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Water Availability Analysis

Reynolds Family Winery P14-00344-MOD
Planning Commission Hearing Date November 1, 2017

November 2016 - Revised
Job No. 13-40

BARTELT ENGINEERING

WATER AVAILABILITY ANALYSIS FOR THE REYNOLDS FAMILY WINERY 3266 SILVERADO TRAIL, NAPA COUNTY, CA 94558 APN 039-610-002

As required by Napa County Planning, Building and Environmental Services, this study outlines availability of groundwater for a winery and tasting room addition to an existing winery building on the above referenced parcel located at 3266 Silverado Trail in Napa County, California.

PROJECT DESCRIPTION

The subject parcel is a 13.45± acre parcel currently containing a residence with some minor landscaped areas, cottage, winery, tasting room, vineyards and miscellaneous structures associated with vineyard operations.

The purpose of this analysis is to evaluate the feasibility of expanding the existing winery building and increasing operations from a 20,000 to a 40,000 gallons per year winery on a portion of the subject parcel. Along with the proposed wine production increase at the site, the project proposes a moderate increase to the existing staffing and marketing plan. The project proposes five (5) full-time employees, two (2) part-time and two (2) seasonal (harvest) employees. The project also proposes to offer private tour and tasting appointments for a maximum number of forty (40) guests per day and 250 guests per week. Furthermore, the Applicant plans to offer two (2) food and wine pairing events per month for parties up to 24 persons and two (2) food and wine pairing events per month for parties up to 40 persons. Additionally, the Applicant intends to host four (4) wine club/release events per year for groups of up to 60 persons and two (2) 125 person large events at the winery.

Vineyard area is estimated to reduce to 6.4± acres as a result of the proposed improvements. Refer to the attached Use Permit drawings for the existing and proposed development.

EXHIBITS

The associated USGS "Topographic Site Location Map" shows the project site and approximate property line locations. Information regarding the location of existing wells and structures are shown on the associated Use Permit Drawings and attached "Well Location Map". All exhibits and drawings mentioned above were prepared by Bartelt Engineering.

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WATER USE CRITERIA

TABLE 1: SCREENING CRITERIA	
Parcel Zoning	Agricultural Watershed (AW)
Project Parcel Location	Napa Valley Floor
Parcel Size	13.45± acres
Water Use Criteria	1.0 acre-feet per year
Well and Spring Interference	No
Groundwater/Surface Water Interaction	No
Screening Tier	Tier 1

As summarized in Table 1, the subject parcel is located in the Agricultural Watershed (AW) Zoning District. Per the PBES Water Availability Analysis (WAA)-Guidance Document dated May 12, 2015 the water use criteria for a parcel located in the Napa Valley Floor and/or All Other Areas that are not designated as a groundwater deficient area without any well or spring interference must follow Tier 1 requirements.

WATER DEMAND

Tier 1 Water Use Criteria

The project parcel lies completely in a location identified as "Napa Valley Floor" therefore the existing Water Use Criteria is 1.0 acre-feet per acre per year resulting in 13.45± acre-feet per year.

Estimated Current and Proposed Water Use

The total water demand for the existing and proposed uses for the project is calculated below and based on the Guidelines for Estimating Residential and Non-residential Water Use from the WAA Guidance Document (Napa County), the applicant, industry standards or the wastewater Dispersal Feasibility Study prepared by Bartelt Engineering[1].

TABLE 2A: DETAILED WATER AVAILABILITY ANALYSIS - CURRENT	
Use	acre-feet
Residence (Primary residence based on 5 bedrooms)	0.68
Residential (secondary, based on 2 bedrooms)	0.27
Winery (Process wastewater; 20,000)	0.37
Winery (Tasting Room and Marketing Events)	0.09
Vineyard (6.6± acres of irrigation)	4.61
Residential Landscape Irrigation (0.4± acres)	0.68
Total Estimated Current Water Use	6.70

[1] See worksheets for details

TABLE 2B: DETAILED WATER AVAILABILITY ANALYSIS - PROPOSED	
Use	acre-feet
Residence (Primary residence based on 5 bedrooms)	0.68
Residential (secondary, based on 2 bedrooms)	0.27
Winery (Process wastewater; 40,000)	0.74
Winery (Tasting Room and Marketing Events)	0.50
Vineyard (6.4± acres of irrigation)	3.81
Residential Landscape Irrigation (0.4± acres)	0.68
Total Proposed Water Use	6.68

As shown in Table 2A and Table 2B, the water demand is estimated to decrease from the current demand of 6.70 to 6.68 acre feet per year as part of the proposed improvements. Refer to the attached Table I, Table II and Table III for details of existing and proposed water demand calculations as well as the Onsite Wastewater Dispersal Feasibility Study prepared by Bartelt Engineering for further information.

SOURCE WATER INFORMATION

The two (2) oldest wells (#1 and #2) and the newest well (#4)[2] drilled in 2006 provide domestic water to the residence and cottage while the well (#3)[3] drilled in 2001 provides water to the winery. Well #4 is the only well that satisfies the State's annular seal depth regulation for a Public Water System for domestic and production demand requirements. Currently Well #1, Well #2 and Well #4 pump ground water into existing onsite storage tanks on the parcel which then supply untreated water to the residence and cottage for domestic use and store water for fire protection.

Well #3, which currently provides water to the winery, does not have an appropriate annular seal and therefore a different water source is required to provide domestic water to the public via a water system. Well #4 has an appropriate annular seal, which allows groundwater to be extracted, treated at the source to the required level for potable water and then stored in onsite water storage tanks before being conveyed to the existing winery facility, tasting room, residence, and cottage and any other service connections serving the public. Under this scenario, Well #3's existing connection to the winery would be disconnected and it along with Well #2 will be repurposed for vineyard irrigation and/or fire protection water. Existing Well #1 will be destroyed following Napa County procedures.

Prior to use, residential domestic water is proposed to be stored in the existing (1) 10,500 gallon storage tank currently serving the residence and a new (1) 10,500 gallon storage tank will serve the winery. The existing 10,500 gallon storage tank currently used to store fire protection water will be repurposed to store irrigation water under this proposed project. A

[2] Installed under Napa County permit number E06-01615
[3] Installed under Napa County permit number 96-10973

new 100,000 gallon tank will be constructed and provide fire protection water for the winery under this proposed project.

Well Description

According to multiple well drilling completion and inspection reports, the four (4) existing onsite wells are capable of producing a combined flow rate in excess of 40 gallons per minute[4] (gpm). The existing wells are currently used to satisfy domestic, winery and vineyard irrigation demands. Under this Use Permit Modification Application, three (3) of the existing four (4) wells will be used to satisfy future water demands while the fourth (4) existing well (identified as Existing Well #1 on the Use Permit Plans) will be destroyed.

Per the Well Completion Report, Well #4 was constructed in 2006 by McClean & Williams. Well #4 is reported to be constructed of 6 inch diameter PVC F480 casing to a completed depth of 440 feet with a 53 foot cement annular seal. Refer to the Well Completion Report for more information.

Yield Test

A yield test was performed on Well #4 by McClean & Williams during the time of drilling. Prior to the start of the yield test, static water level was recorded at 70 feet below surface. A sustained yield of 40+ gallons per minute (gpm) was recorded after eight (8) hours of continuous pumping.

Water System Classification

Per PBES guidelines, the water system may be regulated as a transient non-community public water system (TNCWS). A transient non-community water system is identified as a system that has less than five (5) connections, serves less than 25 yearlong residents[5], serves 25 people per day at least 60 days per year and serves not more than 25 of the same people at least six (6) months out of the year. The two (2) seasonal employees are not considered yearlong residents. The TNCWS would be placed into service in conjunction with the existing Well #4. Refer to the Technical, Managerial and Financial (TMF) Capacity Worksheet included with the Use Permit Application for further information.

Neighboring Water Source(s)

Based on review of neighboring property records at Napa County PBES and discussions with PBES staff, there are neighboring wells located within 500 feet of the proposed project well. However, at the time of the drafting of this document, a Tier 2 well interference evaluation is not warranted because substantial evidence was not found in the record that indicates the need to do so under CEQA. Nevertheless, it is the Applicant's desire to abate any further delay in approval by voluntarily limiting the proposed project's water demand volume to the pre-project amount. A reduction in the annual vineyard irrigation volume will offset the production and marketing water demand increases proposed under this project. Refer to the

[4] McLean & Williams, Inc. *Water Well and Pressure System Evaluation Report*, dated July 15, 1997 and July 13, 1998, and *Well Completion Report*, signed August 15, 2001 and April 12, 2007.
[5] Yearlong resident is considered an individual served by the water system for 183 or more days annually.

associated Use Permit Drawings and Well Location Exhibit prepared by Bartelt Engineering for location of the existing onsite well, neighboring wells and nearby streams.

Water Quality

Water quality results were not available for Well #4 that will serve the winery prior to completion of this WAA.

Conclusion

The above analysis shows that the groundwater demand for the proposed project can feasibly be sourced by the existing Well #4. Furthermore, limiting the post-project annual water demand amount to the pre-project quantity should satisfy the Tier 1 Water Use Criterion of the Napa County Water Availability Analysis.

Attachments

Neighboring Well Location Map

Table I – Existing and Proposed Water Demand Summary

Table II – Existing Water Demand Analysis

Table III – Proposed Water Demand Analysis

References

Napa County. "Water Availability Analysis (WAA)." *Design, Construction and Guidance Document*. 12 May 2015. Document.

TOPOGRAPHIC SITE LOCATION INFORMATION

USGS 7.5 MINUTE QUADRANGLE "NAPA"

Scale: 1" = 2000'

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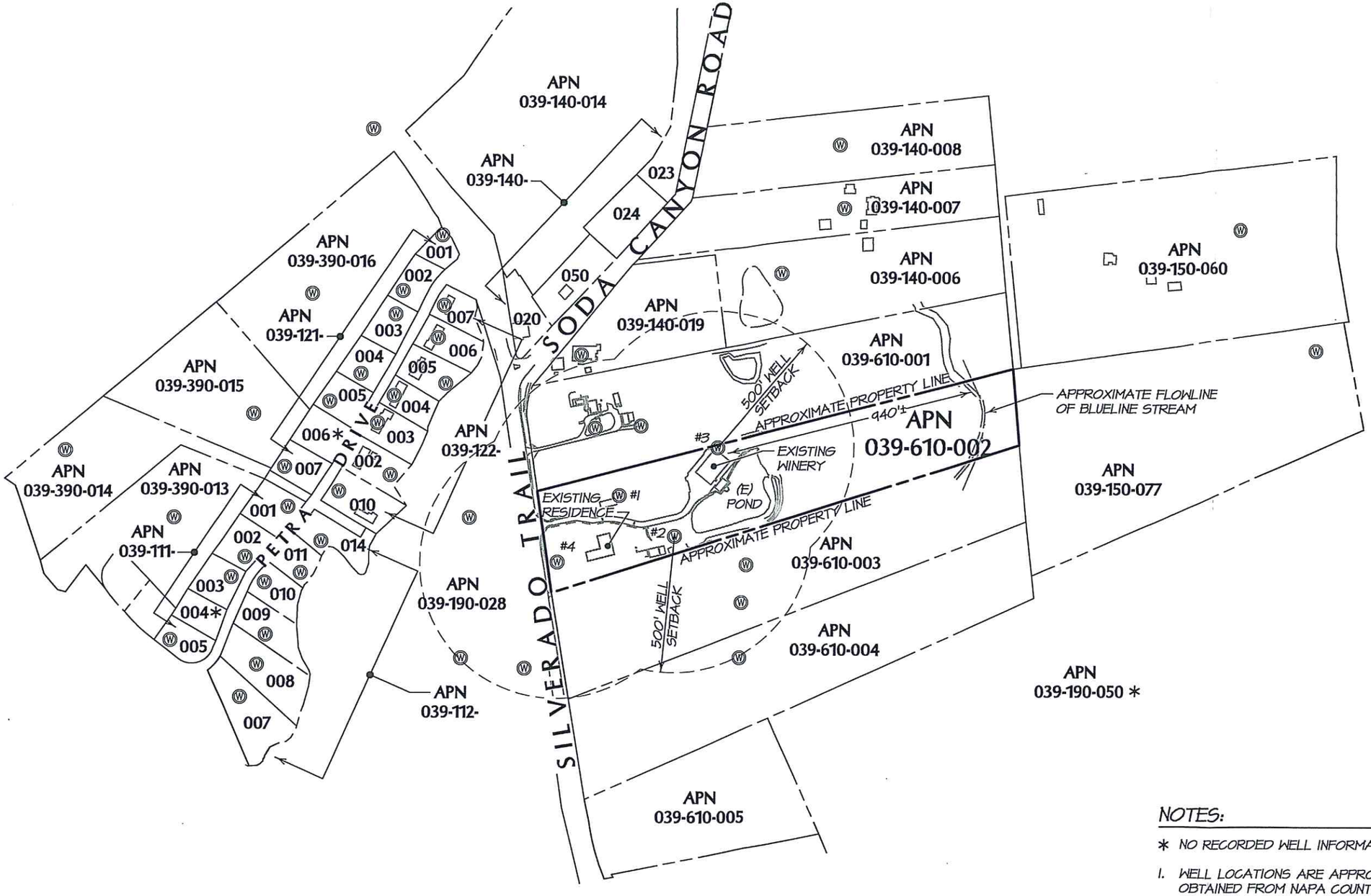
Reynolds Family Winery
3266 Silverado Trail
Napa, CA
APN 039-610-002
Job No. 13-40 November 2016



NOTES:

* NO RECORDED WELL INFORMATION WAS FOUND FOR THIS PARCEL.

1. WELL LOCATIONS ARE APPROXIMATE AND ARE BASED ON DATA OBTAINED FROM NAPA COUNTY ENVIRONMENTAL HEALTH DIVISION RECORDS. WELL LOCATION RECORDS VARY IN ACCURACY AND PRECISION. LOCATIONS SHOULD BE FIELD VERIFIED.

NEIGHBORING WELL LOCATION MAP

SCALE: 1" = 400'

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Reynolds Family Winery
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Napa County, CA 94558
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Sheet 1 of 1

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Reynolds Family Winery
Water Availability Analysis
Table I

EXISTING AND PROPOSED WATER DEMAND SUMMARY

Use	Annual Demand (gallons)	Annual Demand (acre-feet)
Existing		
Residential (5 bedrooms at 120 gpd)	219,600	0.68
Residential (2 bedrooms at 120 gpd)	87,840	0.27
Production (20,000 gallons)	120,000	0.37
Tasting Room and Marketing Events	26,750	0.09
Vineyard Irrigation (6.6± acres at 150 gallons per vine)	1,500,000	4.61
Residential Landscape Irrigation (0.4± acres)	219,000	0.68
Tasting Room Landscape Irrigation	0	0.00
Total Existing Water Use	2,173,190	**6.70**
Proposed		
Residential (5 bedrooms at 120 gpd)	219,600	0.68
Residential (2 bedrooms at 120 gpd)	87,840	0.27
Production (40,000 gallons)	240,000	0.74
Tasting Room and Marketing Events	162,134	0.50
Vineyard Irrigation (6.4± acres at 128 gallons per vine)	1,241,088	3.81
Residential Landscape Irrigation (0.4± acres)	219,000	0.68
Tasting Room Landscape Irrigation	0	0.00
Total Proposed Water Use	2,169,662	**6.68**

Notes:

> No proposed residence or cottage landscape improvements associated with this Use Permit.

> Residential (primary residence and cottage), Winery (production), Tasting Room (marketing) and landscape demand supplied by existing domestic Well #4. Vineyard irrigation and fire demand will be supplied by Well #2 and Well #3.

> Existing and proposed winery landscape irrigation amount is insignificant.

> Existing Well #1 to be destroyed under this Use Permit.

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Reynolds Family Winery
Water Availability Analysis
Table II
EXISTING WATER DEMAND ANALYSIS

		Frequency of Event	Harvest Aug.- Nov.	Non-Harvest Dec- July		
Residential Domestic Water (RW):			4	8	No. of Months	365 days/yr 30.5 days/mo
Number of Bedrooms (Residence)			5	5	bedrooms	
Number of Bedrooms (Cottage)			2	2	bedrooms	
Design Demand per Bedroom			120	120	gallons per day per bedroom	
Residential Domesitc Water Demand		*Daily*	840	840	gallons per day	
		Monthly	25,620	25,620	gallons per month	
		Annually	102,480	204,960	gallons per year	
Commercial Water Demand:						
Winery Process Water Demand:						
Annual Wine Production			20,000	20,000	gallons	
Days of Crush & Days per Year			40	325	days	
Gallons of Domesitc Water per Gallon of Wine			1.5	4.5	gallons per gallon	
Winery Process Water Demand (PW)		*Daily*	750	277	gallons per day	
		Monthly	22,875	8,446	gallons per month	
		Annually	30,000	90,000	gallon per season (harvest, non-harvest)	
Winery Domestic Water:						
Number of Employees	Full Time		2	2	employees	
Number of Employees	Part Time		0	0	employees	
Number of Employees	Seasonal		2	0	employees	
Domestic Water Demand Rate per Employee			15.0	15.0	gallons per day per employee	
Winery Domestic Water Demand		*Daily*	60	30	gallons per day	
		Monthly	1,830	915	gallons per month	
						Peak Event
Number of Guest for	Private Tours & Tastings w/ Food		10	10	guests per day	3 gallons per guest;
Domestic Water Demand Rate per Guest			3	3	gallons per guest	Food preparation is off-site catering
Private Tours & Tastings w/ Food Domestic Water Demand		*Daily*	30	30	gallons per day	
		Monthly	915	915	gallons per month	
Number of Guests for	Food and Wine Pairings - Lunch		0	0	guests per pairing	8 gallons per guest;
Domesict Water Demand Rate per Guest			8	8	gallons per guest	Food preparation is off-site catering
Food and Wine Pairings - Lunch Domestic Water Demand		*Day of Event*	0	0	gallons per pairing	
Number of Food and Wine Pairing Events per Month	0	*Monthly*	0	0	gallons per month	
Number of Guests for	Food and Wine Pairings - Dinner		0	0	guests per pairing	8 gallons per guest;
Domestic Water Demand Rate per Guest			8	8	gallons per guest	Food preparation is off-site catering
Food and Wine Pairings - Dinner Domestic Water Demand		*Day of Event*	0	0	gallons per pairing	
Number of Food and Wine Pairing Events per Month	0	*Monthly*	0	0	gallons per month	
Number of Guests for	Wine Club / Release Events		40	40	guests per event	
Number of Event Staff for	Wine Club / Release Events		3	3	staff per event	
Domestic Water Demand Rate per Guest			8	8	gallons per guest	8 gallons per guest;
Domestic Water Demand Rate per Event Staff			15	15	gallons per staff	
Wine Club / Release Events Domestic Water Demand		*Day of Event*	365	365	gallons per event	
Number of Wine Club / Release Events per Year	2	*Annually*	365	365	gallons per year, split between seasons	
Wine Club / Release Events Water Demand Rate per Guest			0	0	gallons per guest	Food preparation is off-site catering
Total Wine Club / Release Events Commerical Kitchen Water Demand		Day of Event	0	0	gallons per event	
		Annually	0	0	gallons per year, split between seasons	
Number of Guests for	Large Events		25	25	guests per event	
Number of Event Staff for	Large Events		0	0	staff per event	
Domestic Water Demand Rate per Guest			8	8	gallons per guest	8 gallons per guest;
Domestic Water Demand Rate per Event Staff			15	15	gallons per staff	
Large Events Domestic Water Demand		*Day of Event*	200	200	gallons per event	
Number of per Year	1	*Annually*	200	200	gallons per year	
Large Events Water Demand Rate per Guest			0	0	gallons per guest	Food preparation is off-site catering
Total Large Events Commerical Kitchen Water Demand		Day of Event	0	0	gallons per event	
		Annually	0	0	gallons per year	

Water Demand:		Harvest Aug.- Nov.	Non-Harvest Dec- July	
Cumulative PW & DW Demands w/ Private T&T and F&W (Lunch & Dinner) Events	*Monthly*	51,240	35,896	gallons per mo for PW, T&T and F&W events
Cumulative PW & DW Demands for All Events	*Monthly*	51,805	36,461	gallons per month for all events
Cummlative Process Water Demand	*Annually*	30,000	90,000	gallons per year
Cumulative PW & DW Demands for All Events	*Annually*	144,025	310,165	gallons per yr w/ all events
Total PW & RW Demands for Entire Year		454,190		gallons per year
		1.39		acre-feet per year

Average Daily Water Demand for the above Monthly, Annually and Yearly Water Demands

Monthly Cumulative Process and Domestic Water Demand w/ Food and Wine Pairings - Lunch & Dinner	1,680	1,177	gallons per day
Monthly Cumulative Process and Domestic Water Demand for All Events	1,699	1,195	gallons per day
Annually Cumulative Process and Domestic Water Demand for All Events	1,181	1,271	gallons per day
Average Daily Process and Domestic Water Demand for Entire Year	1,244		gallons per day

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Reynolds Family Winery
Water Availability Analysis
Table III
PROPOSED WATER DEMAND ANALYSIS

			Harvest Aug.- Nov.	Non-Harvest Dec- July		
		Frequency of Event				365 days/yr
Residential Domestic Water (RW):			4	8	No. of Months	30.5 days/mo
Number of Bedrooms (Residence)			5	5	bedrooms	
Number of Bedrooms (Cottage)			2	2	bedrooms	
Design Demand per Bedroom			120	120	gallons per day per bedroom	
Residential Domesitc Water Demand		*Daily*	840	840	gallons per day	
		Monthly	25,620	25,620	gallons per month	
		Annually	102,480	204,960	gallons per year	
Commercial Water Demand:						
Winery Process Water Demand:						
Annual Wine Production			40,000	40,000	gallons	
Days of Crush & Days per Year			45	320	days	
Gallons of Domesitc Water per Gallon of Wine			1.5	4.5	gallons per gallon	
Winery Process Water Demand (PW)		*Daily*	1,333	563	gallons per day	
		Monthly	40,667	17,156	gallons per month	
		Annually	60,000	180,000	gallon per season (harvest, non-harvest)	
Winery Domestic Water:						
Number of Employees	Full Time		5	5	employees	
Number of Employees	Part Time		2	2	employees	
Number of Employees	Seasonal		2	0	employees	
Domestic Water Demand Rate per Employee			15.0	15.0	gallons per day per employee	
Winery Domestic Water Demand		*Daily*	135	105	gallons per day	
		Monthly	4,118	3,203	gallons per month	
						Peak Event
Number of Guest for	Private Tours & Tastings w/ Food		40	40	guests per day	3 gallons per guest;
Domestic Water Demand Rate per Guest and Commercial Kitchen			6	6	gallons per guest	Food preparation in
Private Tours & Tastings w/ Food Domestic Water Demand		*Daily*	240	240	gallons per day	commercial kitchen
		Monthly	7,320	7,320	gallons per month	
Number of Guests for	Food and Wine Pairings - Lunch		24	24	guests per pairing	8 gallons per guest;
Domesict Water Demand Rate per Guest and Commercial Kitchen			11	11	gallons per guest	Food preparation in
Food and Wine Pairings - Lunch Domestic Water Demand		*Day of Event*	264	264	gallons per pairing	commercial kitchen
Number of Food and Wine Pairing Events per Month	3	*Monthly*	792	792	gallons per month	
Number of Guests for	Food and Wine Pairings - Dinner		40	40	guests per pairing	8 gallons per guest;
Domestic Water Demand Rate per Guest and Commercial Kitchen			11	11	gallons per guest	Food preparation in
Food and Wine Pairings - Dinner Domestic Water Demand		*Day of Event*	440	440	gallons per pairing	commercial kitchen
Number of Food and Wine Pairing Events per Month	3	*Monthly*	1,320	1,320	gallons per month	
Number of Guests for	Wine Club / Release Events		60	60	guests per event	
Number of Event Staff for	Wine Club / Release Events		4	4	staff per event	
Domestic Water Demand Rate per Guest and Commercial Kitchen			8.0	8.0	gallons per guest	8 gallons per guest;
Domestic Water Demand Rate per Event Staff			15	15	gallons per staff	
Wine Club / Release Events Domestic Water Demand		*Day of Event*	540	540	gallons per event	
Number of Wine Club / Release Events per Year	4	*Annually*	1,080	1,080	gallons per year, split between seasons	
Wine Club / Release Events Water Demand Rate per Guest with Commercial Kitchen			3.0	3.0	gallons per guest	Food preparation in
Total Wine Club / Release Events Commerical Kitchen Water Demand		Day of Event	180	180	gallons per event	commercial kitchen
		Annually	360	360	gallons per year, split between seasons	
Number of Guests for	Large Events		125	125	guests per event	
Number of Event Staff for	Large Events		8	8	staff per event	
Domestic Water Demand Rate per Guest with Portable Toilets Use and Commercial Kitchen			4.0	4.0	guests per event	Portable Toilets used by
Domestic Water Demand Rate per Event Staff			15	15	gallons per staff	50& of guests
Large Events Domestic Water Demand		*Day of Event*	620	620	gallons per event	
Number of per Year	2	*Annually*	1,240	1,240	gallons per year	
Large Events Water Demand Rate per Guest with Commercial Kitchen			3.0	3.0	gallons per guest	Food preparation in
Total Large Events Commerical Kitchen Water Demand		Day of Event	375	375	gallons per event	commercial kitchen
		Annually	750	750	gallons per year	

Water Demand:		Harvest Aug.- Nov.	Non-Harvest Dec- July	
Cumulative PW & DW Demands w/ Private T&T and F&W (Lunch & Dinner) Events	*Monthly*	79,836	55,411	gallons per mo for PW, T&T and F&W events
Cumulative PW & DW Demands for All Events	*Monthly*	81,551	57,126	gallons per month for all events
Cummlative Process Water Demand	*Annually*	60,000	180,000	gallons per year
Cumulative PW & DW Demands for All Events	*Annually*	220,108	489,466	gallons per yr w/ all events
Total PW & RW Demands for Entire Year		709,574		gallons per year
		2.18		acre-feet per year

Average Daily Water Demand for the above Monthly, Annually and Yearly Water Demands

Monthly Cumulative Process and Domestic Water Demand w/ Food and Wine Pairings - Lunch & Dinner	2,618	1,817	gallons per day
Monthly Cumulative Process and Domestic Water Demand for All Events	2,674	1,873	gallons per day
Seasonal Cumulative Process and Domestic Water Demand for All Events	1,804	2,006	gallons per day
Average Daily Process and Domestic Water Demand for Entire Year	1,944		gallons per day

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WATER SYSTEM FEASIBILITY STUDY FOR THE REYNOLDS FAMILY WINERY 3266 SILVERADO TRAIL, NAPA COUNTY, CA 94558 APN 039-610-002

As required by Napa County Planning, Building and Environmental Services, this study outlines the feasibility of providing onsite water for a winery and tasting room addition to an existing winery building on the above referenced parcel located at 3266 Silverado Trail in Napa, California.

The proposed Use Permit Modification Application for Reynolds Family Winery is a request to expand the production capacity of the existing full crush winery on the above referenced parcel from 20,000 to 40,000 gallons of wine per year. Along with the proposed increase in wine production, the project proposes to employ five (5) full-time employees, two (2) part-time and two (2) seasonal (harvest) employees. The project also proposes to offer private tour and tasting appointments for a maximum number of forty (40) guests per day and 250 guests per week. Furthermore, the Applicant plans to offer two (2) food and wine pairing events per month for parties up to 24 persons and two (2) food and wine pairing events per month for parties up to 40 persons. Additionally, the Applicant intends to host four (4) wine club/release events per year for groups of up to 60 persons and two (2) 125 person large events at the winery.

Table 1 summarizes the proposed marketing plan:

TABLE 1: MARKETING PLAN SUMMARY

Guest Experience	Existing		Proposed	
	Frequency	Number of Persons	Frequency	Number of Persons
Private Tours & Tasting	Daily	10 per day	Daily	40 per day
Food & Wine Pairings	per month per month	0 per event 0 per event	2 per month 2 per month	24 per event 40 per event
Wine Club / Release Events	2 per year	40 per event	4 per year	60 per event
Large Events	1 per year	25 per event	2 per year	125 per event

It is our understanding that the Reynolds Family Winery may be required to install a Transient – Non-Community Water System (TNCWS) as a result of the proposed Use Permit Modification Application.

The following Technical, Managerial and Financial (TMF) Capacity Worksheet outlines the potential requirements associated with the development of a new Transient Non-Community Water System (TNCWS).

New Community and Non-Community Water Systems

Technical, Managerial and Financial Capacity Worksheet

1. **Water System Name**: Reynolds Family Winery, 3266 Silverado Trail, Napa, CA 94558, APN 039-610-002

   Water System ID: 28-00009

2. **Name of person(s) who prepared the report:** Michael G. Grimes, P.E.
   Project Engineer
   Bartelt Engineering

3. Technical Capacity

System Description: Under Napa County Planning, Building and Environmental Services - Environmental Health Division guidelines, Reynolds Family Winery may be required to operate and maintain a transient non-community water system (TNCWS). A transient non-community water system is identified as a system that has less than five (5) connections, serves less than 25 yearlong residents[1], serves 25 people per day at least 60 days per year and serves not more than 25 of the same people at least six (6) months out of the year. The two (2) seasonal employees are not considered yearlong residents.

There are four (4) existing wells located on the above referenced parcel that are being utilized as potable water sources for the existing residence, cottage and winery building. The two (2) oldest wells (#1 and #2) and the newest well (#4) drilled in 2006[2] provide domestic water to the residence and cottage while the well (#3) drilled in 2001[3] provides water to the winery. Well #3, which currently provides water to the winery, does not have an appropriate annular seal and therefore a different water source is required to provide domestic water to the public via a water system. Well #4 has an appropriate annular seal, which allows groundwater to be extracted, treated at the source to the required level for potable water and then stored in onsite water storage tanks before being conveyed to the existing winery facility, tasting room, residence, and cottage and any other service connections serving the public. Under this scenario, Well #3's existing connection to the winery would be disconnected and it along with Well #2 will repurposed for vineyard irrigation and/or fire protection. Existing Well #1 will be destroyed following Napa County procedures.

It is anticipated that the treated water service connection will be at the winery building (existing and proposed addition), winery offices, tasting room, existing residence and cottage all of which will be located on the above referenced parcel. The water treatment equipment will most likely include micron filters, calcite filter, water softener, storage tanks, booster pumps, pressure tanks and ultraviolet radiation treatment. Equipment requirements may vary based on water sample testing. If a water treatment system is found to be required during the Use Permit process, then the location of water system structures will be shown on the forthcoming improvement plans.

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[1] Yearlong resident is considered an individual served by the water system for 183 or more days annually.
[2] Installed under Napa County permit number E06-01615
[3] Installed under Napa County permit number 96-10973

Landscape irrigation, vineyard irrigation and future fire protection water will be provided by Well #2 and Well #3 or by other water sources separate from the approved water system well. If it becomes necessary to utilize groundwater from Well #4 for irrigation and/or fire protection applications, the potable water portion of the non-community water system will be isolated utilizing a backflow prevention device or double check valve.

One Year Projection: Based on the number of employees and proposed marketing events that are anticipated to be served by the non-community water system; the annual average water demand is 2,378 gallons per day and the total water use is 2,169,662 gallons per year. Based on the Well Completion Report[4], the estimated water yield from the existing groundwater well that meets the minimum annular seal depth (Well #4) is 70 gallons per minute; therefore, the proposed water system should have more than adequate capacity to meet projected domestic water demands. Refer to the Water Availability Analysis (WAA) for Reynolds Family Winery, prepared by Bartelt Engineering and submitted to Napa County for additional information on estimated production and domestic water demands. The projected water system service area, water demand and the number of users are expected to remain constant over the next several years with no future plan for expansion.

Source Adequacy

- **Groundwater:** The existing well serving the winery (identified as Well #3 on the Use Permit Drawings prepared by Bartelt Engineering) has an annular seal of 30 feet and will not be utilized for the public water supply. Existing Well #4 was constructed with an appropriate 50 foot minimum annular seal which will meet minimum standards for a community water system and will be utilized to serve as the supply capacity for the public water system. Well #2 will be repurposed for vineyard irrigation and/or fire protection water while Well #1 will be destroyed per County regulations.

- **Surface Water Treatment:** The public water system source water will be a groundwater well; therefore, no surface water treatment is anticipated or required.

- **Water Supply Capacity:** It is anticipated that any required non-community water system will be able to supply the minimum 3 gallons per minute for at least 24 hours for each service connection. It is anticipated that the water system may contain three (3) separate water service connections. To assist in offsetting peak water demand periods, all treated potable water will be stored in tanks adjacent to the water treatment area.

- **Water Quality:** Groundwater sample results from the existing groundwater wells are not yet available. Any results of samples taken from a new well for the purpose of a non-community water system will be forwarded to Napa County Planning, Building and Environmental Services - Environmental Health Division.

[4] Well Completion Report by McLean & Williams, Inc. of Napa, California, signed April 12, 2007 for work completed on December 7, 2006.

- **Consolidation with Other Water Systems:** The closest large scale municipal water system is operated by the City of Napa. The system is not within the vicinity of the proposed water system for the Reynolds Family Winery project. It is infeasible to consolidate with any existing water systems at this time. If municipal water service becomes available in the future, it is anticipated that the onsite well will continue to be utilized for wine production and any municipal water service would be utilized for domestic purposes. There is no anticipated consolidation with other (existing) water systems near the site.

4. Managerial

- **Organizational Ability:** The Owner of the water system is primarily responsible for the review and overseeing of all winery financial and business decisions to ensure financial stability of the winery, in addition to allocating appropriate staffing levels and assigning responsibilities to ensure continuous water system quality. The water system will be primarily managed by the winery Facilities Manager. The Facilities Manager is responsible for managing the day-to-day operations of the winery including periodic inspection of the water system and will obtain sufficient training to inspect, operate and maintain the water system equipment within specified parameters to meet state water quality standards; in addition, the Facilities Manager will also take groundwater samples as necessary and submit the samples to a local laboratory for testing. If necessary, the Facilities Manager and any other employees working with the water system will attend classes in water distribution systems for certification at Solano Community College (or other suitable school) and will maintain a working knowledge of changes in codes and requirements associated with the water system. The Facilities Manager will obtain support from a Certified Operator if it becomes necessary to make modifications to the water system. Approximately five percent (5%) of the Facilities Manager's time will be dedicated to inspecting, monitoring and quality sampling of the water system.

  The Facilities Manager will typically perform visual inspections, routine operation and maintenance of the well head, storage and pressure tanks, booster pumps, pressure gauges, meters and valves checking for signs of leaks or damage, proper operation, maintain lubricant levels, eliminate potential electrical or chemical hazards, clean storage tanks, etc.; in addition, to bacteriological and chemical monitoring and reporting.

- **Water Rights:** Four (4) existing groundwater wells are located on the parcel associated with the proposed winery (APN 039-610-002).

5. Financial:

The water system will generate no revenue of its own. The water system expenses are covered as part of the general fund for winery operations. Most of the capital expenditures over a 10 year period will be minor. Annual maintenance and repair will be accomplished by onsite winery personnel, assisted by a private contractor (such as Oakville Pump) and will be covered in the winery general fund. The expenses associated with water testing will also be covered as part of the winery general fund. Tests will be conducted by a private testing company (such as CalTest or Brelje and Race Laboratory).

General item costs associated with the water system are estimated as follows:

Onsite water system personnel: Approximately 20 hrs/month or $800 per month.

Contractors (as needed): Average $500 per month.

Sampling and testing: $300 per quarter.

Total Operating Costs: Approximately $1,400 per month or $16,800 per year.

It is estimated that the total operating and installation costs associated with the water system for the first year will be approximately $35,000 including employee allocated time, training, facilities and maintenance.

Following approval of the winery Use Permit request, the Applicant understands that the Napa County Planning, Building and Environmental Services - Environmental Health Division may require a Public Water System Plan, including emergency plans, to be filed and approved by Napa County Planning, Building and Environmental Services - Environmental Health Division prior to issuance of any building permits associated with the winery.

The above Technical, Managerial and Financial Capacity Worksheet should be adequate for the Use Permit Modification Application to Napa County.

BARTELT ENGINEERING

Water Demand Calculations for a Transient - Non-Community Water System

Project Name: Reynolds Family Winery
Project #: 13-40
Project Address: 3266 Silverado Trail
Napa, CA 94558
APN: 039-610-002
Date: November-2016

Description of Item	No. of Items	Percent Usage	Water Use [gpd/item]	Water Demand [gpd]
Winery & Tasting Room				
Number of Employees (Full-Time, Part-Time & Seasonal)	9	100%	15.0	135
Number of Guest for Private Tours & Tastings w/ Food	40	100%	6.0	240
Number of Guests for Large Events (including staff)	125 / 8	50% / 100%	4 / 15	995
Annual Wine Production [gal]	40,000			
Permitted to Crush [gal]	40,000			
Averaged Annual Water Demand per Day	40,000	100%	4.5	563
Averaged Peak Water Demand per Day	40,000	100%	1.5	1,333
Landscape Irrigation				
Area [acres]	0.4	100%	1,500	600
Residential Sanitary Wastewater:				
Residence (No. of Bedrooms)	5	100%	120.0	600
Cottage (No. of Bedrooms)	2	100%	120.0	240
Averaged Annual Site Water Demand per Day				2,378
Averaged Peak Site Water Demand per Day				3,903

Annual Allowable Water Allotment	13.45	ac-ft	4,382,696	gallons
Average Daily Allowable Water Allotment based on number of working days per year	365	days	12,007.39	gpd
	260	days	16,856.52	gpd
	213.02	days	20,574.15	gpd

	Units		
Site Hours of Operation	[hours]	8	10
Flow Rate based on Averaged Annual Site Demand	[gpm]	4.95	3.96
Flow Rate based on Averaged Peak Site Demand	[gpm]	8.13	6.51
Flow Peak Factor		1.5	1.5
Peak Flows for Averaged Annual Demands	[gpm]	7.4	5.9
Peak Flows for Averaged Peak Demands	[gpm]	12.2	9.8
Estimated period of time for Peak Flow	[hours]	5	5
Estimated Water Demand for Peak Flow Time Period based on Averaged Annual Demands	[gallons]	2,229	1,783
Estimated Water Demand for Peak Flow Time Period based on Averaged Peak Demands	[gallons]	3,659	2,928

BARTELT ENGINEERING

	Units	
Estimated Well Yield (Existing #4)	[gpm]	70
Estimated Water Treatment Rate	[gpm]	33
Water Treatment Hours of Operation	[hours]	12
Daily Volume of Treated Water	[gallons]	23,760

Notes:

1. Water Demand Calculations are based on estimated winery facility, tasting room and domestic demands
2. Annual Allowable Water Allotment from Water Availability Analysis (WAA).
3. One (1) Acre-Foot = 325,851 Gallons per Napa County Water Availability Analysis (WAA) worksheet.
4. Peak demand is during harvest season, which includes seasonal employees
5. Landscape area for parcel was determined by reviewing aerial photographs and is approximate.