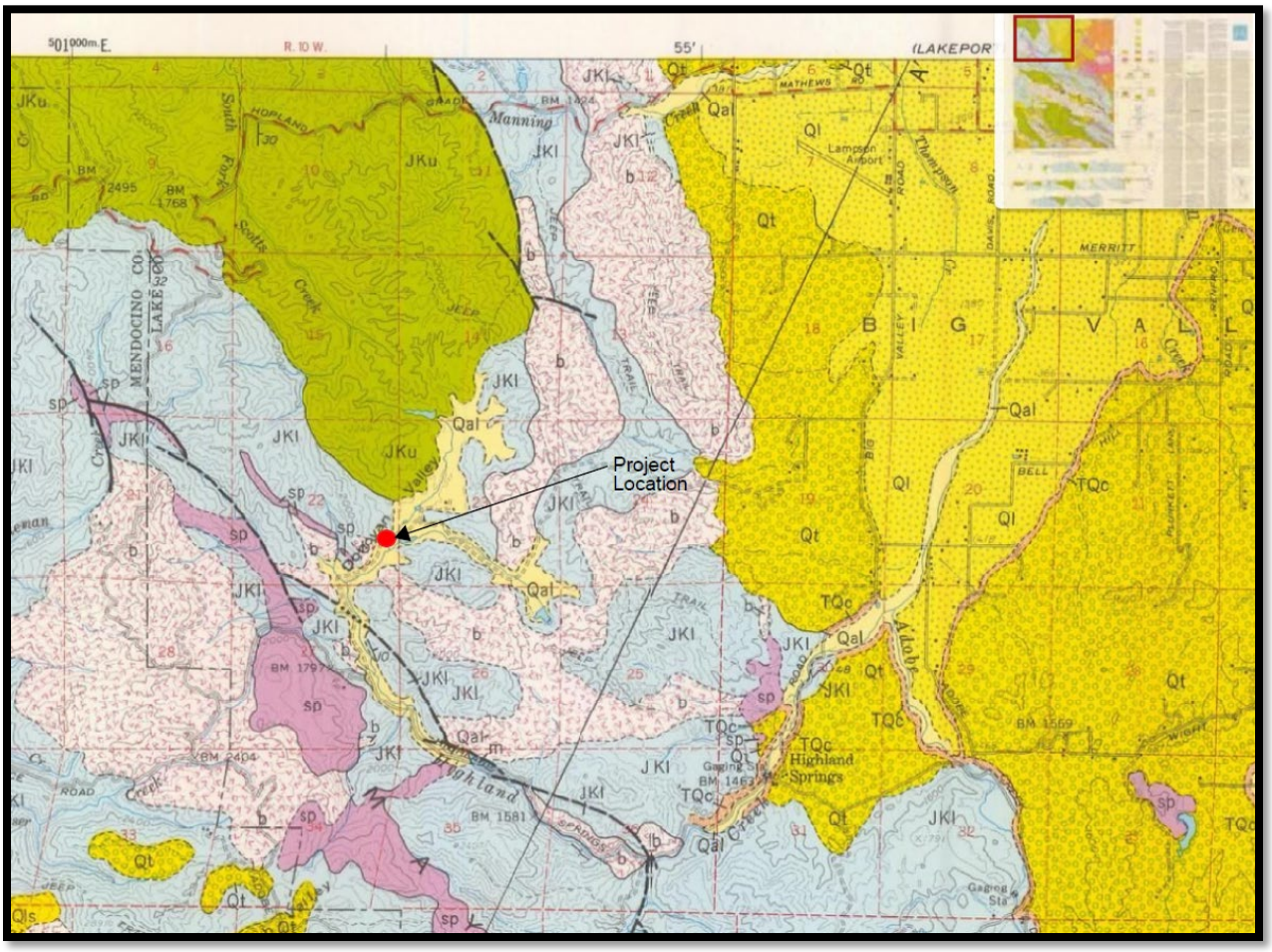

Figure 3. Detailed geology of project site mapped as JKl – Lower Unit, Jurassic-Cretaceous and Qal – Alluvium[2].

5. GROUNDWATER RECHARGE AND STORAGE CAPACITY

5.1. GROUNDWATER RECHARGE

Annual groundwater 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). The CN is an empirical parameter used to predict runoff or infiltration from excess rainfall. 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 (to be conservative) as the project parcel area or 106.4 acres.

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 are determined from the NRCS Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm).

The recharge area is comprised of two HSGs: HSG C (50-acres or 47%) and HSG D (56.4-acres or 53%) (Appendix E). The cover type is a combination of shrub/brush in good condition. The CNs and areas are summarized in Table 10.

Table 10. Land Use and Curve Numbers.

Land Use Type	HSG	Condition	CN	Area (acres)	Weighted CN
Brush	C	Good	65	50	69.2
Shrubs/Brush	D	Good	73	56.4	

The PRISM Climate Group gathers climate observations from a wide range of monitoring networks and provides time series values of precipitation for individual locations from 1895 to 2020 (https://prism.oregonstate.edu/explorer/), however, to represent the more recent time period, the annual precipitation from 2000 to 2023, as predicted by PRISM, was used. The annual average precipitation over this period is 37.8 inches and the minimum precipitation over this period (and the entire period of record) is 8.4 inches.

Using the above information, and assuming that 100% of the initial abstraction is evapotranspiration, the estimated annual recharge over the recharge area of 106.4 acres is summarized in (Table 11).

Table 11. 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 = $P - Q - *I_a$ (inches)	Recharge (AF)
106.4	8.4	69.2	4.4424	0.89	4.69	3.23	28.7
106.4	37.8	69.2	4.4424	0.89	32.9	4.41	39.1

The estimated recharge in Table 11 is based on the assumption that recharge is primarily from precipitation percolating or infiltrating down from the ground surface within the recharge area, however, confined aquifers are generally recharged where the aquifer materials are exposed at the surface (e.g. rock outcrop areas). Another method for estimating recharge is based on estimates determined by the USGS (USGS Fact Sheet 2007-3007). Although determined for humid basins in the east, the USGS estimated long-term average groundwater recharge to be between 10 and 66 percent of precipitation. Over the 106.4-acre recharge area this would equate to 7.4 – 59.0 AFY during a dry year and 33.5 – 221.2 AFY during an average year. The recharge estimates in Table 11 fall within these ranges for a dry year and on the lower end for an average year. To be conservative, the lowest estimates of recharge, based on 10 percent of precipitation, are used here to estimate long-term average groundwater recharge.

Using a recharge value of 7.4 AFY to represent a drought year and 33.5 AFY to represent an average year, over the 106.4-acre parcel area, there is sufficient recharge to meet the project's irrigation demand, even during drought years. Using PRISM Climate Group Precipitation records from 2000 through 2023 and long-term average recharge as 10 percent of precipitation (to be conservative), the project parcel's recharge was greater than the projects demand over the 24-year period (Figure 4).

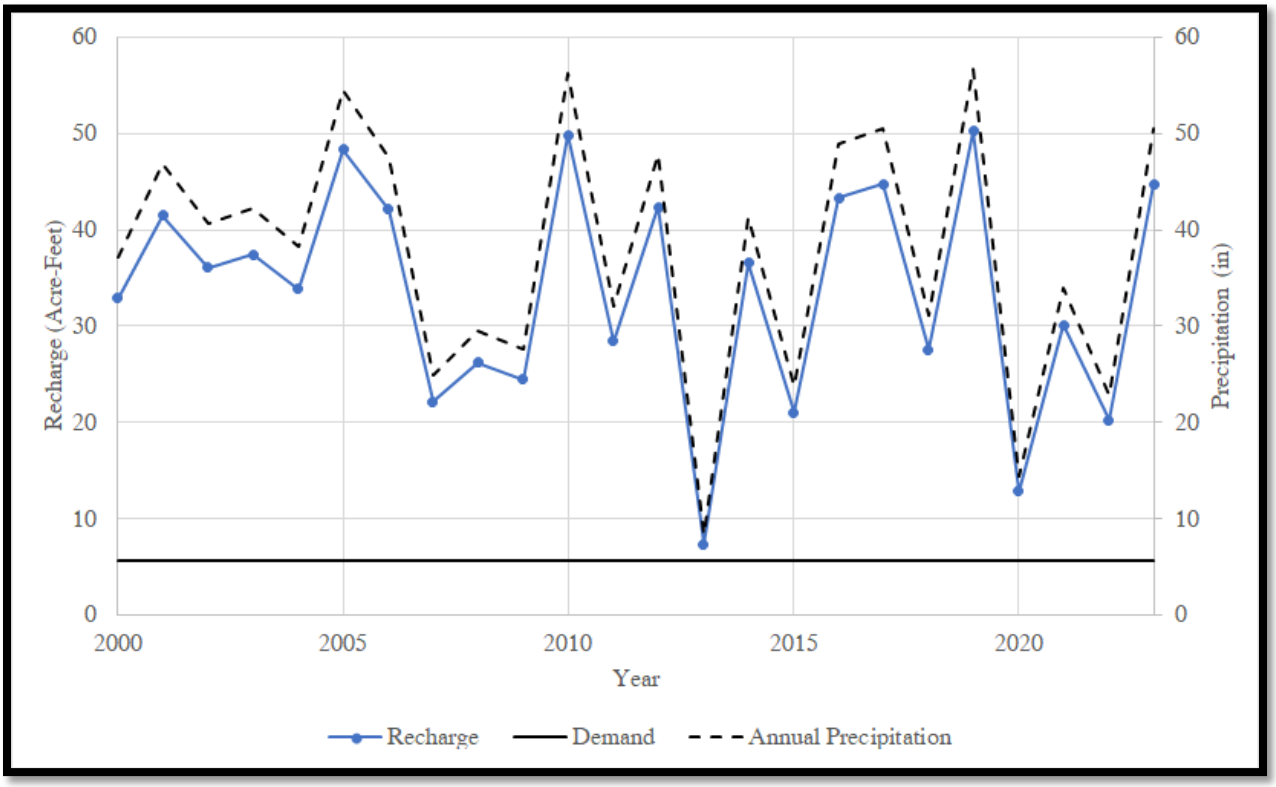

Figure 4. Annual precipitation and long-term average recharge over the project parcel area based on 10% of the annual precipitation from 2000 through 2023.

5.2. Groundwater Storage

5.2.1. Storage Beneath Project Parcel

The aquifer acts as a storage reservoir that gains water during the rainy season. The depletion in the reservoir depends on the storage capacity of the reservoir. The theoretical storage capacity of the water source's water-bearing formation can be estimated by multiplying the volume of the aquifer by the specific yield. The area of the water-bearing formation beneath the project parcel is used to estimate the parcel's contributing storage area. The thickness is estimated as the difference in the static groundwater level and the maximum aquifer depth. A range in values for the specific yield (effective porosity) was obtained from literature values for shale/stone, ranging between 0.09% to 0.9% (Heath, 1983 and Morris and Johnson 1967). To be conservative, the lower value of specific yield is used here. The results are summarized below.

- Aquifer Area: 106.4 acres (project's contributing area)
- Static Groundwater Level: 30 ft bgs (source: project's well logs)
- Aquifer Depth: 260 ft bgs (source: project's well logs)
- Aquifer Thickness: 230 ft
- Specific Yield: 0.0009
- Approximate Storage Capacity: 22 AF

6. IMPACTS TO SURROUNDING AREAS

6.1. SURROUNDING WELLS

The California Well Completion Report (WCR) Application (Well Completion Report Map Application (arcgis.com)) provides WCR information for Public Land Survey System (PLSS) grid units. The project wells are located in Township 13N, Range 10W, Section 22 (M13N10W22). There are two wells reported in the project's PLSS grid unit (neither of which are the project's wells); zero wells to the west (M13N10W21); three wells in the grid unit to the east (M13N10W23) plus one well incorrectly mapped in this grid; one to the north (M13N10W15) that was mapped incorrectly in this grid; and zero to the south (M13N10W27) (Appendix D). The closest wells to the site appear to be WCR1959-001021 (Legacy #51843, 108 ft deep, 11 gpm, screened 40-108 ft bgs), approximately 520 ft to the northeast, and WCR2002-010022 (Legacy #750692, 44 ft deep, 4.5 gpm, screened 20-44 ft bgs), approximately 430 feet to the southwest (Figure 6).

6.2. PROJECT WELLS

The maximum daily demand, 1,592 gpd, in Area 1 occurs in July (Table 12). Well #1 has a yield of 10 gpm, and is sufficient to meet the maximum daily demand in about 2.7 hrs. Currently, Area 1 has 15,000 gallons of water storage, which is sufficient to meet almost ten days of peak daily demand for Area 1.

The maximum daily demand, 13,111 gpd, in Area 2 occurs in July (Table 12). From the well production tests (Appendix C) Wells #2, 3, and 4 have a capacity of 6, 8, and 14 gpm, respectively with a cumulative capacity of 28 gpm. However, to minimize impacts to surrounding wells, the total pump rates will be limited to 6 gpm per well, which is sufficient to meet the maximum daily demand in about 12.1 hrs. The proposed irrigation water storage for Area 2 is 50,000 gallons, which is sufficient to meet almost 4 days of peak daily demand for Area 2.

Table 12. Estimated daily demand (gallons).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Area 1	660	660	660	660	672	1,241	1,592	1,506	1,464	1,015	660	660
Area 2	0	0	0	0	166	8,179	13,111	11,894	11,315	4,988	0	0

A radius of influence evaluation was conducted on the project wells using the Theis equation. The Theis equation was developed to model the response of a confined aquifer to pumping (Fetter, 2001). Using the Theis equation, the drawdown at a specific distance from each well can be estimated based on the project's maximum daily demand and capacity of each well as discussed above. The drawdown was used to estimate the specific capacity (SC) and transmissivity (T) for a confined aquifer as follows:

SC (gpm/ft) = Well Yield (gpm) ÷ Drawdown (ft)

T (gpd/ft) = 2000 × SC (gpm/ft) [Confined Aquifer, Source: Driscoll, 1986]

The drawdown from the project's wells after 3-hours of pumping in Area 1 and 12-hours of pumping in Area 2, for various distances from each well, is provided in Figure 5. Calculations are provided in Appendix F. The radius of influence (Figure 6) for each well is the distance where the modeled cone of depression from groundwater extraction under these conditions is negligible (less than 6-inches). None of the nearby, offsite wells are within the modeled cones of depression. In addition, since the project proposes 65,000 gallons of storage, which represents multiple days of water storage, and irrigation occurs typically every other day, each well would have at least (5) days to recover.

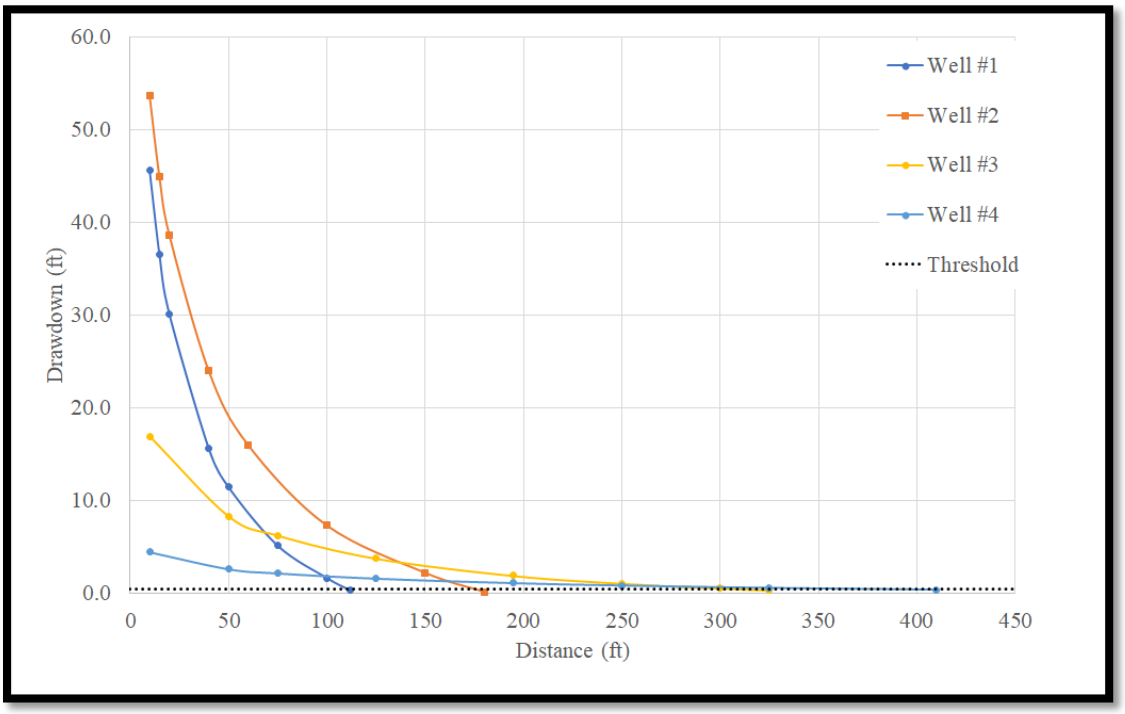

Figure 5. Estimated radius of influence (distance) associated with the project's wells (Threshold = 6 inches).

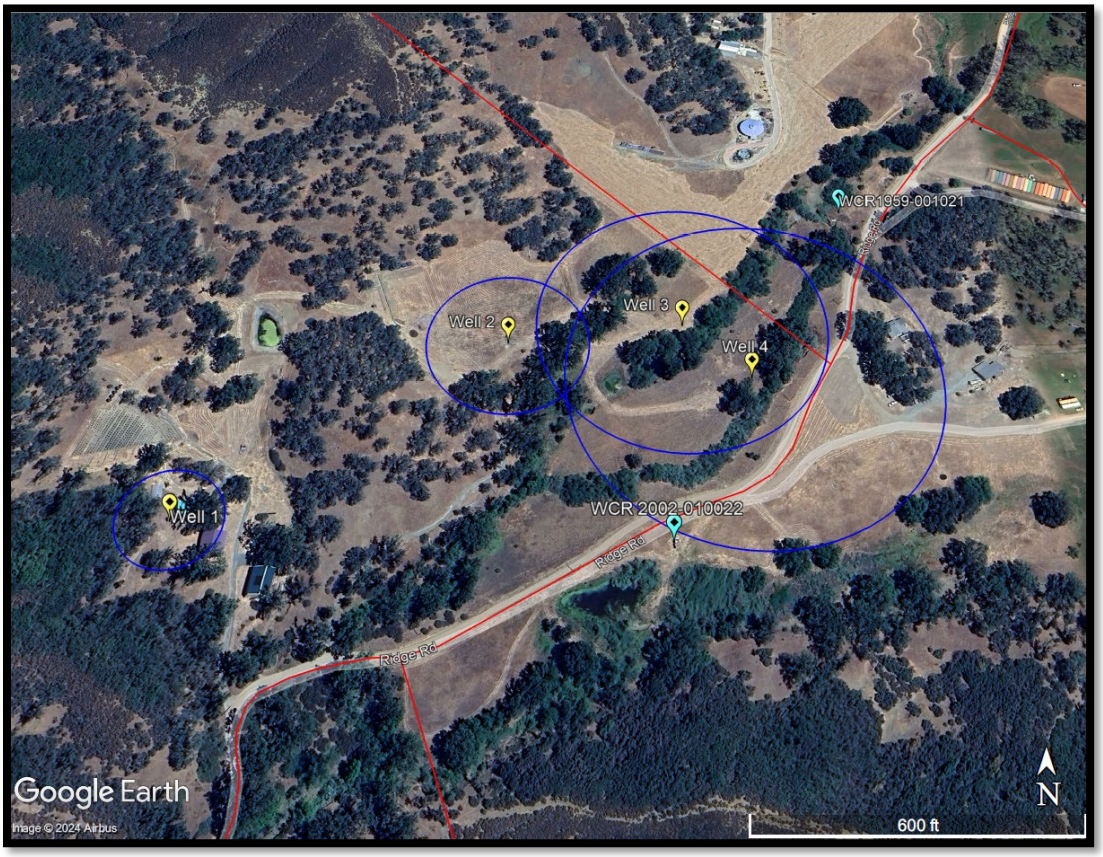

Figure 6. Project wells, nearby wells, and project well radius of influence (blue lines) (red lines = parcel lines).

6.3. SURFACE WATER

The closest surface water body, Donovan Valley Creek, is an ephemeral/intermittent stream flowing toward the southwest, through the lower boundary of the project parcel. The elevation of Donovan Valley Creek ranges between approximately 1,748 ft at the upper end of the project parcels and 1,733 ft as it leaves the project parcel. The project wells extract water from a confined water bearing unit of sandstone/shale, at elevations below the creek and are not likely hydrologically connected to the creek. (Figure 7)

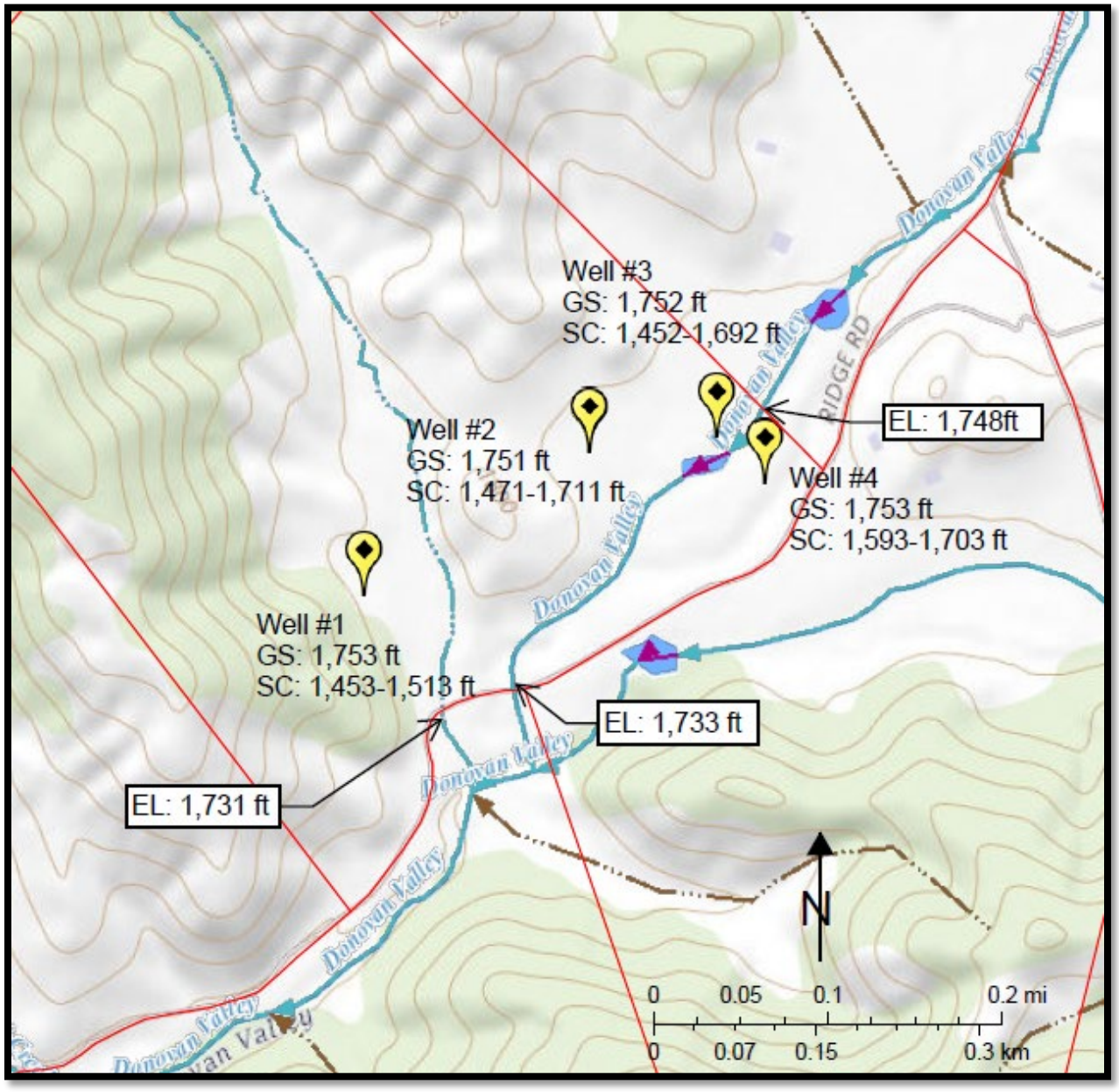

Figure 7. Screened well interval (SC) elevations (Table 9) compared to ground elevation (GE) and surface water (EL) elevations.

7. OPERATIONAL WATER MONITORING, CONSERVATION MEASURES, AND DROUGHT MANAGEMENT

7.1. STANDARD OPERATIONAL MEASURES

Standard operational procedures are recommended, regardless of whether the project is in an area experiencing drought conditions, including ongoing water monitoring and conservation measures that would reduce the overall use of water. These measures should be incorporated into the Water Use section of the project's Property Management Plan. Water Use includes information on water sources and metering, estimated water use, water conservation, and the irrigation system. Recommended on-going water conservation measures include, but may not be limited to, the following:

- No surface water diversion;
- Selection of plant varieties that are suitable for the climate of the region;
- The use of drip irrigation (instead of spray irrigation);
- Cover drip lines with straw mulch or similar to reduce evaporation;
- Water application rates modified from data from soil moisture meters and weather monitoring;
- Shutoff valves on hoses and water pipes;
- Daily visual inspections of irrigation systems;
- Immediate repair of leaking or malfunctioning equipment; and
- Water use metering and budgeting.

In addition to water use metering, water level monitoring is also required by the Lake County Zoning Ordinance. Ordinance Article 27 Section 27.11(at) 3.v.e. requires the wells to have a meter to measure the amount of water pumped as well as a water level monitor. In addition to the above measures, well water level monitoring and reporting is recommended to be performed as follows:

Seasonal Static Water Level Monitoring: The purpose of seasonal monitoring of the water level in the wells is to provide information regarding long-term groundwater elevation trends. It is recommended that the water level in the wells be measured and recorded once in the Spring (March/April), before cultivation activities begin, and once in the fall (October) after cultivation is complete. (note: The California Statewide Groundwater Monitoring Program (CASGEM) monitors semi-annually around April 15 and October 15). Records shall be kept, and elevations reported to the County as part of the project's annual reporting requirements. Reporting shall include a hydrograph plot of all seasonal water level measurements to-date, beginning with the initial measurement. Seasonal water level trends will aid in the evaluation of the recharge rate of the well. For example, if the water level measured during the Spring remains relatively constant from year to year, then the water source is recharging each year.

Water Level Monitoring During Extraction: The purpose of monitoring the water level in the Project Well during extraction is to evaluate the performance of the wells to determine the effect of the pumping rate on the water source during each cultivation season. This information shall be used to determine the capacity and yield of the well to aid the cultivators in determining pump rates and the need for water storage. The frequency of water level monitoring will depend on the source, the source's capacity, and the pumping rate. It is recommended that initially the water level be monitored twice per week or more, and that the frequency be adjusted as needed depending on the impact the pumping rate has on well water levels. Records shall be kept, and elevations reported to the County as part of the project's annual reporting requirements. Reporting shall include a hydrograph plot of the water level measurements during the cultivation season and compared to prior seasons.

Measuring a water level in a well can be difficult and the level of difficulty will depend on site-specific conditions. As part of the well monitoring program, the well owner/operator shall work with a well expert to determine the appropriate methodology and equipment to measure the water level in their well(s) as well as who will conduct the monitoring and recording of the well level data. The methodology of the well monitoring program shall be described and provided in the project's annual report to the County.

The groundwater level monitoring protocol is recommended to provide a framework for the early detection and response if there is groundwater depletion or inadequate recharge. Thus, in addition to monitoring and reporting,

an analysis of the water level monitoring data shall be provided and included in the project's annual report, demonstrating whether use of the well is causing significant drawdown and/or impacts to the surrounding area and what measures were taken to reduce impacts. If there are impacts, a revised Water Management Plan, including a revised water budget, shall be prepared and submitted to the County, for review and approval, demonstrating how the project will operate and mitigate the impacts in the future, including changes in operation, if necessary.

7.2. Drought Management/Emergency Water Conservation Measures

Drought can reduce both water availability and water quality necessary for productive farming, ranches, and grazing lands, resulting in significant negative direct and indirect economic impacts to the farm. As discussed above, recommended project monitoring will help detect if seasonal groundwater depletion is occurring, which is especially important during periods of drought. In addition, project reporting requires a revised Water Management Plan that demonstrates how the project will operate to address groundwater depletion.

To plan and prepare for drought conditions, the project will follow recommendations for monitoring, planning, and preparedness provided by the National Integrated Drought Information System - https://www.drought.gov/sectors/agriculture.

In addition to the above ongoing conservation measures, water metering, and reporting, during times of drought emergencies or water scarcity, the project may implement the following additional measures, as needed or appropriate to the site, to reduce water use and ensure both success and decreased impacts to surrounding areas:

- Install additional water storage and/or implement a rainwater catchment system;
- Install moisture meters to monitor how much water is in the soil at the root level and reduce watering to only what is needed to avoid excess;
- Cover the soil and drip-lines with removable plastic covers or similar to reduce evaporation;
- Irrigate only in the early morning hours or before sunset;
- Cover plants with shaded meshes during peak summer heat to reduce plant water needs; and/or
- Use a growing medium that retains water in a way to conserve water and aid plant growth. Organic soil ingredients like peat moss, coco coir, compost and other substances like perlite and vermiculite retain water and provide a good environment for cannabis to grow.

In the event the well(s) cannot supply the water needed for the project, the following measures may be taken:

- Reduce the amount of cultivation and/or length of cultivation season;
    - The amount of cultivation would be determined based on available water
    - Early crop harvest, if water becomes limited
- Install additional storage and/or implement a rainwater catchment system, installation of a rainwater catchment pond could provide additional storage and catchment area if the existing groundwater source becomes depleted;
- For indoor operations (if applicable to this project) recycle recaptured water from air conditioning and dehumidification units; and/or
- If possible, develop an alternative, legal, water source that meets the requirements of Lake County Codes and Ordinances.

8. SUMMARY AND CONCLUSIONS

- The project property has four existing groundwater wells. Well information is summarized in Table 1, Table 2, and Table 7. The total combined yield of the wells is 38 gpm which is an annual yield of 61.3 acre-feet (AF).

- Well #1 will be used to source water for the existing residence, nearby 10,000 SF of outdoor cultivation and 5,000 SF of indoor cultivation. Well #2, #3, and #4 will be used to source water for the existing 10,000 SF and new 3.0 acre outdoor cultivation.
- The total proposed project water demand is 5.7 AF, including residential demand. The maximum daily demand would occur in the summer months, July through August.
- The project proposes a total of 65,000 gallons of water storage, providing almost 5-days of water storage during peak seasonal demand.
- According to the geologic logs from the project's WCRs, the water bearing unit of the wells is comprised primarily of sandstone/shale, which is consistent with a confined water bearing unit.
- The long-term average recharge over the project parcel (106.4 acres), based on the most conservative estimates presented herein (based on 10% of precipitation per USGS Fact Sheet 2007-3007), is approximately 7.1 AFY and 33.5 AFY during a dry and average year, respectively. Both of which are sufficient to meet the project's demand.
- The recharge over the project parcel, based on 10% of the precipitation, exceeded the proposed project demand over the last 24 years of record, including the driest years on record.
- The estimated groundwater storage beneath the project parcel, over an area of 106.4 acres, is 22 AF, which exceeds the total project's demand.
- There are two (2) offsite wells near the project site. The closest wells to the site are to be WCR1959-001021 (Legacy #51843, 108 ft deep, 11 gpm, screened 40-108 ft bgs), approximately 520 ft to the northeast, and WCR2002-010022 (Legacy #750692, 44 ft deep, 4.5 gpm, screened 20-44 ft bgs), approximately 430 feet to the southwest (Figure 6).
- Drawdown was estimated using the Theis equation. The radius of influence, which is the distance where the modeled cone of depression from groundwater extraction under these conditions is negligible. None of the nearby wells are within the modeled cone of depression. In addition, since the project proposes 65,000 gallons of storage, which represents multiple days of water storage, and irrigation occurs typically every other day, each well would have at least (5) days to recover.
- The project wells extract water from a confined water bearing unit, at elevations below Donovan Valley Creek and are not likely hydrologically connected to the creek.

Since the recorded and tested yields of the project's wells are much greater than the project's demand; the project proposes sufficient water storage; the long-term average annual recharge exceeds the project's annual demand; the aquifer storage below the project area is sufficient to meet the project's demand; the project is required to comply with the County's groundwater monitoring and reporting requirements; the potential drawdown due to the project is unlikely to result in appreciable drawdown of off-site wells; and the project wells are not likely hydrologically connected to Donovan Valley Creek; therefore, the project would have sufficient water and would not have a significant impact on the surrounding area.

9. 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.

10. REFERENCES

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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.

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USGS. 2007. USGS Fact Sheet 2007-3007. https://pubs.usgs.gov/fs/2007/3007/

APPENDIX A: SITE PLAN

(12) 5K GAL TANKS
(ONE TANK FOR FIRE SUPPRESSION)
6 FT PERIMETER FENCE
TREE BUFFER
STATIC SOLAR SECURITY CAMERA
& MOTION-SENSING WORK LIGHT
SEASONAL
STREAM
100' STREAM
SETBACK, 150'
POND SETBACK
EXISTING PERMITTED POND
(RECREATION AND FIRE SUPPRESSION)
100' STREAM
SETBACK
EXISTING PERMITTED
DEEP WELL (SOLAR)
220'-9"
STATIC SOLAR SECURITY CAMERA
AND MOTION-SENSING WORK LIGHT
(TOWARD ENTRANCE)
EXISTING 10,000 SF
SITE 2 CANOPY AREA
6 FT TALL FENCE &
LOCKED GATE
PROPOSED 3-AC SITE 2 CANOPY AREA
NO PROPOSED GRADING
Well 2
Well 3
100' P/L SETBACK
119'-11"
119'-10"
STRAW WATTLES
(EROSION CONTROL)
SEE NOTES
194'-10"
STATIC SOLAR SECURITY CAMERA
AND MOTION-SENSING WORK LIGHT
(TOWARD ENTRANCE)
WATER DISTRIBUTION
EXISTING PERMITTED
DEEP WELL (SOLAR)
EXIST WATER
STORAGE TANKS
Well 4
EXIST 10,000 SF
SITE 1 CANOPY AREA
187'
16' WIDE
LOCKED GATE
TRASH & STORAGE BIN
500 SF PARKING &
WORKING AREA
NEW PERMITTED
DEEP WELL (SOLAR)
6' TALL PERIMETER
SECURITY FENCE
W/ LOCKED GATE
100 SF SECURE COMPOST AREA
W/ 6 FT PERIMETER FENCE)
100' STREAM
SETBACK
STRAW WATTLES
(EROSION CONTROL)
(2) PARKING &
(1) HANDICAP
EXISTING SEPTIC/LEACH FIELD
250' RESIDENCE
SETBACK
35' LONG TURNOUT
W/ 25' LONG TRANSITIONS
EXISTING HOOP HOUSE (IMMATURE PLANTS)
RELATED TO CULTIVATION (NO
ELECTRICAL OR GROUND DISTURBANCE)
EXISTING PERMITTED INDOOR SITE 3 CULTIVATION
(PERMIT BP#18-19-1635), SOLAR PWR
SEASONAL STREAM
ADA RESTROOM
8X12 STORAGE SHED
(PESTICIDES & FERTILIZERS)
EXISTING GRAVEL ROAD
TO BE IMPROVED WITH
ADDITIONAL GRAVEL
(1) 40' SHIPPING CONTAINER
FOR SECURE PACKAGING,
PROCESSING, HARVEST STORAGE)
65'-10"
13'-5"
(6) 40' SHIPPING CONTAINERS
FOR DRYING
EXISTING PERMITTED DEEP
WELL & (1) 5 KGAL TANK
EXISTING PERMITTED RESIDENCE
PG&E POWER & MONITORING EQUIP
Well 1
PROPOSED 2,500 SF BARN-STYLE
BUILDING FOR INDOOR CULTIVATION SITE 4
W/ PG&E & SOLAR POWER
NO PROPOSED GRADING
(1) PARKING SPACE
STRAW WATTLES
(EROSION CONTROL)
3'-11"
157'-2"
EXISTING RIDGE ROAD
(GRAVEL), 50' ROW
PREMISES BOUNDARY
16'-WIDE LOCKED ENTRY GATE
1790'
1780'
1805'
1810'
1800'
1795'
1790'
1785'
1780'
1775'
1755'
1745'
1740'
55'
SLOPE
P/L
T/d

GRAPHIC SCALE
60 0 30 60 120
(IN FEET)
1 inch = 60 ft.

NOTES:
1. GRAVEL ACCESS ROADS ARE CONFIRMED BY PREVIOUS CALFIRE SITE VISIT TO MEET PRC 4290 STANDARDS FOR ALL-SEASON ROADS. ALL ROADS TO BE FINISHED WITH 6" OF ¾" AB.
2. IRRIGATION SYSTEM CONSISTS OF MULTIPLE DEEP WELLS, 2" PVC TRANSMISSION LINES TO STORAGE TANKS, DISTRIBUTION VIA DRIP LINES TO CULTIVATION.
3. SOLAR POWERED CAMERAS AND LIGHTS.
4. ALL DISTURBED AREAS TO HAVE BMPs IMPLEMENTED IN ACCORDANCE WITH SITE MANAGEMENT PLAN.
5. ALL PROPOSED CANNABIS-RELATED STRUCTURES SHALL BE CONFIRMED ON SITE TO BE SET BACK 50 FEET FROM TOP OF BANK OF ALL CLASS III STREAMS AND 100 FEET FROM ALL CLASS II STREAMS.

REGISTERED PROFESSIONAL ENGINEER
JESS R. GREGORY
No. 78334
October 27, 2023
CIVIL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

REVISIONS			
NO.	DESCRIPTION	DATE	BY

GREGORY ENGINEERING, INC.
Cottonwood, CA 96022

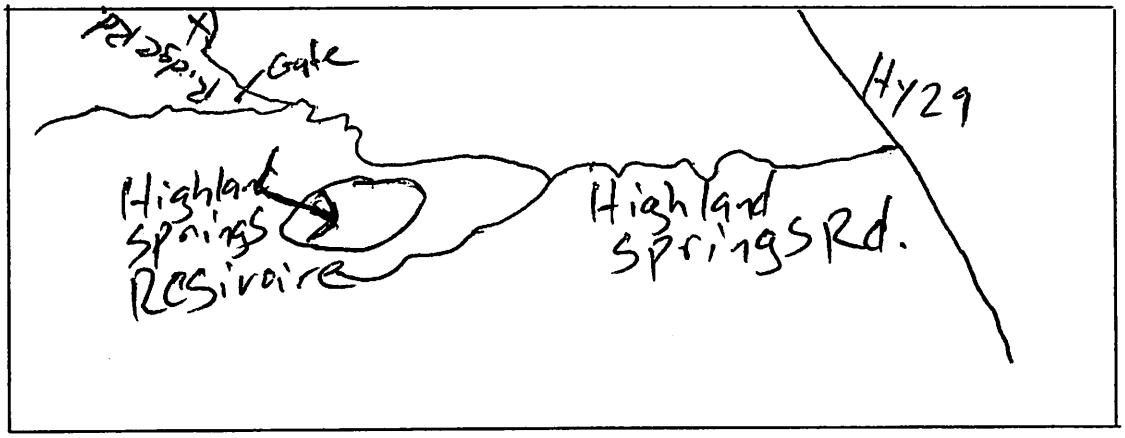
PROJECT	DESIGNED	DATE
WELLNESS RANCH 3	JRG	27-Oct-23
SHEET DESCRIPTION	DRAWN	SHEET
PROPOSED SITE PLAN	JRG	3 OF 3

APPENDIX B: WELL COMPLETION REPORTS

PROJECT'S WELL COMPLETION REPORTS

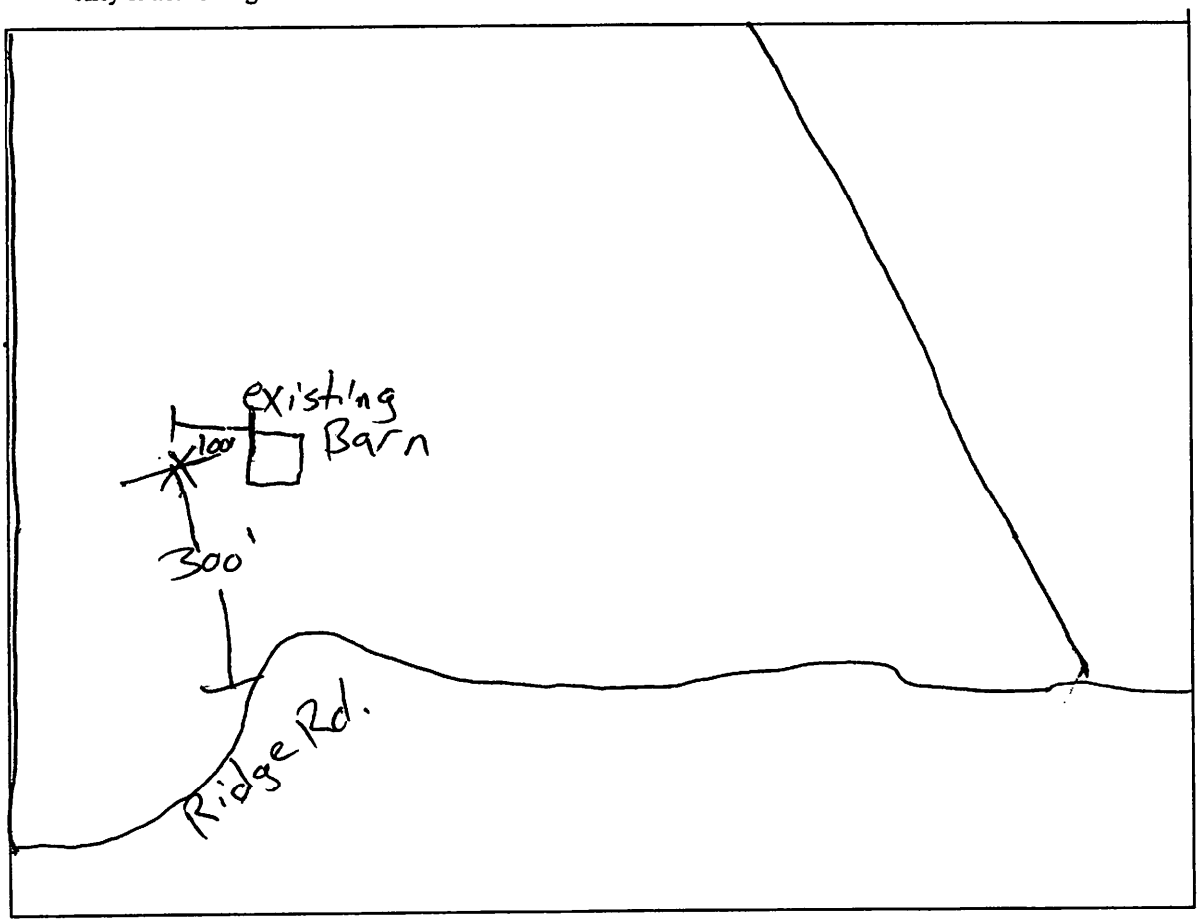
LOCATION MAP

DIRECTIONS (Please include mile post markers, landmarks, nearest cross street, etc.):



DRAW TO SCALE ANY OF THE FOLLOWING WITHIN 200 FEET OF THE WELL.

1. Well/wells existing and proposed
2. Property lines
3. Easements or roads
4. All existing and proposed sewage disposal systems within 100 feet, adjacent parcels included.
5. Any facilities or piping designed to carry or hold sewage.
6. Any storage or mixing area which involves Hazardous materials
7. Any structures
8. North/South Arrow
9. Show road or street with name/reference point
10. Photo Map if available
11. http://gispublic.co.lake.ca.us/flexviewer/index.html- highlight and paste in internet search box



DRAWN TO THE SCALE OF _____

Permit # WE-5116

*The free Adobe Reader may be used to view and com[illegible]his form. However, software must be purchased to complet[illegible]e, and reuse a saved form.

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State of California
Well Completion Report

Refer to Instruction Pamphlet

No. xxxxxx

Page 1 of 1

Owner's Well Number 1

Date Work Began 10-9-18 Date Work Ended 10-19-18

Local Permit Agency LAKE County Environmental Health

Permit Number WE 5116 Permit Date 9-20-18

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/Mud Rotary Drilling Fluid Bentonite

Depth from Surface Feet	to Feet	Description: Describe material, grain size, color, etc
0	20	Brown Gravely clay
20	35	Black shale Grey
35	62	Black shale / sandstone / calsite
62	70	Black shale / Green sandstone / serpentine
70	95	Black shale / Green Sandstone
95	160	Black shale / Grey sandstone
160	210	Grey Sandstone / calsite
210	300	Sandstone / calsite / Black shale

Total Depth of Boring 400 Feet

Total Depth of Completed Well 300 Feet

Received

OCT 25 2018

Environmental Health

Well Owner

Name Thomas Smith

Mailing Address 3007-3009 Artesia Blvd.

City Torrance State CA Zip 90509

Well Location

Address 6751 Ridge Rd.

City Lakeport County LAKE

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

Datum ___ Dec. Lat. ___ Dec. Long. ___

APN Book ___ Page ___ Parcel 007-045-16

Township ___ Range ___ Section ___

Location Sketch

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

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 100' (Feet below surface)

Depth to Static Water Level 100' (Feet) Date Measured 10-17-18

Estimated Yield * 10 (GPM) Test Type A.V. I.F.

Test Length 24HRS (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	40	9"	F480	PVC	4"	5	Blank	—
40	240	7 1/4	F480	PVC	4"	5	Blank	—
240	300	7 1/4	F480	PVC	4"	5	Perf	.032"

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	1	Concrete	SEAL
1	20	Bentonite	
20	300	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 695 Address Kelseyville City CA State 95451 Zip

Signed [signature] C-57 Licensed Water Well Contractor

10-20-18 Date Signed

1009053 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

*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

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. xxxxxx

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude / Longitude

APN/TRS/Other

Page 1 of 1

Owner's Well Number: #2

Date Work Began 6/14/2021 Date Work Ended 6/18/2021

Local Permit Agency Lake County Environmental Health

Permit Number WE-5617-AG Permit Date 4/20/2021

Geologic Log

Orientation: ☑ Vertical ○ Horizontal ○ Angle Specify

Drilling Method: Mud Rotary Drilling Fluid: Bentinite

Depth from Surface Feet	to Feet	Description: Describe material, grain size, color, etc
0	15	Brown clay
15	280	Sand stone / Black shale

Total Depth of Boring 285 Feet

Total Depth of Completed Well 280 Feet

Well Owner

Name: Boom to Grow

Mailing Address: 2805 W. 157 St.

City: Gardena State: CA Zip: 90249

Well Location

Address: 6751 Ridge Rd.

City: Lakeport County: Lake

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

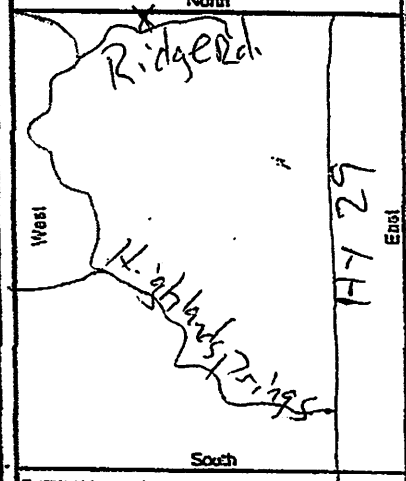
Datum ___ Dec. Lat. ___ Dec. Long. ___

APN Book 007 Page 045 Parcel 16

Township ___ Range ___ Section ___

Location Sketch

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



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

Activity

☒ New Well

○ Modification/Repair
- ○ Deepen
- ○ Other ___

○ Destroy

Describe procedures and materials under "CPC 06 C 1 06"

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 80 (Feet below surface)

Depth to Static Water Level 0 (Feet) Date Measured 6/18/2021

Estimated Yield* 8 (GPM) Test Type Air Lift

Test Length 2 hrs (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	40'	9"	F480	PVC	1/4"	5"	Blank	N/A
40	280'	9"	F480	PVC	1/4"	5"	Perfs	.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	1	Concrete	Seal
1	22	Bentinite	Seal
22	280'	5/16 Pea	Gravel Pack

Attachments

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

Attach additional information, if 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 695 Kelseyville CA 95451

Address City State Zip

Signed [signature] 6-20-21

C-57 Licensed Water Well Contractor Date Signed

1009053

C-57 License Number

DAR 188 REV 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

*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.

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Page 1 of 1

State of California
Well Completion Report

Refer to Instruction Pamphlet

No. XXXXXX

Owner's Well Number 3

Date Work Began 9-19-23 Date Work Ended 9/26/2023

Local Permit Agency Lake County Environmental Health

Permit Number WE-59105 AG Permit Date 9/1/2023

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 Mud Rotary Drilling Fluid Bentonite

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	20	Brown clay
20	60	Black shale
60	100	Grey sandstone
100	300	Black shale with sandstone stringers

Total Depth of Boring 305 Feet

Total Depth of Completed Well 300 Feet

Well Owner

Name Wellness Ranch – Luis Martinez

Mailing Address 10522 Poinsetta Ln.

City Santa Fe Springs State CA Zip 90670

Well Location

Address 16751 Ridge Rd.

City Lakeport, CA County LAKE

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

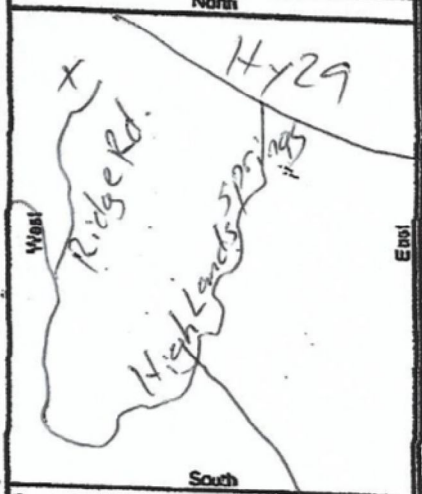
Datum ___ Dec. Lat. ___ Dec. Long. ___

APN Book 007 Page 045 Parcel 10

Township ___ Range ___ Section ___

Location Sketch

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



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 "Destruction Procedures"

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 60 (Feet below surface)

Depth to Static Water Level 40 (Feet) Date Measured 9-26-23

Estimated Yield * 12 (GPM) Test Type Air Lift

Test Length 2 1/2 (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	60	9"		PVC	Sch 40	5"	Blank	—
60	80	8"		PVC	Sch 40	5"	Perf	.032
80	200	8"		PVC	Sch 40	5"	Blank	—
200	300	8"		PVC	Sch 40	5"	Perfs	.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	1	Concrete	SEAL
1	22	Bentonite	
22	300	Lake Rock	Gravel Pack

Attachments

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

Attach additional information, if 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 (Person, Firm or Corporation)

Address P.O. Box 1045 City Kelseyville State CA Zip 95451

Signed ___ (C-57 Licensed Water Well Contractor) Date Signed 9/27/23

C-57 License Number 1009053

DWR 188 REV 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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: 4

Date Work Began: 10-5-2023 Date Work Ended: 10-19-2023

Local Permit Agency

Permit Number: WE-598146 Permit Date: 9-26-2023

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 ____

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	20	Brown clay
20	50	Sand & Gravel
50	120	Grey sandstone
120	160	Sandstone with Black Shale

Total Depth of Boring: 160 Feet

Total Depth of Completed Well: 160 Feet

Well Owner

Name: Luis Martinez

Mailing Address: 10522 Poinsettia Ln

City: Santa Fe Springs State: CA Zip: 90670

Well Location

Address: 6751 Ridge Rd.

City: Lakeport County: LAKE

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

Datum ____ Dec. Lat. ____ Dec. Long. ____

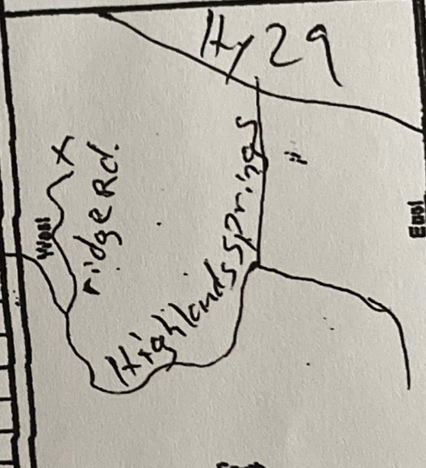
APN Book: 007 Page: 045 Parcel: 16

Township ____ Range ____ Section ____

Location Sketch

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

North



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: 50 (Feet below surface)

Depth to Static Water Level: 20' (Feet) Date Measured: 10-17-2023

Estimated Yield*: 17 (GPM) Test Type: Air lift

Test Length: 2 HRS (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	50	12¼		steel	.250	8"	Blank	—
50	160	8"		PVC	.250	5"	perfs	.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	1	Concrete	SEAL
1	23	Bentonite	
23	160	3/8 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 685 (Address) Kelseyville (City) CA (State) 95451 (Zip)

Signed: [signature] (C-57 Licensed Water Well Contractor) 10-19-2023 (Date Signed) 1009053 (C-57 License Number)

DWR 188 REV 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

NEARBY WELL COMPLETION REPORTS

ORIGINAL
File Original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT
(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED
Do Not Fill In
No 51843 -23
State Well No.
Other Well No. 13N/10W-

WCR1959-001021

(2) LOCATION OF WELL:
County: Lodi Owner's number, if any—
R. F. D. or Street No.: one mile North
Road about 2½ mi East
of Lockeford

(3) TYPE OF WORK (check):
New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☒
Cable ☐
Dug Well ☐

(6) CASING INSTALLED:
SINGLE ☒ DOUBLE ☐

From	ft. to	ft.	Diam.	Gage of Well
0	104	12	10	

Type and size of shoe or well ring
Describe joint welded.

If gravel packed

Diameter of Bore	From ft.	To ft.
21	0	108

Size of gravel: 1 in

(7) PERFORATIONS:
Type of perforator used slots
Size of perforations ¾ in. long by 6 in.
From 40 ft. to 108 ft. 6 Perf. per row 6 Rows per ft.

(8) CONSTRUCTION:
Was a surface sanitary seal provided? ☒ Yes ☐ No To what depth? 20 ft.
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata
From ft. to ft.
Method of Sealing

(9) WATER LEVELS:
Depth at which water was first found 85 ft.
Standing level before perforating 25 ft.
Standing level after perforating 35 ft.

(10) WELL TESTS:
Was a pump test made? ☒ Yes ☐ No If yes, by whom? Kilburn Pump Co
Yield: 1100 gal./min. with 15 ft. Draw down after 24 hrs.
Temperature of water cool Was a chemical analysis made? ☐ Yes ☒ No
Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:
Total depth 108 ft. Depth of completed well 108 ft.
Formation: *Describe by color, character, size of material, and structure.*

0 ft. to 4 ft.		light top soil
4 " 18 "		red clay
18 " 95 "		gravel collecting
95 " 92 "		hard grey rock
92 " 106 "		coarse gravel
106 " 108 "		blue clay

ZONE I
Section 7076, Water Code

FOR OFFICIAL USE ONLY

FEB 11 1985

Work started Nov. 28 1959 Completed Dec. 7 1959

WELL DRILLER'S STATEMENT: 2-4 00417
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Ray R. Mayo
(Person, firm, or corporation) (Typed or printed)
Address Po Box 430 Hilmar Calif

[SIGNED] Ray R. Mayo
(Well Driller)
License No. 180116 Dated Jan. 9, 1960

ORIGINAL
File with DWR

Page 1 of 1

Owner's Well No.

WELL COMPLETION REPORT

No. 750692

9/6/02 — 9/8/02

LAKE

WE 3214 — 8/29/02

WCR2002-010022

GEOLOGIC LOG

CABLE

DESCRIPTION

0	5	SOIL
5	28	BRN. CLAY+IMBEDDED GRAVEL
28	43	BLUE " " "
43	110	BLACK SHALE

Address 6800 RIXIE RD.
LAKEPORT, CA 95453
County LAKE
APN Book 007 Page 060 Parcel 01
Township 13N Range 10W Section 23

LOCATION SKETCH

SEC 23

⊗ WELL

PLEASE BE ACCURATE & COMPLETE

WATER LEVEL & YIELD OF COMPLETED WELL

20

20 — 9/9/02
4.5 — BAIL
3 — 24

Total depth 110 — 44

CASINGS

+1	20	12	✓	STEEL	8	.250		
20	44		✓	✓	✓	✓		3/32x4

ANNULAR MATERIAL

1	20	✓
20	44	

ATTACHMENTS

CERTIFICATION STATEMENT

J.W. HUTTON

1466 PITNEY LANE, UPPER LAKE, CA 95485

9/10/02 — 153712

APPENDIX C: WELL PRODUCTION TEST REPORTS

Cramer Enterprises

LIC#984176

Well Test

Job Name:	Luis Martinez		Well Diameter:	4 1/2” id pvc			
Location:	6751 Ridge Rd		Static Water Level:	0 top of well casing			
Operator:	Jared Powell		Well Depth:	303’			
Original Meter Reading:			Pump Setting:	280’ + pump			
Final Meter Reading:			Pump:	6 SQF			
Total gallons pumped:	1,620		Pump running upon arrival?	Yes		No	X

Date	Time	GPM	Pumping Level	Color	Comments
7/7/21	10:20		0’		Static measurement - overflowing at top of casing
	10:20				Start pump
	10:21	6 gpm	3’	Cloudy	Cloudy grey with drillers mud
	10:22	6 gpm	5’	Grey	
	10:23	6 gpm	10’		
	10:24	6 gpm	15’		
	10:25	6 gpm	18’		
	10:26	6 gpm	21’		
	10:27	6 gpm	24’		
	10:28	6 gpm	26’		
	10:29	6 gpm	28.5’	Cloudy	
	10:30	6 gpm	33’	Grey	
	10:35	6 gpm	40’		
	10:40	6 gpm	45’		
	10:45	6 gpm	51’		
	10:50	6 gpm	61’		
	10:55	6 gpm	69’		
	11:00	6 gpm	76’		5 gallon bucket test in .50 sec
	11:10	6 gpm	89’		
	11:20	6 gpm	105’		
	11:30	6 gpm	122’		
	11:40	5.8 gpm	143’		Stop watch on meter 5.8 gpm
	11:50	5.8 gpm	150’		
	12:00	5.8 gpm	161’		Stop watch on meter 5.8 gpm
	12:15	5.8 gpm	178’		
	12:45	5.8 gpm	183’		
	13:15				
	13:45		190’	Cloudy	Throttled to 5.6 gpm
	14:00	5.6 gpm	191’	Grey	Stop watch on meter at 5.6 gpm
	14:15	5.6 gpm	191.2’		
	14:30	5.6 gpm	191.1’		
	14:45	5.6 gpm	191’		
	15:00	5.6 gpm	191’	Cloudy	
	15:30	5.6 gpm	191’	Grey	15:31 pump off
	15:35		188’		
	15:40		184.7’		
	15:45		180’		
	16:15		160.2’		
	17:00		121.2’		

Recovery

Cramer Enterprises

LIC#984176

Well Test

Job Name:	Luis Martinez well 3		Well Diameter:	4” pvc
Location:	6751 Ridge Rd Lakeport		Static Water Level:	7.6’
Operator:	Jared Powell		Well Depth:	300’
Original Meter Reading:			Pump Setting:	70’ + pump
Final Meter Reading:			Pump:	
Total gallons pumped:	1959 Approx		Pump running upon arrival?	Yes / Text / No / XX

Date	Time	GPM	Pumping Level	Color	Comments
4/19/24	10:10		7.6		Static Measurement
	10:15	12	7.6	Clear	Start Pump
	10:16	12	16.5	Grey	
	10:17	12	21	Grey	
	10:18	12	23.3	Light Grey	
	10:19	12	26.2	brown/Grey	
	10:20	11.8	27.9	LightGrey	
	10:21	11.5	30		
	10:22	11.3	31.2		
	10:23	11	32.5		
	10:24	10.8	33.5		
	10:25	10.5	34.8		
	10:30	10.2	38.5		
	10:35	10	40.3		
	10:40	9.6	42		
	10:45	9.4	42.3		
	10:50	9.3	42.4		
	10:55	9.2	42.5		
	11:05	9.0	42.6		
	11:15	8.9	42.8		
	11:25	8.8	43		
	11:55	8.7	58.8		
	12:10	8.6	65.6		
	12:25	8.6	71		
	12:40		72.8		Pump drew air/trottled
	12:45	8.0	70		
	12:55	8.0	70		
	1:05	8.0	70		
	1:30	8.0	70		
	1:45	8.0	70		Pump off
		Recovery		Recovery	Recovery
	1:46		67.2		
	1:47		64.6		
	1:48		61.2		
	1:49		59		
	1:50		51.5		
	1:51		48.3		
	1:56		37.8		
	2:01		29.5		Recovery
	2:11		22.9		

Cramer Enterprises

LIC#984176

Well Test

Job Name:	Luis Martinez well 4		Well Diameter:	4” pvc w/8” steel outer
Location:	6751 Ridge Rd Lakeport		Static Water Level:	11.9’
Operator:	Jared POWELL		Well Depth:	164.5’
Original Meter Reading:			Pump Setting:	
Final Meter Reading:			Pump:	
Total gallons pumped:	1651 Approx		Pump running upon arrival?	Yes / Text / No / XX

Date	Time	GPM	Pumping Level	Color	Comments
4/19/24	2:25		11.9’		Static Measurement
	2:30	17	11.9	Clear	Start Pump
	2:31	16	19.2	Brown	
	2:32	15	19.6	Clear	
	2:33	14.8	21.5	Clear	
	2:34	14.5	22.2	Clear	
	2:35	14.5	23.5	Clear	
	2:36	14.5	24.5	Clear	
	2:37	14.4	24.9	Clear	
	2:38	14.4	25.6	Clear	
	2:39	14.4	26	Clear	
	2:40	14.4	26.5	Clear	
	2:45	14.4	28.4	Clear	
	2:50	14.4	29.8	Clear	
	2:55	14.4	30.6	Clear	
	3:00	14.4	31.7	Clear	
	3:10	14.4	33.1	Clear	
	3:20	14.4	34.3	Clear	
	3:25	14.4	34.8	Clear	Throttled back slightly
	3:30	14	35	Clear	
	3:35	14	35.1	Clear	
	3:40	14	35.1	Clear	
	3:45	14	35.1	Clear	
	3:50	14	35.1	Clear	
	3:55	14	35.1	Clear	
	4:00	14	35.1	Clear	
	4:30	14	35.1	Clear	
	4:40	14	35.1	Clear	Pump off
		Recovery			Recovery
	4:41		30.3		
	4:42		28.1		
	4:43		26.6		
	4:44		25.6		
	4:45		24.9		
	4:55		21.1		Recovery

APPENDIX D: PROJECT WATER USE RECORD 2021 THROUGH 2023 CULTIVATION SEASONS

Water Use Wellness Ranch 2021

May	0	gallons
June	9,090	gallons
July	32,500	gallons
August	37,500	gallons
September	35,000	gallons
October	8,125	gallons
	122215	Total of the Season

Note: We projected a maximum of 54,000 gallons of water per month during summer months. We used less than projected amount because weather and soil conditions were better than expected and we used a very good irrigation system, mulch and other grower techniques to save water.

2021 June

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
31	01	02	03	04	05	06
07	08	09	10	11	12	13
14	15	16	17 20 gal (spray)	18 100 gal	19 100 gal	20 20 gal + 100 gal
21 2500 gal	22 2500 gal	23	24 1250 gal	25	26 1250 gal	27
28	29 1250 gal	30	01	02	03	04
05	06	Notes: Total water usage June 2021: 9,090 gallons of water				

2021 July

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
28	29	30	01 1250 gal	02	03 1250 gal	04
05 1250 gal	06	07 1250 gal	08	09 2500 gal	10	11 2500 gal
12	13 2500 gal	14	15 2500 gal	16	17 2500 gal	18
19	20 2500 gal	21	22 2500 gal	23	24 2500 gal	25
26	27 2500 gal	28	29 2500 gal	30	31 2500 gal	01
02	03	Notes: Total water usage July 2021: 32,500 gallons of water				

2021 August

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
26	27	28	29	30	31	01
02 2500 gal	03	04 2500 gal	05	06 2500 gal	07	08 2500 gal
09	10 2500 gal	11	12 2500 gal	13	14 2500 gal	15
16 2500 gal	17	18 2500 gal	19	20 2500 gal	21	22 2500 gal
23	24 2500 gal	25	26 2500 gal	27	28 2500 gal	29
30 2500 gal	31	Notes: Total water usage August 2021: 37,500 gallons of water				

2021 September

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
30	31	01 2500 gal	02	03 2500 gal	04	05 2500 gal
06	07 2500 gal	08	09 2500 gal	10	11	12 2500 gal
13	14 2500 gal	15	16 2500 gal	17	18 2500 gal	19
20	21 2500 gal	22	23 2500 gal	24	25 2500 gal	26
27	28 2500 gal	29	30 2500 gal	01	02	03
04	05	Notes: Total water usage September 2021: 35,000 gallons of water				

2021 October

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
27	28	29	30	01	02 1250 gal	03
04 1250 gal	05	06 1250 gal	07	08 1250 gal	09	10
11 1250 gal	12	13	14 1250 gal	15	16 625 gal	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
01	02	Notes: Total water usage October 2021: 8,125 gallons of water				

2021 November

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
01	02	03	04	05	06	07
08	09	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	01	02	03	04	05
06	07	Notes:				

Water Use Wellness Ranch 2022

May	350	gallons
June	16,660	gallons
July	27,596	gallons
August	25,036	gallons
September	23,048	gallons
October	10,500	gallons
	103190	Total of the Season

Note: We projected a maximum of 54,000 gallons of water per month during summer months. We used less than projected amount because weather (we got rain in September) and because we improved irrigation and application of mulch and fertilizers.

We used more water during October because We harvested later this season 2022.

We used a very good irrigation system fully dedicated to each plant (to avoid wasting water), mulch as I already mentioned and new cultivation techniques to save water.

Water Use Wellness Ranch 2023

May	200	gallons
June	9,700	gallons
July	21,000	gallons
August	20,000	gallons
September	16,750	gallons
October	7,500	gallons
	75150	Total of the Season

Note: We projected a maximum of 54,000 gallons of water per month during summer months. We used less than projected amount because weather conditions, plants numbers (much less than previous years) and plants conditions, and because we improved irrigation and application of mulch and fertilizers. Also we lost several plants during the season for dissease and we had problems with development of the plants, so we did not apply much water to try to reduce those problems.

2023 June

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
29	30	31	01 200 gal	02	03	04
05 500 gal	06	07	08	09	10	11
12 1500 gal	13 1500 gal	14	15	16	17	18
19	20 1500 gal	21 1500 gal	22	23	24	25
26	27 1500 gal	28 1500 gal	29	30	01	02
03	04	Notes: Total water usage June 2023: 9700 gallons of water				

2023 July

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
26	27	28	29	30	01 2500 gal	02
03	04	05	06 2500 gal	07	08	09
10 2500 gal	11	12	13	14 1500 gal	15 1500 gal	16 1500 gal
17 1500 gal	18	19	20	21 2500 gal	22	23
24	25 2500 gal	26	27	28	29 2500 gal	30
31	01	Notes: Total water usage July 2023: 21000 gallons of water				

2023 August

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
31	01	02 2500 gal	03	04	05	06
07 2500 gal	08	09	10 2500 gal	11	12	13
14 2500 gal	15	16	17	18 2500 gal	19	20
21	22 2500 gal	23	24	25	26 2500 gal	27
28	29	30	31 2500	01	02	03
04	05	Notes: Total water usage August 2023: 20000 gallons of water				

2023 September

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
28	29	30	31	01	02	03
04 2500 gal	05	06	07	08 2500 gal	09	10
11	12 2500 gal	13	14	15	16 2500 gal	17
18	19 1250 gal	20	21	22 500 gal	23 1500 gal	24
25	26 1500 gal	27	28	29 500 gal	30 1500 gal	01
02	03	Notes: Total water usage September 2023: 16750 gallons of water				

2023 October

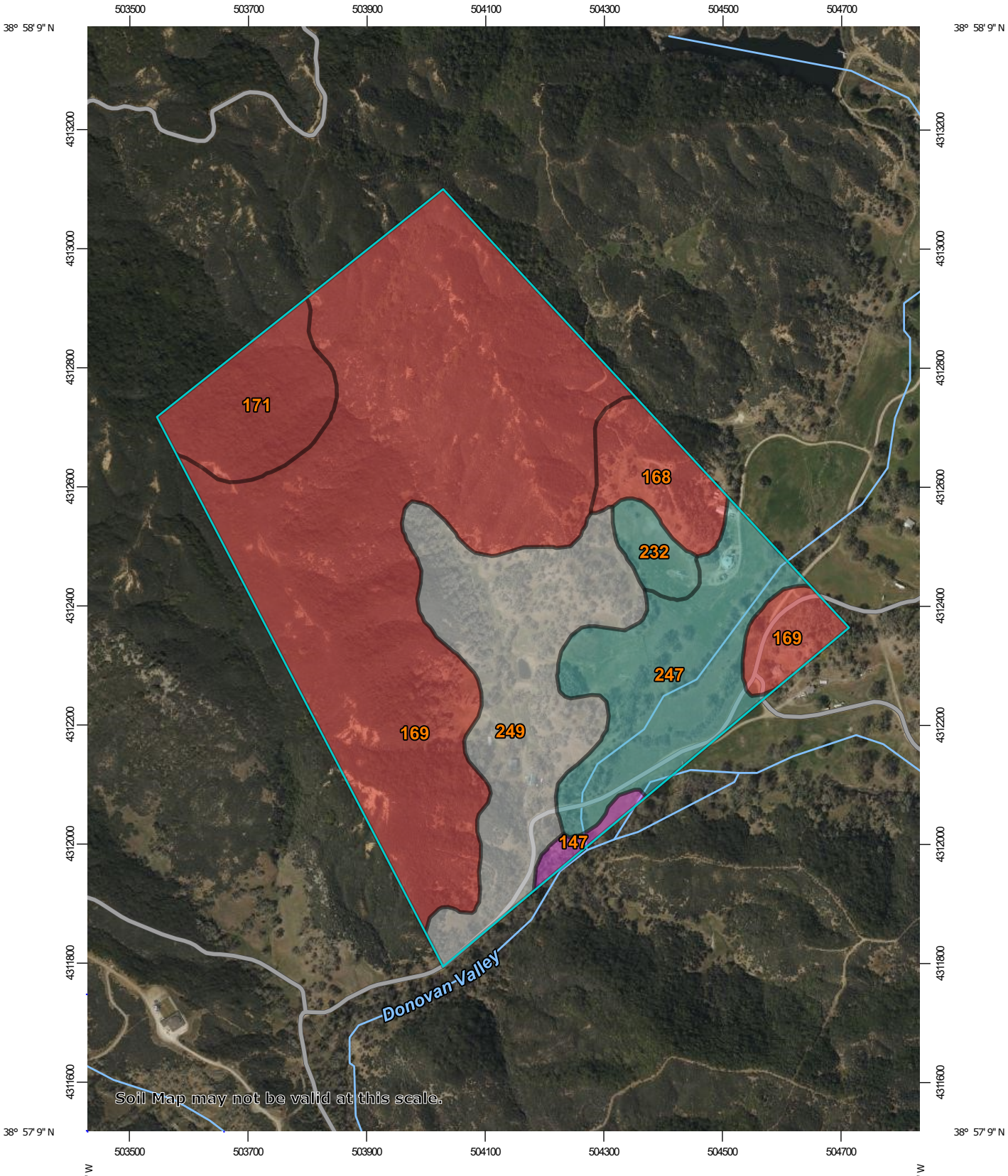
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
25	26	27	28	29	30	01
02	03	04 500 gal	05 1500 gal	06	07	08
09	10	11 500 gal	12 1500 gal	13	14	15
16	17	18 1500 gal	19 500 gal	20	21	22
23	24	25	26 1500 gal	27	28	29
30	31	Notes: Total water usage October 2023: 7500 gallons of water				

2023 November

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
30	31	01	02	03	04	05
06	07	08	09	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	01	02	03
04	05					

APPENDIX E: WEB SOIL SURVEY-HYDROLGIC SOIL GROUP

Custom Soil Resource Report
Map—Hydrologic Soil Group (Wellness Ranch)



Map Scale: 1:9,040 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

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 20, Aug 28, 2023

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

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

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.

Table—Hydrologic Soil Group (Wellness Ranch)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
147	Kelsey fine sandy loam	A	1.7	0.9%
168	Maymen-Etsel-Snook complex, 15 to 30 percent slopes	D	8.4	4.5%
169	Maymen-Etsel-Snook complex, 30 to 75 percent slopes	D	103.3	54.6%
171	Maymen-Hopland-Etsel association, 15 to 50 percent slopes	D	13.0	6.9%
232	Still loam	C	3.7	2.0%
247	Wolfcreek loam	C	24.9	13.2%
249	Xerofluvents-Riverwash complex		34.0	18.0%
Totals for Area of Interest			**189.0**	**100.0%**

Rating Options—Hydrologic Soil Group (Wellness Ranch)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX F: RADIUS OF INFLUENCE / DRAWDOWN CALCULATIONS FOR PROJECT WELLS

	Well #1								Well #2								Notes:
Storativity	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	Storativity - Average of Multiple Sources (see below)
Test Drawdown (ft)	200	200	200	200	200	200	200	200	191	191	191	191	191	191	191	191	Depth - Static Water for Well #1, Actual drawdown during pump test for Well #2
Yield Q (gpm)	10	10	10	10	10	10	10	10	6	6	6	6	6	6	6	6	Pump rate during pump test
SC Specific Capacity	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	Well Yield / Available Drawdown
T (gpd/ft)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	62.8	62.8	62.8	62.8	62.8	62.8	62.8	62.8	Driscoll's (1968) Estimate for confined aquifer of T = 2000*Q/SC
T (ft^2/day)	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	gallon = 0.133681 cubic foot
Project Q (gpm)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	Based on 24 hour storage refill rate during maximum daily demand
Q (ft^3/d)	1925	1925	1925	1925	1925	1925	1925	1925	1155	1155	1155	1155	1155	1155	1155	1155	conversion ft^3/d = 0.00519481 gpm
Time (days)	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
r (ft)	10	15	20	40	50	75	100	112	10	15	20	40	60	100	150	180	
u	0.01054	0.02372	0.04216	0.16866	0.26353	0.59294	1.05411	1.32228	0.00416	0.00936	0.01664	0.06656	0.14975	0.41598	0.93596	1.34778	Fetter (2001) Equation 5.10
w(u)	3.9858	3.1879	2.6307	1.3642	1.0026	0.4505	0.1464	0.0286	4.9092	4.1035	3.5354	2.1979	1.4657	0.6726	0.2059	0.0180	Fetter (2001) Equation 5.11: W(u) ~ -0.5772-ln(u)+u-u^2/(2*fact2)
Drawdown [h-ho] (ft)	45.7	36.5	30.1	15.6	11.5	5.2	1.7	0.3	53.7	44.9	38.7	24.1	16.0	7.4	2.3	0.2	Fetter (2001) Equation 5.11
Drawdown [h-ho] (in)	548.1	438.4	361.7	187.6	137.9	61.9	20.1	3.9	644.7	538.9	464.3	288.6	192.5	88.3	27.0	2.4	

Sources: Applied Hydrogeology, Fourth Edition, C.W. Fetter. 2001

Groundwater Wells, Second Edition, F.G. Driscoll 1986. (https://sehydrogeology.com/using-specific-capacity-monitor-well-performance/#:~:text=The%20Specific%20Capacity%20of%20a,penetrated%20by%20the%20well%20screens.)

Storativity - Confined Aquifer (Sources)

Minimum	Maximum	**Average**	
0.00005	0.005	**0.00070458**	Average of all six estimates of Storativity
0.00001	0.0001		
Well #1 (using 2nd Source below)	0.0002	Aquifer Thickness*0.000001	
Well #2 (using 2nd Source below)	0.000191	Aquifer Thickness*0.000001	
Well #3 (using 2nd Source below)	0.0000624		
Well #4 (using 2nd Source below)	0.0000232		

Source: http://www.aqtesolv.com/aquifer-tests/aquifer_properties.htm

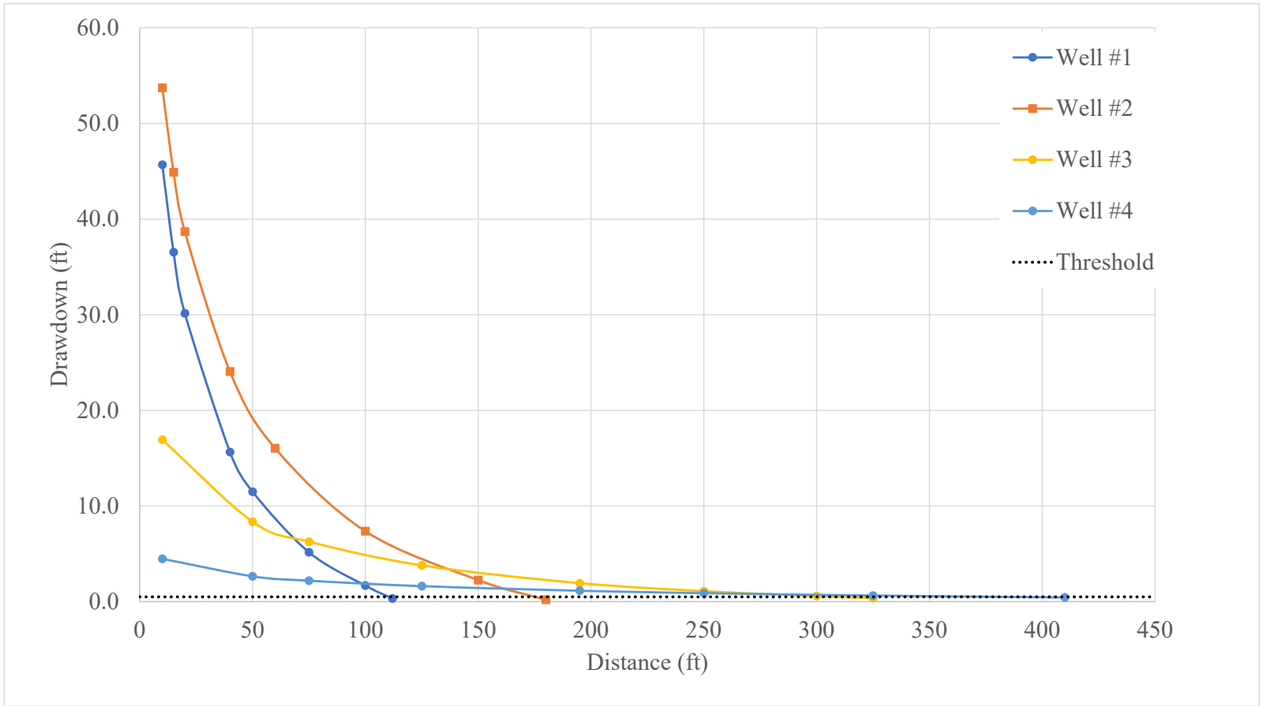
aquifer (or aquitard) thickness [L].

The typical storativity of a confined aquifer, which varies with specific storage and aquifer thickness, ranges from 5×10^{-5} to 5×10^{-3} (Todd 1980).

Specific storage is the volume of water that a unit volume of aquifer (or

Source: https://www.sciencedirect.com/topics/earth-and-planetary-

from the expansion of water and compaction of the aquifer, both of which are exceedingly small. For confined aquifers the storativity generally ranges between 0.0001 and 0.00001, and for leaky confined aquifers it is in the range of 0.001. One method to estimate storativity for confined aquifers is to multiply the aquifer thickness by 0.000001. The small storativity for confined aquifers means that to obtain a sufficient supply from a well there must be a large pressure change throughout a wide area. This is not the case with unconfined aquifers because the water derived is not related to expansion and compression but comes instead from gravity drainage and dewatering of the aquifer.



	Well #3								Well #4								
Storativity	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	
Test Drawdown (ft)	62.4	62.4	62.4	62.4	62.4	62.4	62.4	62.4	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	Drawdown recorded during test
Yield Q (gpm)	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	
SC Specific Capacity	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	
T (gpd/ft)	256.4	256.4	256.4	256.4	256.4	256.4	256.4	256.4	1206.9	1206.9	1206.9	1206.9	1206.9	1206.9	1206.9	1206.9	
T (ft^2/day)	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	161.3	161.3	161.3	161.3	161.3	161.3	161.3	161.3	
Project Q (gpm)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Q (ft^3/d)	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	
Time (days)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
r (ft)	10	50	75	125	195	250	300	325	10	50	75	125	195	250	325	410	
u	0.00102	0.02548	0.05733	0.15926	0.38758	0.63704	0.91734	1.07660	0.00022	0.00541	0.01218	0.03384	0.08234	0.13534	0.22873	0.36402	
w(u)	6.3125	3.1179	2.3382	1.4129	0.7207	0.4093	0.2160	0.1358	7.8607	4.6470	3.8428	2.8426	2.0003	1.5535	1.1137	0.7642	
Drawdown [h-ho] (ft)	16.9	8.4	6.3	3.8	1.9	1.1	0.6	0.4	4.5	2.6	2.2	1.6	1.1	0.9	0.6	0.4	
Drawdown [h-ho] (in)	203.1	100.3	75.2	45.5	23.2	13.2	7.0	4.4	53.7	31.8	26.3	19.4	13.7	10.6	7.6	5.2	