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Joint Water Availability Analysis & Water System Feasibility Study for a Regulated System

Shadybrook Estate Winery P20-00158-MOD
Planning Commission Hearing – November 18, 2020

JOINT WATER AVAILABILITY ANALYSIS

FOR

SHADYBROOK ESTATE WINERY AND
RAPP EQUESTRIAN CENTER
100 RAPP LANE
NAPA, CA

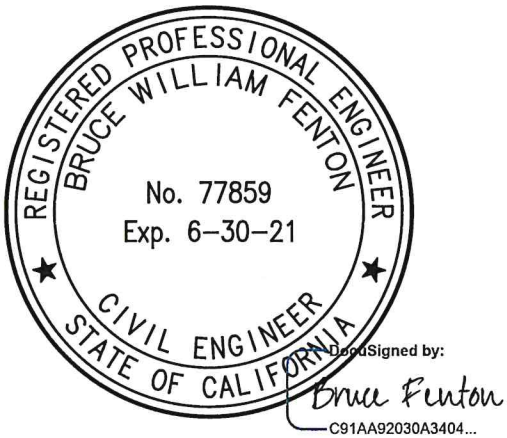
APN: 052-170-019 AND 052-170-018

Property Owner:

Alice Alkosser
100 Rapp Lane
Napa, CA 94559

Project #4118019.0

May 19, 2020



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I. Executive Summary

The Napa County Planning Commission has previously approved, including the CEQA determinations, a Joint Water System, Joint Wastewater System, Joint Parking Agreement and Joint Traffic Report for the Shadybrook Estate Winery and Rapp Equestrian Center which are adjacent to each other and under common ownership.

This is a joint Water Availability Analysis for Shadybrook Estate Winery and Rapp Equestrian Center setting out approved and proposed water use demand for the Winery and approved water use demand for the Equestrian Center. No change is proposed for the Equestrian Center.

The Shadybrook Estate Winery (APN 052-170-019) proposes to increase visitation and events as set forth below. The parcel has an area of 11.37 acres and a permitted groundwater usage of 4.32 af/yr per Napa County Groundwater Permit 90-00069. The groundwater permit was revised per UP Mod P06-01095-UP to 3.41 af/yr. The winery has an approved Domestic Water Supply Permit for a Public Water System with state ID# 28-00046.

Rapp Equestrian Center on the adjacent parcel (APN 052-170-018) under common ownership has an area of 11.97 acres and a permitted groundwater usage of 4.16 af/yr per Napa County Groundwater Permit 90-00051. The Equestrian Center currently irrigates with well water.

Below is a summary of the approved and proposed water use for Shadybrook Estate Winery and the approved water use for Rapp Equestrian Center for which there is no change. Detailed calculations can be found on the next page.

Usage Type		Approved Well Water Usage [af/yr]	Proposed Well Water Usage [af/yr]
Winery	**Residential**		
	Domestic Water	0.50	0.50
	Winery		
	Process Water	1.07	1.07
	Domestic Water	0.20	0.33
	Landscaping	0.32	0.32
	Irrigation		
	Vineyard	2.02	2.02
	Irrigation from MST	*-1.83*	*-1.83*
Winery Total		***2.28***	***2.41***
Permitted Winery Groundwater Allocation (P06-01095-UP)		***3.41***	***3.41***

The proposed modifications to the Shadybrook Estate Winery will result in a net increase in the use of groundwater by 0.13 af/yr (42,000 gallons). The resultant groundwater demand for both parcels will be less than the associated groundwater permits and UP Mod 06-01095-UP allocation. Also by utilizing MST water the applicant is recharging the aquifer by 1 ac-ft/yr (325,000 gallons).

Usage Type		Approved Well Water Usage [af/yr]
Equestrian Center	**Residential** Domestic Water	0.83
	Equestrian Center Employees, Visitors, Events, Horses, and Landscaping	1.80
	Irrigation Vineyard	1.53
Equestrian Center Total		***4.16***
Permitted Equestrian Center Groundwater Allocation (Groundwater Permit 90-00051)		***4.16***

II. Demand Use Calculation for Winery and Equestrian Center

Approved Winery Water Demand

Residence (allowance from Groundwater Permit) =			0.50	af/yr
Existing Vineyard Irrigation and Landscaping Water Demand				
Vineyard – Irrigation only – (0.3 af/ac-yr x	6.74	acres vineyard) =	2.02	af/yr
Vineyard – Irrigation from MST pipeline – (0.3 af/ac-yr x	6.1	acres vineyard) =	-1.83	af/yr
Existing Winery Process Water Demand				
Process Water – (5-gal water / 1-gallon wine x	70,000	gal wine/year) =	1.07	af/yr
Existing Winery Domestic Water Demand				
FT Employees – (15 gal/person/day x 260 days/yr x	9	employees/day) =	0.11	af/yr
PT Employees – (15 gal/person/day x 156 days/yr x	2	employees/day) =	0.01	af/yr
Visitors – (3 gal/person/day x 52 weeks/yr x	147	visitors/week) =	0.07	af/yr
Marketing Events – (30 visitors @ 10 gal/guest x	9	days/yr) =	0.00	af/yr
Marketing Staff – (2 people @ 15 gal/person x	9	days/yr) =	0.00	af/yr
		Total =	0.20	af/yr
Landscape – (1 af/yr/acre x	0.32	acre) =	0.32	af/yr
Total Existing Water Demand		**Total =**	**2.28**	**af/yr**

Proposed Winery Water Demand

Residence (allowance from Groundwater Permit) =			0.50	af/yr
Proposed Vineyard Irrigation and Landscaping Water Demand				
Vineyard – Irrigation only – (0.3 af/ac-yr x	6.74	acres vineyard) =	2.02	af/yr
Vineyard – Irrigation from MST pipeline – (0.3 af/ac-yr x	6.1	acres vineyard) =	-1.83	af/yr
Proposed Winery Process Water Demand				
Process Water – (5 gal water / 1 gallon wine x	70,000	gal wine/year) =	1.07	af/yr
Proposed Winery Domestic Water Demand				
FT Employees – (15 gal/person/day x 260 days/yr x	9	employees/day) =	0.11	af/yr
PT Employees – (15 gal/person/day x 156 days/yr x	2	employees/day) =	0.01	af/yr
Average Visitors – (3 gal/person/day x 52 weeks/yr x	350	visitors/week) =	0.17	af/yr
Marketing Events – (30 visitors @ 10 gal/guest x	6	days/yr) =	0.01	af/yr
Marketing Events – (50 visitors @ 10 gal/guest x	6	days/yr) =	0.01	af/yr
Marketing Events – (100 visitors @ 10 gal/guest x	6	days/yr) =	0.02	af/yr
Marketing Staff – (2 people @ 15 gal/person x	6	days/yr) =	0.00	af/yr
Marketing Staff – (3 people @ 15 gal/person x	6	days/yr) =	0.00	af/yr
Marketing Staff – (4 people @ 15 gal/person x	6	days/yr) =	0.00	af/yr
		Total =	0.33	af/yr
Landscape – (1 af/yr/acre x	0.32	acre) =	0.32	af/yr
Total Proposed Water Demand		**Total =**	**2.41**	**af/yr**
Net Increase in Water Demand		**=**	**0.13**	**af/yr**
Permitted Groundwater Allocation		**=**	**3.41**	**af/yr**

Approved Equestrian Center Water Demand - No Proposed Changes

Primary Residence (allowance from Groundwater Permit) =			0.50	af/yr
Secondary Residence (allowance from Groundwater Permit) =			0.33	af/yr
		Total =	0.83	af/yr
Proposed Vineyard Irrigation and Landscaping Water Demand				
Vineyard – Irrigation from well – (0.3 af/ac-yr x	5.1	acres vineyard) =	1.53	af/yr
Proposed Equestrian Center Domestic Water Demand				
Landscape – Irrigation from well – (1 af/yr/acre x	0.83	acre) =	0.83	af/yr
Horses - (10 gal/horse/day x	60	horses) =	0.67	af/yr
FT Employees – (15 gal/person/day x 260 days/yr x	7	employees/day) =	0.08	af/yr
PT Employees – (15 gal/person/day x 156 days/yr x	2	employees/day) =	0.01	af/yr
Visitors – (50 people @ 3 gal/person x	365	days/yr) =	0.17	af/yr
Marketing Events – (30 visitors @ 10 gal/guest x	6	days/yr) =	0.01	af/yr
Marketing Events – (50 visitors @ 10 gal/guest x	6	days/yr) =	0.01	af/yr
Marketing Events – (100 visitors @ 10 gal/guest x	6	days/yr) =	0.02	af/yr
Marketing Staff – (2 people @ 15 gal/person x	6	days/yr) =	0.00	af/yr
Marketing Staff – (3 people @ 15 gal/person x	6	days/yr) =	0.00	af/yr
Marketing Staff – (4 people @ 15 gal/person x	6	days/yr) =	0.00	af/yr
		Total =	1.80	af/yr
Total Proposed Water Demand		**Total =**	**4.16**	**af/yr**
Permitted Groundwater Allocation		**=**	**4.16**	**af/yr**

JOINT WATER SYSTEM FEASIBILITY STUDY FOR A REGULATED SYSTEM

For

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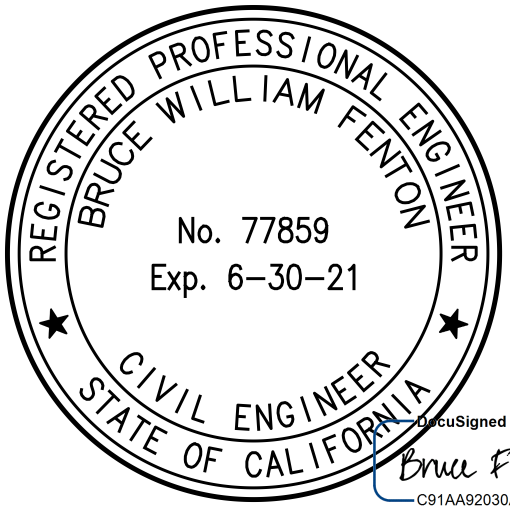

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TECHNICAL CAPACITY

System Description

The Napa County Planning Commission has previously approved, including the CEQA determinations, a Joint Water System, Joint Wastewater System, Joint Parking Agreement and Joint Traffic Report for the Shadybrook Estate Winery and Rapp Equestrian Center which are adjacent to each other and under common ownership.

The purpose of this Water Feasibility study for a regulated system is to demonstrate that the joint water system can serve the existing entitlements for Shadybrook Estate Winery and Rapp Equestrian Center as well as the proposed increase in visitation and events at the Winery.

The existing Domestic Water Supply Permit is a public Transient-Noncommunity Water System with state ID# 28-00046.

The combined winery and equestrian center will serve more than 25 of the same people for more than 6 months so the applicant will apply for a Nontransient-Noncommunity Water System Permit.

There is one well on the winery parcel which has a 56’ concrete annular seal and will be used for the public water system, winery process water, and supplementary landscape and vineyard irrigation. No chemical or biological treatment will be performed on the well water unless quarterly testing results deem further treatment is necessary. Water for the Public Water System will be stored in a ± 10,000-gallon tank. Separate tanks will be used for firewater and irrigation. Separate pumps will supply the domestic water, irrigation water, and fire water.

Twenty-Year Evaluation of Projected Water Demand

Based on the Tier 1 Water Use Calculations, the annual domestic water demand for the winery (employees, visitors, events, and residents) is 0.83 acre-feet per year (270,000 gallons per year).

The annual domestic water demand for the Equestrian Center (employees, visitors, events, and residents) is 1.13 acre-feet per year (368,000 gallons per year)

The combined total for the two parcels is 2.63 acre-feet per year, or 857,000 gallons per year.

Use	Source	Number of People/Day	Water Demand [af/yr]
Winery	Residence	2	0.5
	Full-Time Employees	9	0.11
	Part-Time Employees	2	0.01
	Visitors	50	0.17
	Marketing events (6 days/year)	32	0.01
	Marketing events (6 day/year)	53	0.02
	Marketing events (6 day/year)	104	0.01
Winery Total Water Demand			**0.83**
Equestrian Center	Residence	6	0.83
	Full-Time Employees	7	0.08
	Part-Time Employees	2	0.01
	Visitors	50	0.17
	Marketing Events (6 days/year)	32	0.01
	Marketing Events (6 days/year)	53	0.01
	Marketing Events (6 days/year)	104	0.02
Equestrian Center Total Water Demand			**1.13**
Total Water Demand			**1.96**

The daily average public water demand is 1,750 gallons per day. Peak daily public water demand is estimated at 3,500 gallons per day, being 200% of average daily demand.

If the winery or equestrian center seeks expansion in the future, thereby increasing the water demand on the public water system, the facility will need to acquire a use permit modification and prove that increased capacity is available. It will not be permissible for future developments in the vicinity of this project to join this public water system without first justifying that the water supply is available to meet the demand.

Twenty-Year Evaluation of Water Supply Capacity

Additional non-public water demand for both parcels includes winery process water, water for horses, landscape and vineyard irrigation. The MST pipeline will supply 1.83 acre-feet per year of recycled water for landscape and vineyard irrigation on the Shadybrook Winery parcel. The proposed non-public well water demand for both parcels is 4.61 acre-feet per year (4,116 gallons per day). Peak daily non-public water demand is estimated at 8,232 gallons per day, being 200% of average daily demand. The resulting peak public and non-public well water demand for both parcels is 11,732 gallons per day.

The existing water source is capable of supporting the proposed combined daily groundwater demand of 11,732 gal/day. The existing well has a capacity of 20 gpm. When pumped on a 50%

operational basis (pumping 12 hours per day), the daily project well yield is 14,400 gallons per day. This exceeds the peak daily demand on the well.

20 *gpm* * 720 min/*day* = 14,400 *gal/day*
14,400 *gal/day* ≥ 11,732 *gallons (peak daily total demand)*

Source Adequacy
The well has a 56 ft annular seal to comply with Napa County Code 13.12.380 as Class IA wells for a Public Water System. The Application and Permit to Construct a Water Well document outlines the well construction and inspection by the Department of Environmental Management. Application and Permit are on file at Napa County.

Water Quality
Water sampling will be conducted prior to operation of the system. Water quality is expected to meet or exceed all requirements of Chapter 15 of Title 22, California Code of Regulations (CCR).

CONSOLIDATION

The Shadybrook Estate Winery is an existing public water system. The adjacent Equestrian Center will consolidate with the existing public water system as previously approved by County of Napa Planning Commission.

MANAGERIAL

General
The owner of the water system will be the property owner of the winery parcel. The costs of operation will be covered in the winery operation costs. The owner will also hold the responsibility of water system manager for the property.

Operation and Maintenance
The following is a summary of the required Operations and Maintenance schedule:

Tasks	Frequency	Action
System Water Level	Daily	Visual Inspection
System Pressure and Conveyance	Daily	Visual Inspection
Water Tanks	Quarterly	Visual Inspection
Manually Operate Valves and Pumps	Quarterly	Operation
Water Quality Test & Reporting	Quarterly	Unit Samples Taken & Reported to Napa Co.

A certified distribution operator or treatment operator (T1 level or above) as specified by Chapter 13 of Title 22 CCR contracted by the owner will be responsible for system repairs.

Monitoring and Testing
Water quality testing will be conducted to comply with Chapter 15 of Title 22 of CCR. Samples will be taken to Caltest or an approved laboratory for testing.

FINANCIAL

Below is a brief summary of the system's annual estimated financial capacity based on winery revenue. Capital improvement costs and installation of the treatment and distribution systems, are estimated to be a one-time expense of $20,000, amortized over 20 years.

Capital Improvements: $1,000
Power: $2,000
Maintenance: $3,500
Water Quality Testing: $5,000
Total: $11,500
Projected Annual Gross Revenue: $14,718,500 (Based on 29,437 cases at $500/case)
Annual Operating Costs: $2,943,700 (at 20% profit)
Percent of Total Operating Costs: 0.4%

CONCLUSION

This report demonstrates the feasibility of a public water system to serve Shadybrook Estate Winery and Rapp Equestrian Center