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Water Availability Analysis

TIER I WATER AVAILABILITY ANALYSIS

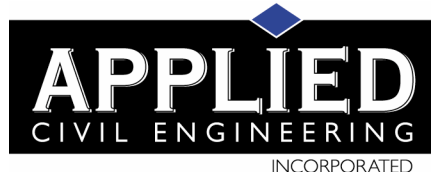
FOR THE

CHAIX FAMILY VINEYARDS MICRO-WINERY

LOCATED AT:
1204 Manley Lane
Napa, CA 94558
Napa County APN 027-210-026

PREPARED FOR:
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Job Number: 22-112

7/7/2023 - Original Submittal
10/30/2023 – Revision #1
1/12/2024 – Revision #2



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1/12/2024

Date

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INTRODUCTION

Chaix Family Vineyards is applying for a Micro-Winery Use Permit to operate a new micro-winery at the property located at 1204 Manley Lane in Napa County, California. The subject property is also known as Napa County Assessor's Parcel Number 027-210-026.



Figure 1: Location Map

The Micro-Winery Use Permit application under consideration proposes the construction and operation of a new micro-winery with the following characteristics:

- Wine Production:
 - 5,000 gallons of wine per year
 - Fermentation and aging onsite

- Employees:
 - 1 employee
- Marketing Plan:
 - Daily Tours and Tastings by Appointment
 - 10 visitors per day maximum weekdays
 - 10 visitor per day weekends

Existing improvements on the property include vineyards, ag and accessory buildings, three groundwater wells, paved, dirt and gravel driveways and the utility infrastructure associated with this type of rural residential and agricultural development. A main residence existed on the property until it was lost to a structure fire in November 2023.

Restrooms for the proposed micro-winery and wine production will be located within an existing building that will be improved for the intended micro-winery use.

Please see the plans prepared by Roger Wolffe, Architect (attached) for approximate locations of existing and proposed facilities.

Groundwater is currently used for vineyard irrigation, landscape irrigation and at the time of submittal of the micro-winery permit application water was also used for residential use on the subject property. The main residence was lost to a structural fire after the application was submitted. The water for the vineyards is supplied by two wells located within the vineyard on the subject property. The water for the previously existing residence and associated landscaping was supplied by a third well located just northwest of the residence. The micro-winery will be served by the domestic water system (the same one that served the former residence) and therefore that well is the “Project Well”.

Chaix Family Vineyards has requested that Applied Civil Engineering Incorporated (ACE) prepare a Tier I Water Availability Analysis in accordance with the Water Availability Analysis (WAA) – Guidance Document adopted by the Napa County Board of Supervisors on May 12, 2015. The remainder of this report describes the estimated groundwater demand on the subject property for existing and proposed conditions and compares that to the prescribed water use screening criteria.

ESTIMATED GROUNDWATER DEMAND

Groundwater is currently used to irrigate approximately 34 acres of vineyards, 1,500 square feet of lawn and for residential purposes as shown in Figure 2. The main residence burned in November 2023 however we understand that it will be rebuilt with the same number of bedrooms (or less) and thus is included in the baseline condition. According to the Napa County Assessor’s records the main residence had a total of four bedrooms. Furthermore, the second dwelling unit that was recently demolished but we have conservatively included the second dwelling unit in both pre and post project estimates as it can be rebuilt by right under the current zoning.

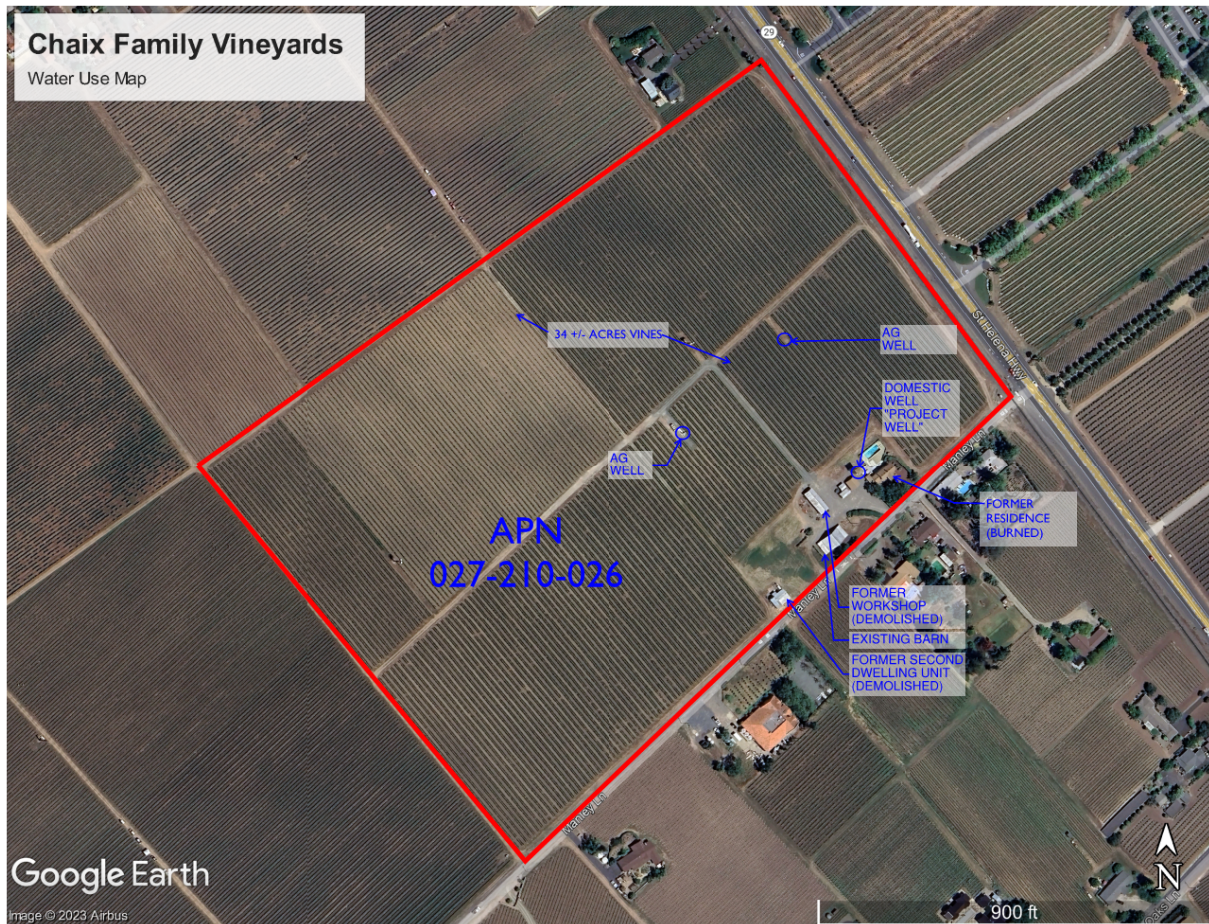


Figure 2: Water Use Map

Proposed water use will include all uses previously described as existing plus the proposed micro-winery facility.

The estimated groundwater demand is summarized in the table below and details of the calculations supporting these estimates are included in the Water Use Estimate Supporting Calculations in Appendix I.

Table I: Estimated Groundwater Demand

	Existing (ac-ft/yr)	Proposed (ac-ft/yr)
Residential	1.05	1.05
Micro-Winery	0	0.16
Vineyard Irrigation	20.40	20.40
Lawn	0.15	0.15
Total	21.60	21.76

WATER USE SCREENING CRITERIA

Since all water is extracted from the Valley Floor area this project will be analyzed according to Valley Floor area requirements. According to the Napa County WAA - Guidance Document properties located in the Napa Valley Floor area are subject to a Water Use Screening Criteria of 1.0 acre-feet of water per acre of land per year. A project complies with the requirements of the Tier 1 WAA if the total water use on the property is less than 1.0 acre-feet per acre per year. If the Tier 1 Water Use Screening Criteria is met and the property is located in the Napa Valley Floor area Tier 2 and Tier 3 Analyses are not required unless substantial evidence exists in the record that indicates a potential significant impact from the project.

Furthermore, Napa County is now also requiring that properties in the Napa Valley Subbasin area limit groundwater use to a Reduced Water Use Screening Criteria of 0.3 acre-feet per acre per year due to extended drought conditions except on properties where current use is more than 0.3 acre-feet per year in which case no-net increase in water use beyond existing baseline conditions is the applicable screening criteria.

The subject property is located in the Napa Valley Subbasin (#2-002.01) per CA DWR Bulletin 118 as shown in Figure 3.

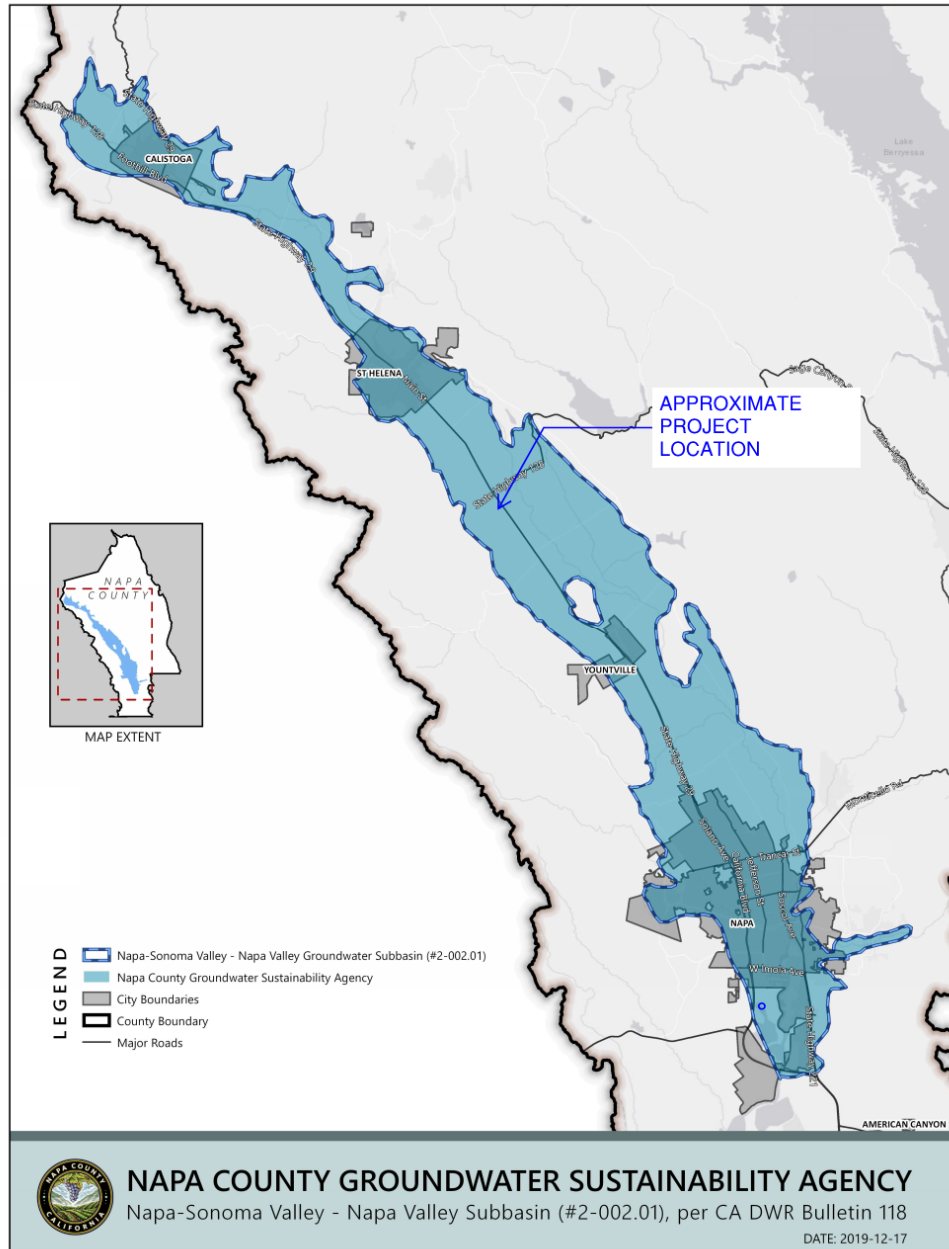


Figure 3: Map of Napa Valley Subbasin (#2-002.01)
 (Source Napa County Groundwater Sustainability Agency)

The parcel size according to the Napa County Assessor's Parcel Maps is summarized below:

APN 027-210-026

37.31 +/- acres

The total parcel acreage within the Napa Valley Floor area is approximately 37.31 acres and therefore the water use screening criteria is calculated as follows:

WAA Guidance Document Water Use Screening Criteria = 37.31 acres x 1.0 acre-foot per acre per year

WAA Guidance Document Water Use Screening Criteria = 37.31 acre-feet per year

Reduced Water Use Screening Criteria = 37.31 acres x 0.3 acre-feet per acre per year

Reduced Water Use Screening Criteria = 11.19 acre-feet per year

ANALYSIS

The total Estimated Water Use for existing conditions (21.60 ac-ft/yr) and proposed conditions (21.76 ac-ft/yr) are both significantly less than the WAA Water Use Screening Criteria (37.31 ac-ft/yr) and both are more than the Reduced Water Use Screening Criteria (11.19 ac-ft/yr).

Since the existing property water use is already above the Reduced Water Use Screening Criteria the project must comply with the no net increase criteria and the proposed water use must be the same or less than the current water use (21.60 ac-ft/yr).

RECOMMENDATIONS

In order to comply with the established 21.6 ac-ft/yr threshold based on existing use the proposed project must reduce water use from the estimated 21.76 ac-ft/yr by 0.16 ac-ft/yr to match existing water use conditions.

In order to reduce water use on the property the applicant is proposing that when the previously existing four bedroom residence is rebuilt it will be outfitted with low-flow water saving fixtures. We prepared an estimate of water use for standard fixtures and low flow fixtures utilizing California Green Building Code and US EPA methodologies and have determined that the daily water use in the residence can be reduced from an estimated 620 gallons per day using standard fixtures to an estimated 264 gallons per day by utilizing low flow water fixtures throughout the residence. This translates into an annualized water savings of 0.4 ac-ft/yr.

The revised water use estimates accounting for this proposed water savings are outlined below:

Table 2: Estimated Groundwater Demand With Residential Plumbing Retrofit

	Existing (ac-ft/yr)	Proposed (ac-ft/yr)
Residential	1.05	1.05
Micro-Winery	0	0.16
Vineyard Irrigation	20.40	20.40
Lawn	0.15	0.15
Water Savings – Residence Rebuild	0	-0.4
Total	21.60	21.36

CONCLUSION

The project complies with the WAA Water Use Screening Criteria of 1.0 acre foot per acre per year of groundwater use but this criteria has been superseded by a new Reduced Water Use Screening Criteria. The property currently uses more than the Reduced Water Use Screening Criteria of 0.3 acre-feet per year and therefore the proposed project must not increase water use beyond current levels. By implementing the recommendations outlined above and using low flow fixtures when rebuilding the residence the proposed project complies with the Napa County's current requirements for no net increase in groundwater use. Tier 2 and Tier 3 Analyses are not required according to the WAA – Guidance Document and current practice since no additional use of groundwater is required for this project.

APPENDIX I: Water Use Estimate Supporting Calculations

Existing Water Use Calculation Spreadsheet - 4 Bedroom Main Residence

Fixture Description	Flow Rate			Flow Duration / Description			Daily Uses per Occupant ^{(5) (6)}		Number of Occupants ⁽⁷⁾		Gallons per Day
Showerhead	3.5	gpm ⁽¹⁾	x	8	minutes ⁽⁴⁾	x	1	x	8	=	224.0
Sink Faucets	3	gpm ⁽¹⁾	x	0.25	minutes ⁽⁴⁾	x	3	x	8	=	18.0
Kitchen Faucet	3	gpm ⁽¹⁾	x	4	minutes ⁽⁴⁾	x	1	x	8	=	96.0
Toilet	7	gpf ⁽²⁾	x	1	flush	x	3	x	8	=	168.0
Clothes Washer	37.8	gpl ^{(3), (8)}	x	1	load	x	0.37	x	8	=	111.9
Dish Washer	2.85	gpl ^{(3), (9)}	x	1	load	x	0.1	x	8	=	2.3
Total											620

Notes:

(1) Gallons per minute (gpm)

(2) Gallons per flush (gpf)

(3) Gallons per load (gpl)

(4) Flow duration from 2010 California Green Building Standards Code

(5) Daily uses per occupant from 2010 California Green Building Standards Code (Showerhead, Sink Faucet, Kitchen Faucet, Toilet)

(6) Daily uses per occupant from US EPA Onsite Wastewater Treatment Systems Manual (Laundry Machine, Dish Washer)

(7) Number of occupants assumes 2 people per bedroom

(8) Water use per load based on Residential Top-Loading per US EPA Water Sense

(9) Water use per load per Consortium for Energy Efficiency, February 2012

Proposed Water Use Calculation Spreadsheet - 4 Bedroom Main Residence

Fixture Description	Flow Rate			Flow Duration / Description			Daily Uses per Occupant ^{(5) (6)}		Number of Occupants ⁽⁷⁾		Gallons per Day
Showerhead	1.8	gpm ⁽¹⁾	x	8	minutes ⁽⁴⁾	x	1	x	8	=	115.2
Sink Faucets	1.5	gpm ⁽¹⁾	x	0.25	minutes ⁽⁴⁾	x	3	x	8	=	9.0
Kitchen Faucet	1.5	gpm ⁽¹⁾	x	4	minutes ⁽⁴⁾	x	1	x	8	=	48.0
Toilet	1.3	gpf ⁽²⁾	x	1	flush	x	3	x	8	=	31.2
Clothes Washer	19.7	gpl ^{(3), (8)}	x	1	load	x	0.37	x	8	=	58.3
Dish Washer	2.85	gpl ^{(3), (9)}	x	1	load	x	0.1	x	8	=	2.3
Total											264

Notes:

(1) Gallons per minute (gpm)

(2) Gallons per flush (gpf)

(3) Gallons per load (gpl)

(4) Flow duration from 2010 California Green Building Standards Code

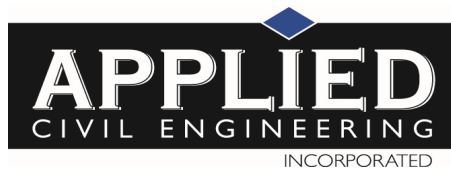
(5) Daily uses per occupant from 2010 California Green Building Standards Code (Showerhead, Sink Faucet, Kitchen Faucet, Toilet)

(6) Daily uses per occupant from US EPA Onsite Wastewater Treatment Systems Manual (Laundry Machine, Dish Washer)

(7) Number of occupants assumes 2 people per bedroom

(8) Water use per load varies based on setting. Range = 7 gpl to 19.7 gpl per Miele

(9) Water use per load per Consortium for Energy Efficiency, February 2012



Chaix Family Vineyards Micro-Winery
Groundwater Use Estimate

	Estimated Water Use (Acre-Feet / Year)		
	Existing		Proposed
Residential Water Use			
Primary Residence ⁽¹⁾	0.750		0.750
Pool ^(1A)	0.100		0.100
Second Dwelling Unit	0.200		0.200
Guest Cottage - Not Applicable	0.000		0.000
Total Residential Domestic Water Use	1.050		1.050
Winery Domestic & Process Water Use			
Winery - Daily Visitors ⁽²⁾⁽³⁾	0.000		0.034
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		0.017
Winery - Event Staff ⁽²⁾⁽⁶⁾	0.000		0.000
Winery - Process ⁽²⁾⁽⁷⁾	0.000		0.108
Total Winery Water Use	0.000		0.158
Irrigation Water Use			
Lawn ⁽⁸⁾	0.150		0.150
Other Landscape ⁽⁹⁾	0.000		0.000
Vineyard - Irrigation ⁽¹⁰⁾	20.400		20.400
Vineyard - Frost Protection - Not Applicable	0		0
Vineyard - Heat Protection - Not Applicable	0		0
Total Irrigation Water Use	20.550		20.550
Total Combined Water Use	21.60		21.76

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

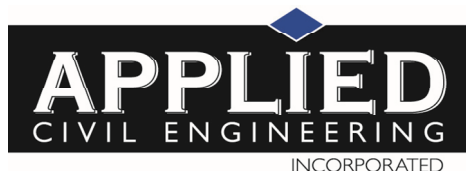
⁽⁶⁾ 15 gallons per shift per Napa County WAA - Guidance Document

⁽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 - 1,500 sf lawn

⁽⁹⁾ Other existing landscape around house included in residential estimate above

⁽¹⁰⁾ 0.6 ac-ft/ac per Vineyard Manager - 34 acres of vineyard



Chaix Family Vineyards Micro-Winery
Winery Production, Visitor, Employee & Event Staff Statistics

Winery Production⁽¹⁾	5,000	gallons per year
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Tours and Tastings by Appointment⁽¹⁾

Monday through Thursday	10 guests max per day	
Friday through Sunday	10 guests max per day	
Total Guests Per Year		3,640

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⁾

1 employees	1 shift per day	
Total Employee Shifts Per Year		365

Event Staff⁽³⁾

0 per year, 0 guests	0 event staff	0
0 per year, 0 guests	0 event staff	0
0 per year, 0 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)