"F"

Water Availability Analysis (WAA) and Addenda

Tesseron Winery P22-00309
Planning Commission Hearing Date
July 2, 2025

EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
An Employee Owned Company

455 W Fir Avenue
Clovis, CA 93611-0242
Tel: (559) 449-2700
Fax: (559) 449-2715
www.provostandpritchard.com

August 2, 2022

Meaghan Becker
c/o Tesseron Vineyards
1100 Wall Road
Napa, CA 94558

Subject: **Water Availability Analysis**
Tesseron Vineyards – Proposed Winery

Dear Ms. Becker:

Provost & Pritchard Consulting Group (P&P) prepared this Water Availability Analysis (WAA) for the proposed winery at Tesseron Vineyards (Project), located at 1100 Wall Road in Napa County, CA (see **Attachment 1** for a Site Map and **Attachment 2** for a Vicinity Map). This WAA was prepared in accordance with the Napa County Water Availability Analysis – Guidance Document (Guidance), adopted May 12, 2015. The work was overseen by a California Professional Geologist.

Tesseron Vineyards is in the process of obtaining approval from the Napa County Planning Department to construct and operate a new winery. This WAA evaluates the available water supplies from an existing spring to provide estimated water demands for the new winery.

This WAA includes a Tier 1 analysis as required by the Guidance Document. The first tier of the WAA, Tier 1 – Water Use, is required by all WAAs and analyzes the Project's groundwater use and the estimated groundwater recharge from precipitation for the project site. In this case the water supply will come entirely from a natural spring.

Tier 2 – Well and Spring Interference and Tier 3 – Groundwater/Surface Water Interaction are not included at this time because no groundwater pumping is currently proposed to meet project winery water demands.

Using methods in the WAA, P&P concludes that estimated water use from the spring will not exceed the natural recharge on the Project parcels even in dry years.

Narrative of Proposed Project

The project site is located on an approximately 654-acre estate consisting of six separate parcels (see **Attachment 1**). The four parcels in Napa County cover 608 acres, and the two parcels in Sonoma County cover 46 acres.

The site is located in Napa County in the Mayacamas Range, near the Sonoma County Border. The project is in the Dry Creek watershed and the Western Mountains Groundwater Subarea. See **Attachment 2** for a project vicinity map.

The proposed project includes construction and operation of a new winery that would produce up to 20,000 gallons of wine each year. There are no plans for tasting rooms, banquets or general public visitor access to the winery.

Water would be acquired from an existing spring (see spring at southern end of property on **Attachment 1 – Site Plan**). Water from the spring is collected and stored in two 10,000 gallon tanks. There are at least two other spring on the estate but they will not be used for the project.

The project site has other water demands including residential usage and vineyard irrigation, but these are not part of this WAA analysis. These are existing demands that rely on other water sources. Future residential water demands will be met with an existing well, and vineyard demands are met with rainfall, and surface water rights for an on-site local stream that are typically used only for young plantings.

WATER USE CRITERION INCLUDING ESTIMATED RECHARGE

Water Use – Methods

To estimate the average and dry year annual recharge occurring on the project site, P&P used climate data from a 32-year record (1990-2021) listed in the California Irrigation Management Information System (CIMIS) for Station #77 - Oakville, located approximately 4 miles east of the project site. This precipitation data is summarized in **Attachment 3**. Records from 2018 were not used in the analysis due to suspect data including numerous zero readings during the wettest months. In addition, to eliminate data outliers, the wettest year (1995) and driest year (2013) were omitted in the analysis.

Normal (average year) and dry year annual rainfall at the Project site are 33.1 and 8.7 inches, respectively. The WAA guidance does not specify what defines a "dry" year, so the water year with the least precipitation since the dataset began (sans the outlier from 2013) was used, which was the year 2020.

Luhdorff and Scalmanini Consulting Engineers (LSCE) prepared a report in January 2013 entitled *Updated Hydrogeologic Conceptualization and Characterization of Conditions for Napa County*. The LSCE report includes criteria for estimating recharge from precipitation. Most of the analyses cover areas of the Napa Valley Floor, however the proposed winery is in a mountainous area, also called 'All Other Areas' in the Water Availability Analysis guidelines. The 2013 report extrapolated results from gaged watersheds within the Napa Valley area to other watersheds of Napa County outside of the Valley. The analysis concluded that these areas have recharge of 'less than 10 percent of precipitation' (page 106). Based on the presence of vegetation, agriculture, and several on-site spring, some recharge is certainly occurring on the estate. Using this guidance, a conservative recharge rate of 5 percent of the rainfall was used in the analysis. In comparison, recharge rates in Napa Valley range from 5% to 21% (page 99).

Water Use – Demand

The total water use for the winery includes employee uses, process water and water for wine production, and is estimated to be 0.5 AF/year. All of the water will come from the spring shown at

the southern end of the property on **Attachment 1**. The annual water demand estimate is summarized below:

Winery employees domestic water demands = 0.067 acre-feet
Winery Process water = 0.43 acre-feet
Total water demand = 0.497 acre-feet ~ 0.5 acre-feet

Refer to **Attachment 4** for details on the Tesseron Winery water use estimate. This attachment also documents existing demands for residential use and vineyard irrigation. The spring will not be used to meet either residential or vineyard irrigation demands.

According to the landowner, the spring has been flowing since at least 1993. Ray's Well Testing Services prepared a Spring Yield Test and System Inspection report on April 8, 2014. The flowrate was measured to be 4.3 gallons per minute and found to be consistent over a three-hour period. The spring flowrate was also measured to be 2.5 gallons/minute in March 2022 and 1.35 gallons per minute in May 2022. The spring flowrates are subject to seasonal changes and vary throughout the year. It is likely that the current flowrate is lower than historical values due to the current drought situation. The lower flow (1.35 gallons/minute) equates to 2.2 acre-feet per year. This lower flow provides 450% of the estimated winery water demands of 0.5 acre-feet/year. If the spring continues to provide this flowrate it will be able to meet the project water demands. No modifications are proposed to the spring. Utilizing the water that naturally flows out of the spring will not impact the spring yield or contribute to depletion of the water being supplied to the spring.

The spring directs water to two 10,000-gallon concrete tanks for temporary storage. According to the landowner, surplus spring water overflows the tanks or spreads out near the spring saturating the soil. No spring water has been observed leaving the estate parcels.

The spring has historically been used to meet residential water demands. As shown in **Attachment 4**, existing residential water use is estimated to be 1.35 acre-feet/year. The spring has reliably met these residential demands since at least January 2016 when the current landowner purchased the property. These demands will be switched over to an existing well so the spring is available solely for winery water demands. The residential demands of 1.35 acre-feet/year exceed the winery demands of 0.5 acre-feet per year, further illustrating that the spring has adequate supply for the proposed winery.

Estimated Recharge

The estimated recharge is based on the annual precipitation, project acreage, and percent of precipitation that infiltrates. As shown on **Attachment 1**, the total area of the estate parcels within Napa County is 607.85 acres. This results in the following estimate of recharge in normal and dry years:

Normal Year: 607.85 acres x 33.1 inches x 5% = 84 acre-feet
Dry Year : 607.85 acres x 8.7 inches x 5% = 22 acre-feet

These values both significantly exceed the estimated water demand of 0.5 acre-feet/year. In fact, using just the parcel where the winery is located (43.26 acres), and a 5% precipitation recharge rate, the recharge is 6.0 acre-feet for a normal year and 1.6 for a dry year. These values also exceed the estimated winery domestic and process water demands.

Limitations and Closure

The conclusions presented in this report are professional opinions based on limited information obtained at the time work was performed. If changes are made or errors found in the information used for this report, the interpretations and conclusions contained herein shall not be considered valid unless the charges or errors are reviewed by P&P and either appropriately modified or re-approved in writing. P&P's involvement in the work performed at this site has been limited to evaluating published data provided by State, County and private sources. P&P is not responsible for the accuracy and completeness of information collected and developed by others.

P&P prepared this report under the direct supervision of a Professional Geologist in the State of California. This report was prepared for Tesseron Vineyards. It is for the sole use of Client. The contents of this report may not be used or relied upon by any other person(s) without the express written consent and authorization of Client and P&P. Any questions regarding content of this document should be addressed to Owen Kubit at 559-449-2700.

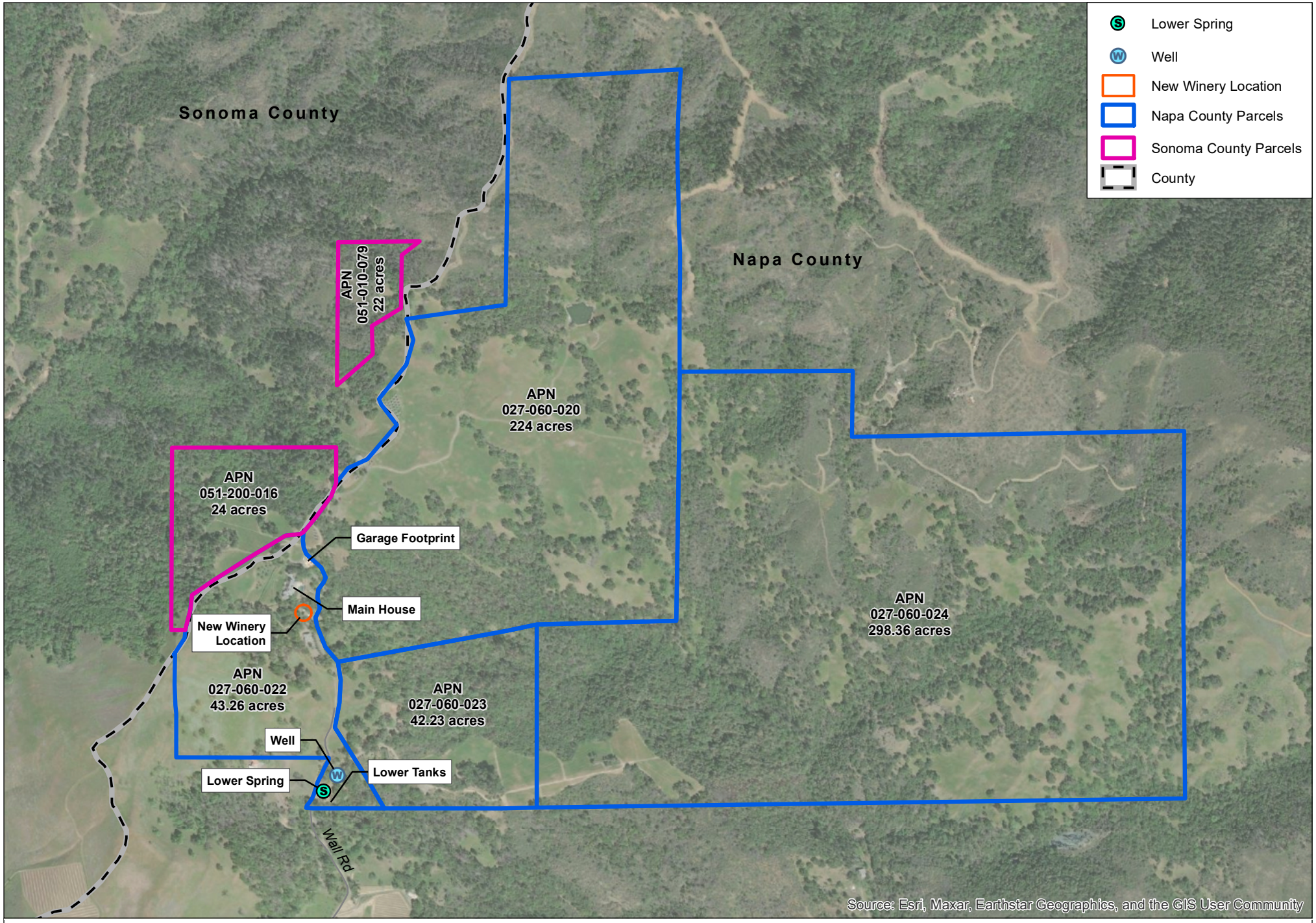
Sincerely,

Owen Kubit, PE, PG, CHG
Principal Engineer / Geologist

Attachments

Attachment 1 – Site Map
Attachment 2 – Vicinity Map
Attachment 3 – Precipitation Data
Attachment 4 – Water Use Estimate

ATTACHMENT 1



0 500 1,000
Feet

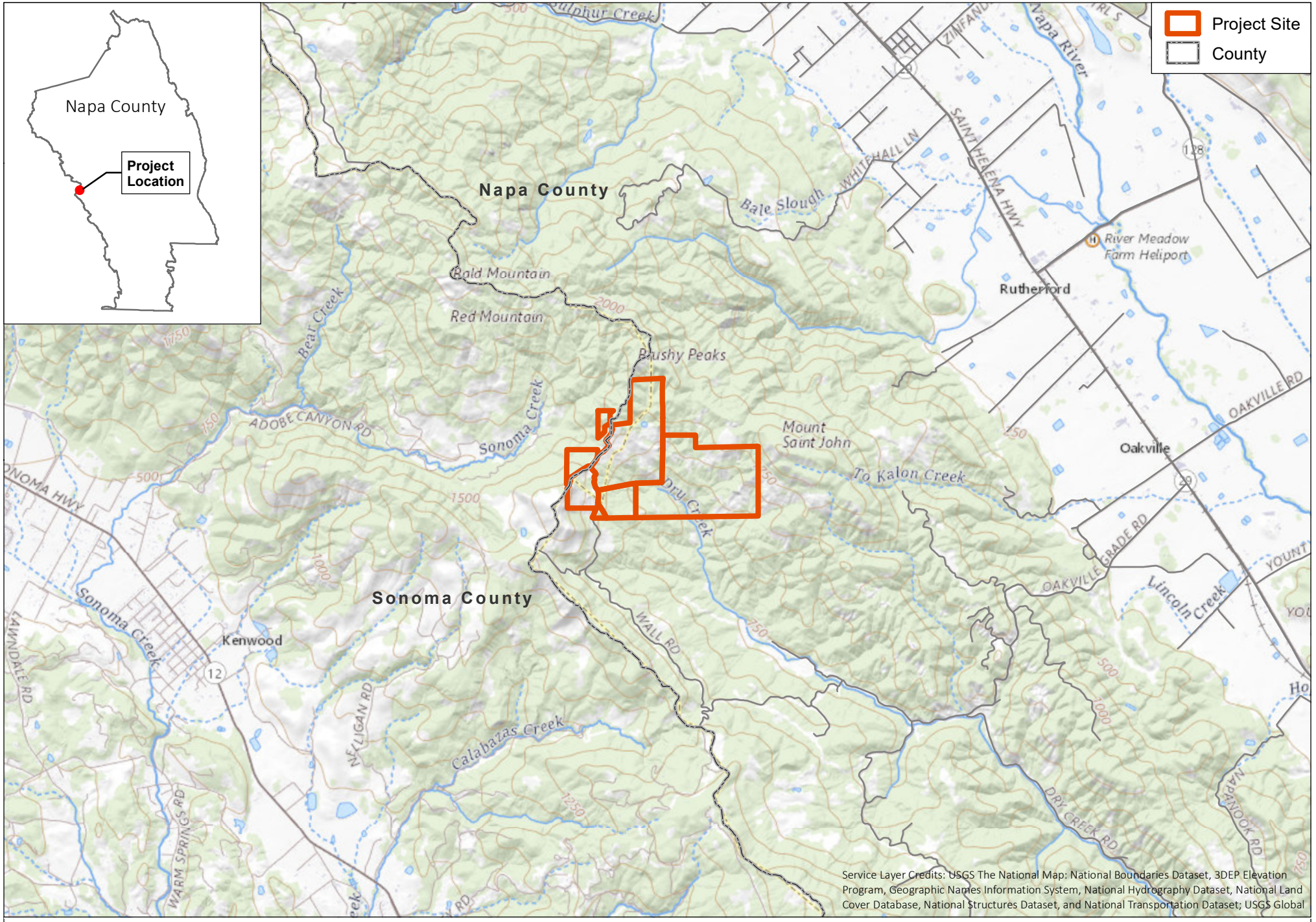
Site Map

Tesseron Estate Water Availability Analysis – Napa County, CA

PROVOST& PRITCHARD

7/7/2022 G:\Tesseron Vineyards-3976\0397622002-WAA\400 GIS\Map\site_map.mxd

ATTACHMENT 2



0 0.5 1
Miles

Vicinity Map

Tesseron Estate Water Availability Analysis – Napa County, CA

PROVOST& PRITCHARD

7/11/2022 G:\Tesseron Vineyards-3976\0397622002-WAA\400 GIS\Map\vicinity_map.mxd

ATTACHMENT 3

CIMIS Station 77 - Oakville
Historical Precipitation

	Precipitation (in)	
Year	**CIMIS Value**	**Modified Dataset**
1990	15.8	15.8
1991	27.5	27.5
1992	37.0	37.0
1993	38.6	38.6
1994	28.1	28.1
1995	62.3	Removed as outlier (high value)
1996	57.4	57.4
1997	29.9	29.9
1998	56.3	56.3
1999	24.8	24.8
2000	32.8	32.8
2001	44.0	44.0
2002	37.2	37.2
2003	35.9	35.9
2004	37.2	37.2
2005	43.5	43.5
2006	41.0	41.0
2007	19.4	19.4
2008	25.4	25.4
2009	29.6	29.6
2010	46.2	46.2
2011	34.0	34.0
2012	40.8	40.8
2013	6.0	Removed as outlier (low value)
2014	29.4	29.4
2015	12.4	12.4
2016	24.1	24.1
2017	36.5	36.5
2018	10.6	Removed due to suspect data
2019	39.8	39.8
2020	8.7	8.7
2021	27.1	27.1
	Average	33.1
	Driest Year	8.7

Notes:
Data acquired from CIMIS website: https://cimis.water.ca.gov/
Weather Station located about 4 miles east of project site

Tesseron Winery
Groundwater Use Estimate

	Estimated Water Use (Acre-Feet / Year)		
	Existing		Proposed
Residential Water Use			
Primary Residence[1] - Not Applicable	0.750		0.750
Pool[1A]	0.100		0.100
Second Dwelling Unit - Not Applicable	0.500		0.500
Guest Cottage - Not Applicable	0.000		0.000
Total Residential Domestic Water Use	1.350		1.350
Winery Domestic & Process Water Use			
Winery - Daily Visitors[2][3]	0.000		0.000
Winery - Events with Meals Prepared Onsite[2][4]	0.000		0.000
Winery - Events with Meals Prepared Offsite[2][5]	0.000		0.000
Winery - Employees[2][6]	0.000		0.067
Winery - Event Staff[2][6]	0.000		0.000
Winery - Process[2][7]	0.000		0.430
Total Winery Water Use	0.000		0.497
Irrigation Water Use			
Lawn[8]	1.400		1.400
Other Landscape[9]	1.000		1.000
Vineyard - Irrigation[10]	0.000		0.000
Vineyard - Frost Protection - Not Applicable	0		0
Vineayrd - Heat Protection - Not Applicable	0		0
Total Irrigation Water Use	2.400		2.400
Total Combined Water Use	3.75		4.25

Proposed Winery Water Demand

Estimates per Napa County Water Availability Analysis - Guidance Document, May 12, 2015 unless noted

[1] 0.5 to 0.75 ac-ft/yr for Primary Residence, includes some landscaping per Napa County WAA Guidance Document

[1A] 0.1 ac-ft/yr for pool without cover per Napa County WAA Guidance Document

[2] See attached Winery Production, Guest, Employee and Event Staff Statistics

[3] 3 gallons of water per guest per Napa County WAA Guidance Document

[4] 15 gallons of water per guest per Napa County WAA - Guidance Document

[5] 5 gallons of water per guest used because all food preparation, dishwashing, etc. to occur offsite

[6] 15 gallons per shift per Napa County WAA - Guidance Document

[7] 2.15 ac-ft per 100,000 gallons wine per Napa County WAA - Guidance Document

[8] 0.1 ac-ft/yr per 1,000 sf of lawn per Napa County WAA - Guidance Document - 14,000 sf lawn

[9] 0.1 ac-ft/yr per 2,000 sf of landscape per Napa County WAA - Guidance Document - 20,000 sf landscape

[10] Vineyard is dry farmed. Any supplemental water comes from ponds via water rights.

Tesseron Winery

Winery Production, Visitor, Employee & Event Staff Statistics

Winery Production[1]		20,000	gallons per year
Tours and Tastings by Appointment[1]			
Monday through Thursday	0 guests max per day		
Friday through Sunday	0 guests max per day		
Total Guests Per Year		0	
Events - Meals Prepared Offsite[1]			
0 per year	0 guests max	0	
0 per year	0 guests max	0	
0 per year	0 guests max	0	
Total Guests Per Year		0	
Events - Meals Prepared Onsite[1]			
0 per year	0 guests max	0	
0 per year	0 guests max	0	
0 per year	0 guests max	0	
Total Guests Per Year		0	
Winery Employees[2]			
4 employees	1 shift per day		(1FT & 3 Seasonal)
Total Employee Shifts Per Year		1,460	
Event Staff[3]			
0 per year, 20 guests	0 event staff	0	
0 per year, 50 guests	0 event staff	0	
0 per year, 150 guests	0 event staff	0	
Total Event Staff Per Year		0	

[1] Winery production, tours and tasting and event guest statistics per Winery Use Permit Application

[2] Employee counts per Winery Use Permit Application

[3] Assumes 1 event staff per 10 guests (in addition to regular winery employees)

ADDENDUM NO. 1

Tesseron Vineyards
Water Availability Analysis
August 2, 2022

Date of Addendum: April 25, 2024

The Lower Spring, located at the southwestern end of the property, is currently used to provide domestic water supply to the on-site residence, and has been the primary water source for the residence for many years. The current and historical residential demands have been estimated to be 1.35 acre-feet/year. With project development, the residential water use will be shifted to an existing on-site domestic well, and spring will be used solely for winery demands. The winery demands from the spring are estimated to be 0.5 acre-feet/year. Hence, future use will result in lower demands on the spring. No efforts will be made to modify or enhance the spring to increase yield. Using water that naturally flows out of the spring cannot contribute to the additional depletion of the spring, reduce the spring yield, or have a significant impact on the aquifer.

The spring has not been observed by Tesseron staff to flow off the estate parcels, or flow to any creek, river, wetland or other water body. The flow from the spring is relatively small and has only been observed to create a saturated wet spot in the vicinity of the spring outlet. Documented spring flowrates are shown below:

Date	Yield (gpm)
Jan 1993	7.5
Mar 2022	2.5
May 2022	1.35
Apr 2024	2.4

APPLIED
CIVIL ENGINEERING
INCORPORATED

July 5, 2024

Job No. 17-108

Dana Morrison
Planning Division
Napa County Planning, Building and Environmental Services Department
1195 Third Street, Suite 210
Napa, CA 94559

Re: Tesseron Vineyards Water Availability Analysis
1000 Wall Road, Napa CA 94558, Napa County APN 027-060-022
Use Permit Application P22-00309

Dear Ms. Morrison,

This letter is in response to your request to clarify information provided in the Water Availability Analysis prepared by Provost and Pritchard dated August 2, 2022 sent via email from you on 5/30/2024. Please see clarifications requested below:

1. Existing Residential Water Use:
   There are a total of two residences on the entire holding. The residential water demand of 1.35 ac-ft/yr represents the use for both residences. One residence is on APN 027-060-022 and the other is on APN 027-060-023. For the winery parcel (APN 027-060-022) the residential + pool use is 0.85 ac-ft/yr and for APN 027-060-023 the residential use is 0.5 ac-ft/yr. Onsite vineyards are not irrigated with groundwater and therefore are not included in the groundwater use estimates.

2. 10-year PRISM Recharge Estimate:
   The 10-year PRISM data varies across the entire holdings but averages approximately 35.5 inches per year. The WAA, prepared before the 10-year PRISM data became the standard used a Normal Year and Dry Year Rainfall of 33.1 inches and 8.7 inches, respectively to estimate recharge. Therefore, the Normal Year and Dry year recharge estimates used in the WAA were both conservative compared to the 10-year PRISM data. For the 607.85 acre holdings, using the 10-year PRISM 35.5 inches of rainfall per year, the recharge, assuming 5% recharge per the WAA, is 89.9 ac-ft/year (compared to 84 ac-ft/yr in the WAA for Normal Year and 22 ac-ft/year for Dry Year). For the 43.26 acre winery parcel, using the 10-year PRISM 35.5 inches of rainfall per year, the recharge, assuming

5% recharge per the WAA, is 6.4 ac-ft/year (compared to 6.0 ac-ft/yr in the WAA for Normal Year and 1.6 ac-ft/year for Dry Year). This demonstrates that just the recharge on the winery parcel (6.4 ac-ft/yr) is more than 3 times the estimated demand for all of the existing and proposed uses on all parcels (1.85 ac-ft/yr) and that the recharge on the entire holding (89.9 ac-ft/yr) is nearly 50 times the estimated demand.

3. Tier II Well to Well Interference for Well to Serve Residence:
   Either Well 1 or Well 2 will be used to serve the existing residences when the winery is built(they are both now served by the spring but will be converted to well water when the winery is constructed). The attached map shows that both Well 1 and Well 2 are more than 500' from wells on neighboring parcels and therefore no Tier 2 is required.

I trust that this information and the included revised plans are adequate to complete review of the pending use permit application. Please feel free to contact me at (707) 320-4968 with any questions.

Applied Civil Engineering Incorporated

By:

Michael R. Muelrath

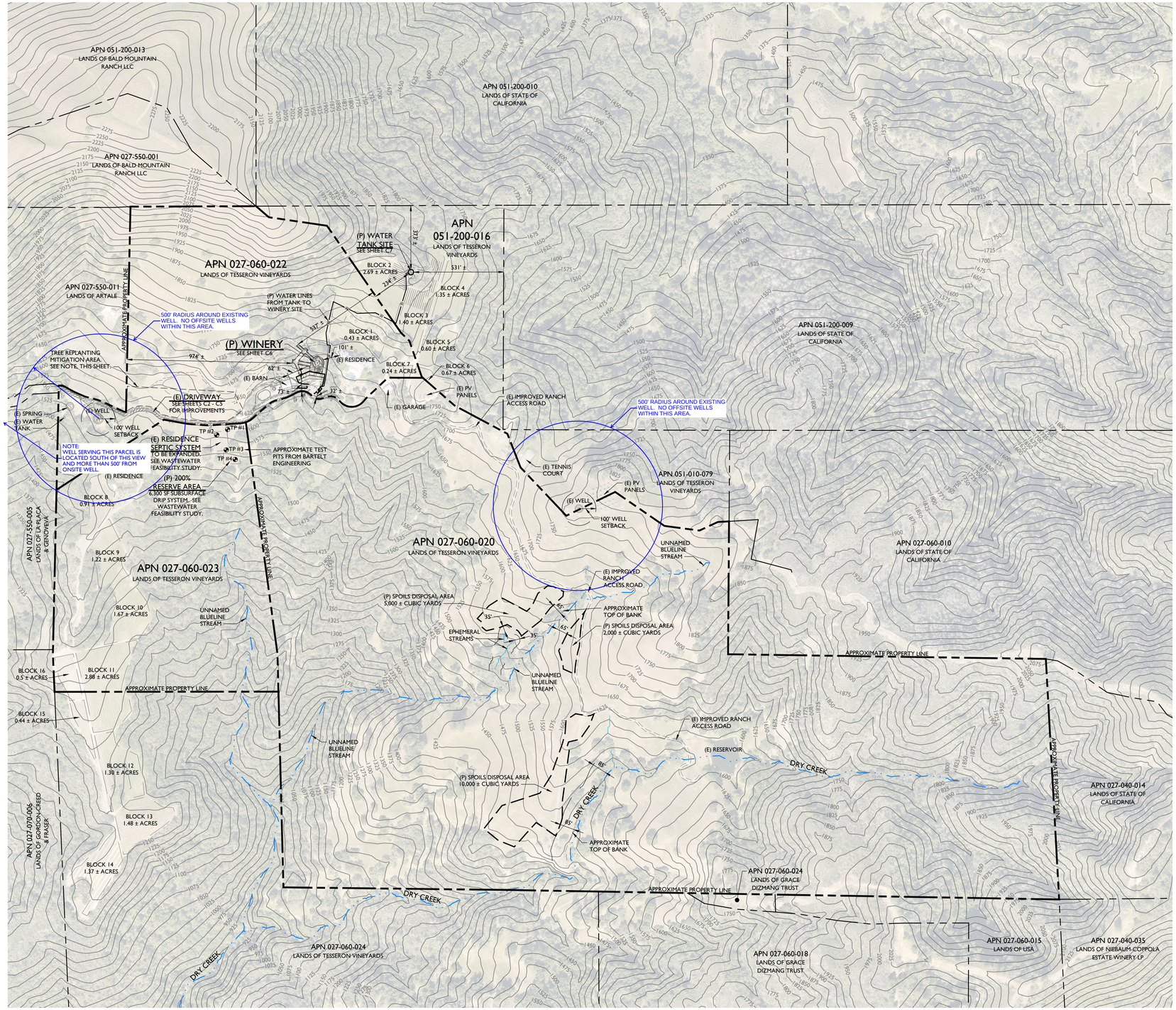
Michael R. Muelrath, RCE 67435
Principal Engineer

Attachments:
Well Setback Exhibit

Copy:
Meaghan Becker, Tesseron Vineyards (via email)
Jon Webb, Albion Surveys (via email)

TESSERON VINEYARDS WINERY

CONCEPTUAL SITE IMPROVEMENT PLANS

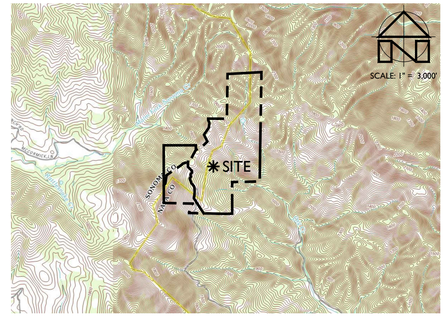


SCALE: 1" = 300'

0 300' 600'

OVERALL SITE PLAN

SCALE: 1" = 300'



LOCATION MAP

SCALE: 1" = 3,000'

PROJECT INFORMATION:

PROPERTY OWNER & APPLICANT:
TESSERON VINEYARDS
POST OFFICE BOX 46
SAINT HELENA, CA 94574

SITE ADDRESS:
1000 WALL ROAD
NAPA, CA 94558

ASSESSOR'S PARCEL NUMBERS:
027-060-020, 027-060-022, 027-060-023 & 051-200-016

PARCEL SIZES:
224.00 ±, 43.26 ±, 42.23 ± & 24.00 ± ACRES

PROJECT SIZE:
2.0 ± ACRES

ZONING:
AGRICULTURAL (AW)

SHEET INDEX:

PROJECT DESCRIPTION:

THE PURPOSE OF THIS PROJECT IS ILLUSTRATE THE CONCEPTUAL NATURE OF THE SITE IMPROVEMENTS PROPOSED AS PART OF THE WINERY USE PERMIT APPLICATION.

FLOOD HAZARD NOTE:

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBERS 06055C0380E, 06055C0390E, EFFECTIVE DATE SEPTEMBER 26, 2008 AND 06097C0800E, EFFECTIVE DATE DECEMBER 2, 2008, THE PROJECT SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA. SEE FIRM FOR ADDITIONAL INFORMATION.

NOTES:

1. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION ON SHEET C1 WAS TAKEN FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATABASE. TOPOGRAPHIC INFORMATION ON OTHER SHEETS WAS TAKEN ON FROM THE "MAP OF TOPOGRAPHY OF A PORTION OF THE LANDS OF 1100 WALL ROAD" PREPARED BY ALBION SURVEYS, INC., DATED APRIL 11, 2017 REVISED APRIL 25, 2022. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
2. AERIAL PHOTOGRAPHS ARE NADIR IMAGES CAPTURED BY PICTOMETRY INTERNATIONAL DATED JULY 15, 2021 AND MAY NOT REPRESENT CURRENT CONDITIONS.

   CONTOUR INTERVAL:

   SHEET C1: FIVE (5) FEET, HIGHLIGHTED EVERY TWENTY FIVE (25) FEET.
   OTHER SHEETS: ONE (1) FOOT, HIGHLIGHTED EVERY FIVE (5) FEET.
3. BENCHMARK: NAVD 88
4. THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

TREE REPLANTING MITIGATION NOTES:

1. SEE SHEET C6 FOR TREE REMOVAL.
2. REPLANT AT A 3:1 RATIO FOR ALL NATIVE TREES REMOVED IN THE AREA NOTED ON THIS SHEET.

1-800-227-2600 CALL BEFORE YOU DIG USA UNDERGROUND SERVICE ALERT

APPLIED CIVIL ENGINEERING INCORPORATED
2160 Jefferson Street, Suite 230
Napa, CA 94559
(707) 320-4988 | www.appliedcivil.com

TESSERON VINEYARDS WINERY

CONCEPTUAL SITE IMPROVEMENT PLANS
OVERALL SITE PLAN

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER MICHAEL R. MCLEAN No. 62435 Exp. 12/31/2023 CIVIL STATE OF CALIFORNIA

FOR REVIEW AND CONSTRUCTION

DRAWN BY: BT DRAFTING

CHECKED BY: MRM

DATE: JANUARY 3, 2023

REVISIONS:	BY:
1/3/2023 PLAN CHECK REVISIONS	BT

JOB NUMBER: 17-108

FILE: 17-108CONC_OSP.DWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: C1

OF 9

ADDENDUM NO. 2

Tesseron Vineyards
Water Availability Analysis
August 2, 2022

Date of Addendum: April 1, 2025

This 2nd addendum documents changes to the original Water Availability Analysis (WAA) for Tesseron Vineyards dated August 2, 2022, the first Addendum dated April 25, 2024, and a supplementary letter dated July 5, 2024. The addendums were prepared in responses to comments from Napa County.

The primary change includes use of the upper well (Well No. 2 near the solar panels) for domestic use and supplementary irrigation water. The Previous WAA included use of the lower well near the main residence (Well No. 1) for domestic use, and surface water for irrigation. These changes and an evaluation of potential impacts are described below. Winery demands will continue to be met with the natural spring at the southwest corner of the property and are not addressed here. Well No. 1 will no longer be used for this project.

The address for the property is also corrected and is comprised of three different addresses including: 1000/1100/800 Wall Road in Napa County, California.

Well No. 2

The residential water uses and irrigation demands will be met by utilizing the existing well located on APN 027-060-020 (Well No. 2). Well No. 2 is located near the middle eastern portion of the property (see **Attachment A**). According to the Well Completion Report (No. 0992234), the well is completed into hard rock to a depth of 570 feet. The Well Completion Report also documents a yield of 20 gal/min during a 3-hour water yield air-lift test in 2016. Measured water depths have included 210 feet in October 2016, and 136 feet in March 2024. The well is not currently operational and a pump and appurtenant facilities would need to be installed before it is used.

Water Demands

The overall water demands for Well No. 2 will include 1.35 AF/yr for domestic use and 0.4 AF/yr for irrigation use. This results in annual demands of 1.35 + 0.4 = 1.75 AF/yr.

The domestic water demands were documented in the original WAA memorandum dated August 2, 2022.

The vineyards are currently dry farmed and have no developed irrigation system. Rainfall is sufficient to meet water demands, but some minor water is used to supplement new plantings to help get them established (supplementary irrigation). This supplemental irrigation lasts between 3 to 5 years for the new plants. The plants are replaced through rogueing, which is the systematic replacement of scattered low-quality vines that are diseased, damaged or not producing.

Tesseron Vineyards staff provided an estimate of hand irrigation demands during the past three years. This represents what they believe would be the upper limit of irrigation water demands from the well.

Table 2-1 documents historical irrigation water uses during the past three years. This data was provided directly by Tesseron Vineyards staff.

Table 2-1: Supplementary Irrigation Demands for Young Vines

Month	No. of Waterings	No. of Plants	Gallons/Plant/ Watering	Total Gallons
May	3	1,600	4	19,200
June	4	1,600	4	25,600
July	4	1,600	4	25,600
August	4	1,600	4	25,600
September	3	1,600	4	19,200
October	2	1,600	4	12,800
			Total	128,000 gal/yr
				0.4 AF/yr

An air lift pump test for Well No. 2 resulted in a well yield of 20 gpm after 3 hours. In comparison, the overall demands of 1.75 AF/yr at Well No. 2 equate to a continuous pumping rate of only 1.1 gallons per minute. Domestic water will be pumped to a tank and cycle on-and-off 24 hours a day. Pumping therefore will be relatively constant. Irrigation water demands will occur from May to October as needed. If a water storage tank is used, and water is pumped at a conservative rate of 5 gpm, then the water demands could be met by pumping an average of 18 hours per week from May to October.

Precipitation Recharge

The precipitation data in the original 2022 WAA and Addendum 1 were updated with a more thorough analysis of PRISM precipitation data acquired from the Napa County PB Explorer website. **Attachment B** shows 10-year precipitation values for PRISM grids on the Napa County parcels in Tesseron Vineyards. The weighted average precipitation over the property is 35.1 inches/yr. This same value is assumed to apply to the small Sonoma County parcels.

As documented in the 2022 WAA, 5% of precipitation is assumed to recharge. This results in total recharge of 35.1 inches x 607.85 acres x 5% = 89 AF. This far exceeds the total estimated demands of 2.25 AF (1.75 AF from Well 2 and 0.5 AF from a natural spring).

Parcel 027-060-020 covers 215.1 acres and includes Well No. 2, which will have pumping of 1.75 AF/year for domestic and agricultural uses. The precipitation recharge is estimated to be 215.1 acres x 35.1 inches x 5% = 31.5 AF, which far exceeds the pumping of 1.75 AF/year.

Parcel 027-060-022 covers 47.6 acres and includes the spring that will provide 0.5 AF/yr for the winery. Precipitation recharge on the parcel is estimated to be 47.6 acres x 35.1 inches x 5% = 7.0 AF, which also far exceeds the parcel water demands of 0.5 AF/yr.

Potential Well Pumping Interference with other Wells, Springs and Significant Streams

Napa County guidelines for Water Availability Analyses state that impacts from well pumping must be evaluated for any off-site well within 500 feet, any offsite spring developed for domestic or agricultural use within 1,500 feet, and any 'Significant Stream' within 1,500 feet of the well.

Attachment C shows the location of Well 2 with 500 feet and 1,500 feet buffers. The 500 feet buffer is primarily within Tesseron Vineyards property. A very small portion extends into State of California owned land (parcel 051-200-009), but there are no wells in the overlap area.

The 1,500-foot buffers is also largely within Tesseron Vineyards property but it does extend into several parcels owned by the State of California. This is undeveloped wilderness land and there are no known springs developed for domestic or agricultural purposes in the overlap area.

The location of significant streams on the property was determined using the Napa County PBES Map Explorer Tool: (https://experience.arcgis.com/experience/406a6b9e95da4a5dac57dc2dba0f4ded/).

Attachment D shows the location of significant streams and their 1,500 feet buffer. Dry Creek is found in the center of the property, but Well No. 2 falls outside of the 1,500 feet buffer. Note that some other streams are located on the property, but they are not designated Significant Streams and therefore do not need to be evaluated under adopted Napa County guidelines.

Conclusions

Since the project is not within 500-feet of any off-site wells, is not within 1,500-feet of an developed offsite spring, nor within 1,500-feet of a significant stream, Tier II and Tier III analyses are not required. Only a Tier 1 analysis is needed which is documented in the initial WAA and two subsequent addendums. In conclusion, existing information suggests that Well No. 2 will have sufficient capacity to meet residential and irrigation demands, and that no hydrologic features within the buffers described above will be impacted by operation of the well.

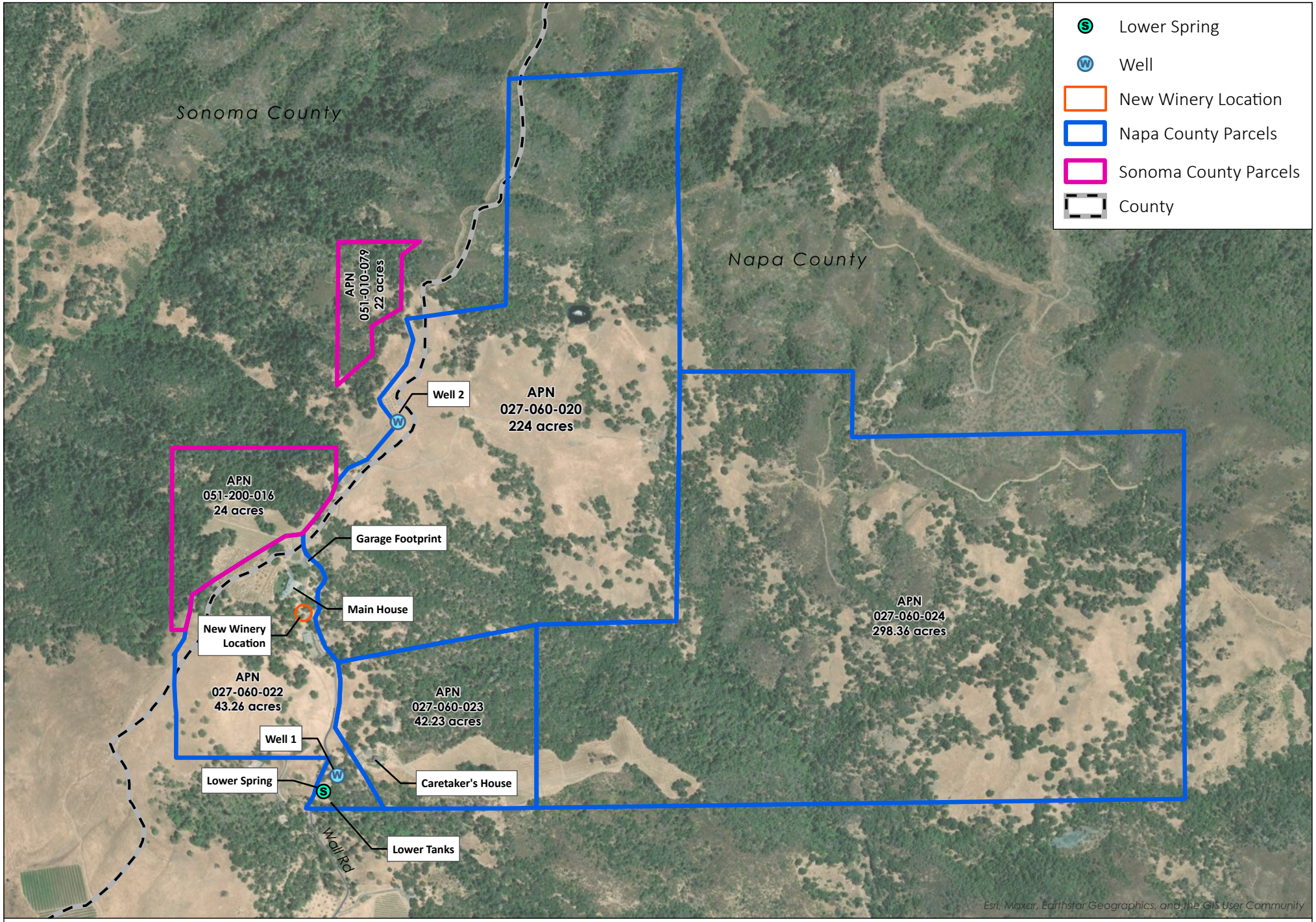
Sincerely,

PROFESSIONAL GEOLOGIST
OWEN E. KUBIT
No. 1741
CERTIFIED HYDRO GEOLOGIST
STATE OF CALIFORNIA

DATE SIGNED 4-1-25

PROFESSIONAL GEOLOGIST
OWEN E. KUBIT
No. 937
Geology
STATE OF CALIFORNIA

Date Signed 4-1-25



0 500 1,000

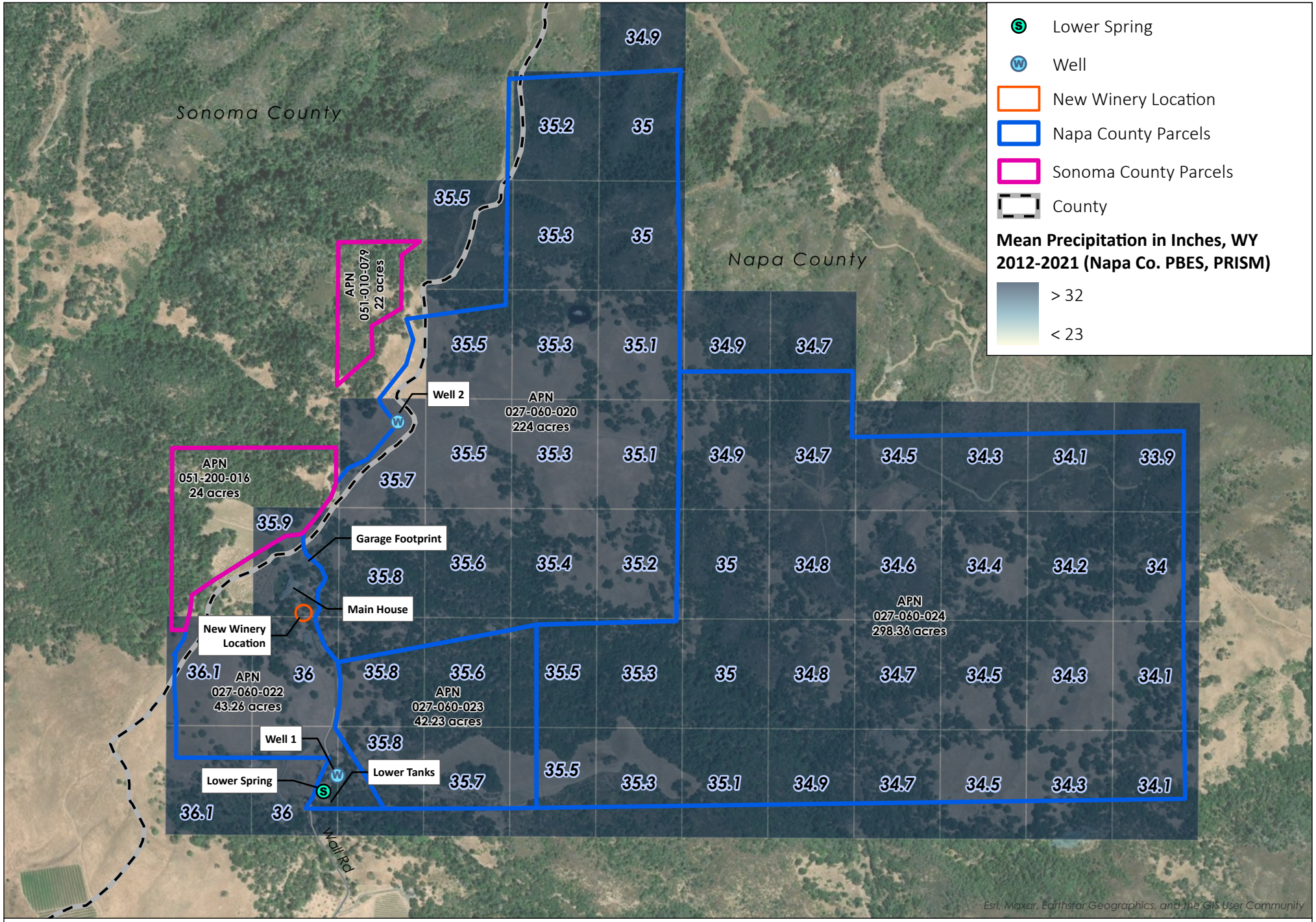
Feet

Attachment A - Site Map

Tesseron Estate Water Availability Analysis – Napa County, CA

PROVOST& PRITCHARD

3/26/2025 G:\Tesseron Vineyards-3976\0397622002-WAA\400 GIS\Map\Tesseron_Vineyards_WAA_2025\Tesseron_Vineyards_WAA_2025.aprx



0 500 1,000

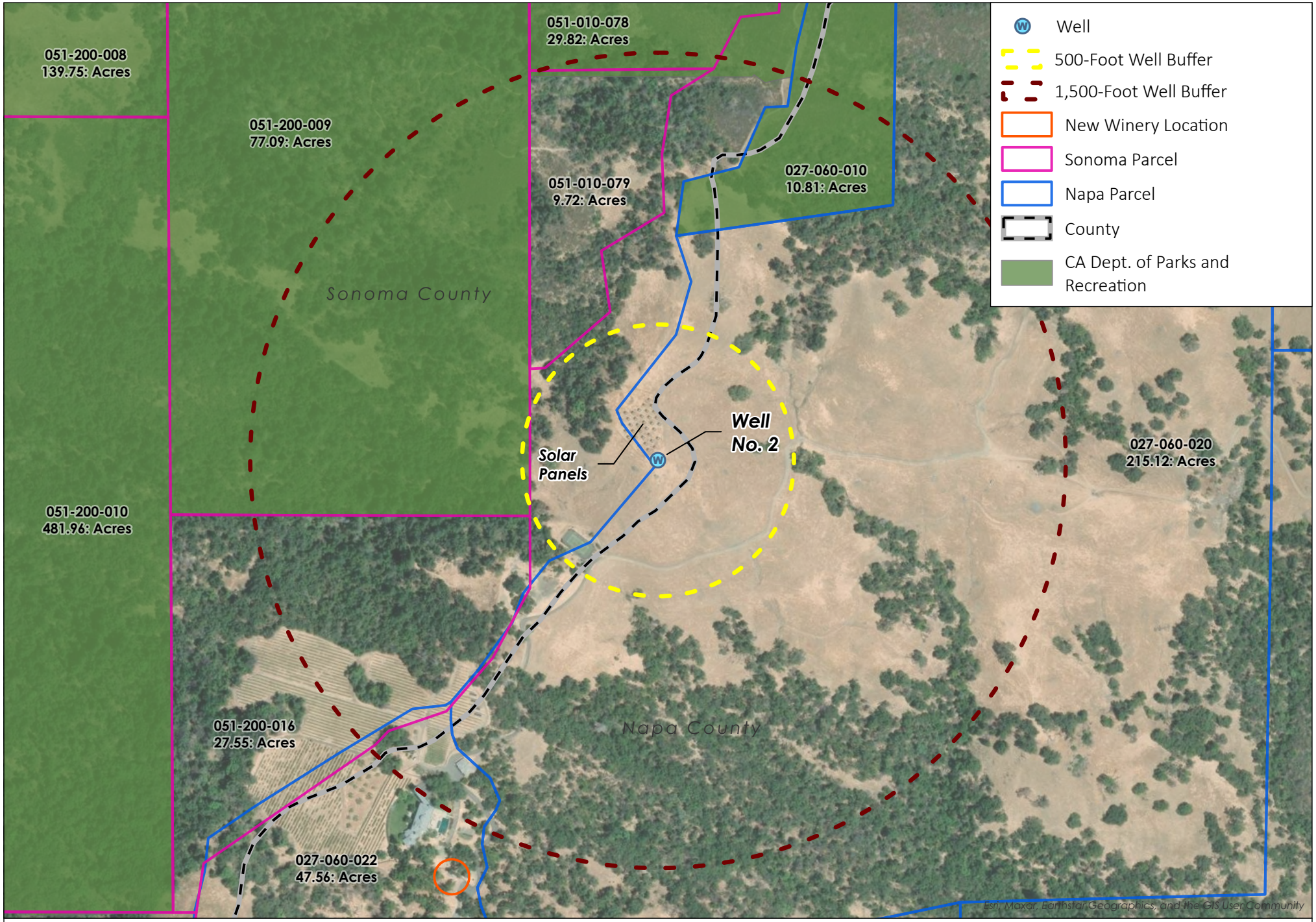
Feet

ATTACHMENT B - Mean Precipitation Map

Tesseron Estate Water Availability Analysis – Napa County, CA

PROVOST& PRITCHARD

3/17/2025 G:\Tesseron Vineyards-3976\0397622002-WAA\400 GIS\Map\Tesseron_Vineyards_WAA_2025\Tesseron_Vineyards_WAA_2025.aprx



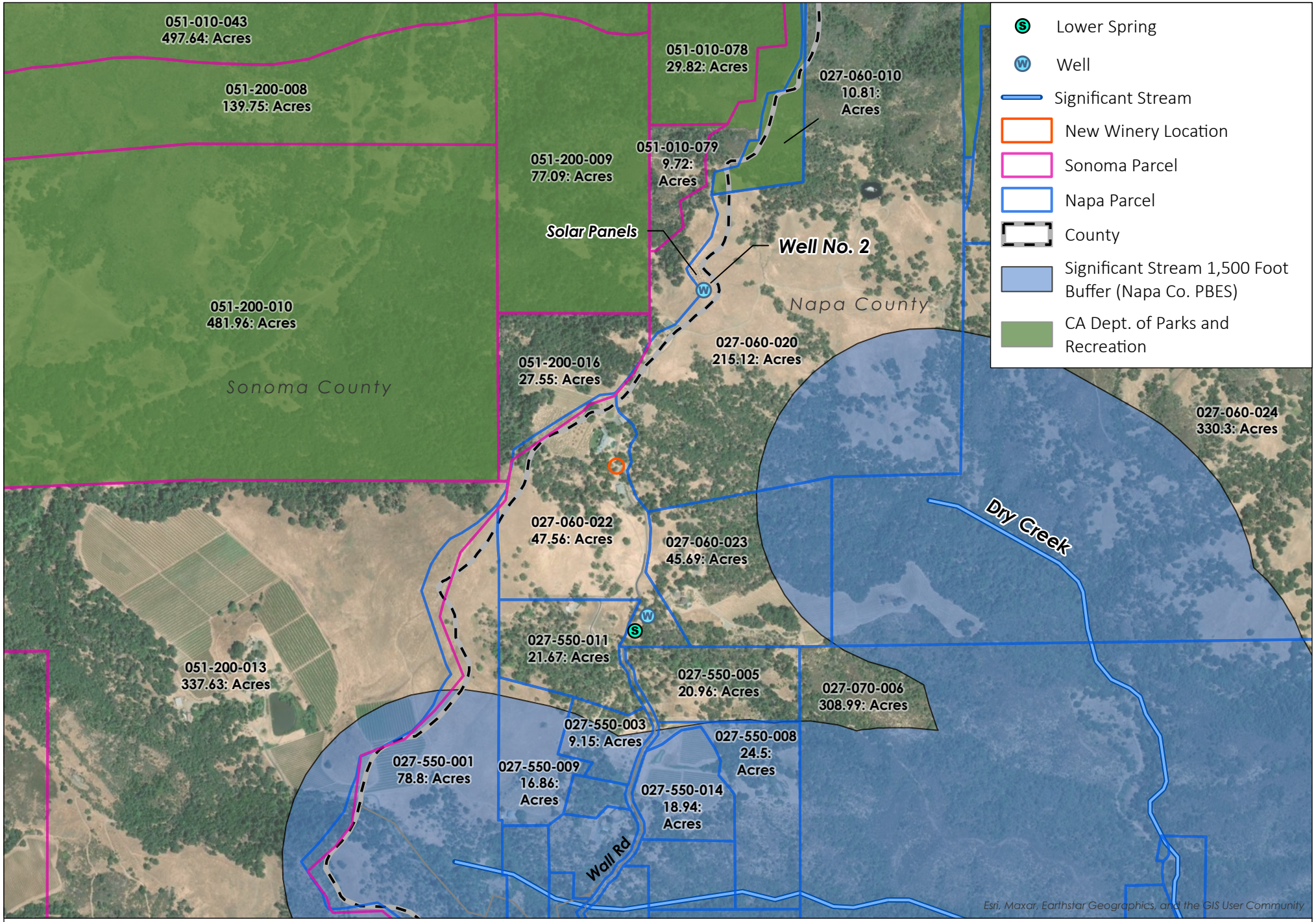
0 250 500
Feet

ATTACHMENT C - Well No. 2 Map

Tesseron Estate Water Availability Analysis – Napa County, CA

PROVOST& PRITCHARD

3/20/2025 G:\Tesseron Vineyards-3976\0397622002-WAA\400 GIS\Map\Tesseron_Vineyards_WAA_2025\Tesseron_Vineyards_WAA_2025.aprx



0 500 1,000
Feet

ATTACHMENT D - Significant Stream 1,500 Feet Buffer Map

Tesseron Estate Water Availability Analysis – Napa County, CA

PROVOST& PRITCHARD

3/20/2025 G:\Tesseron Vineyards-3976\0397622002-WAA\400 GIS\Map\Tesseron_Vineyards_WAA_2025\Tesseron_Vineyards_WAA_2025.aprx