TIER 1 WATER AVAILABILITY ANALYSIS

FOR THE

CASTELLUCCI ESTATE WINERY

LOCATED AT:
7900 Money Road
Oakville, CA 94562
Napa County APN 031-030-024

PREPARED FOR:
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INTRODUCTION

Antonio Castellucci is applying for a Use Permit to construct and operate a new winery at the property located at 7900 Money Road in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 031-030-024, is located along the east side of Money Road approximately 0.6 miles northwest of the intersection of Money Road and Oakville Cross Road. This location is considered to be within the Valley Floor for water use screening criteria.

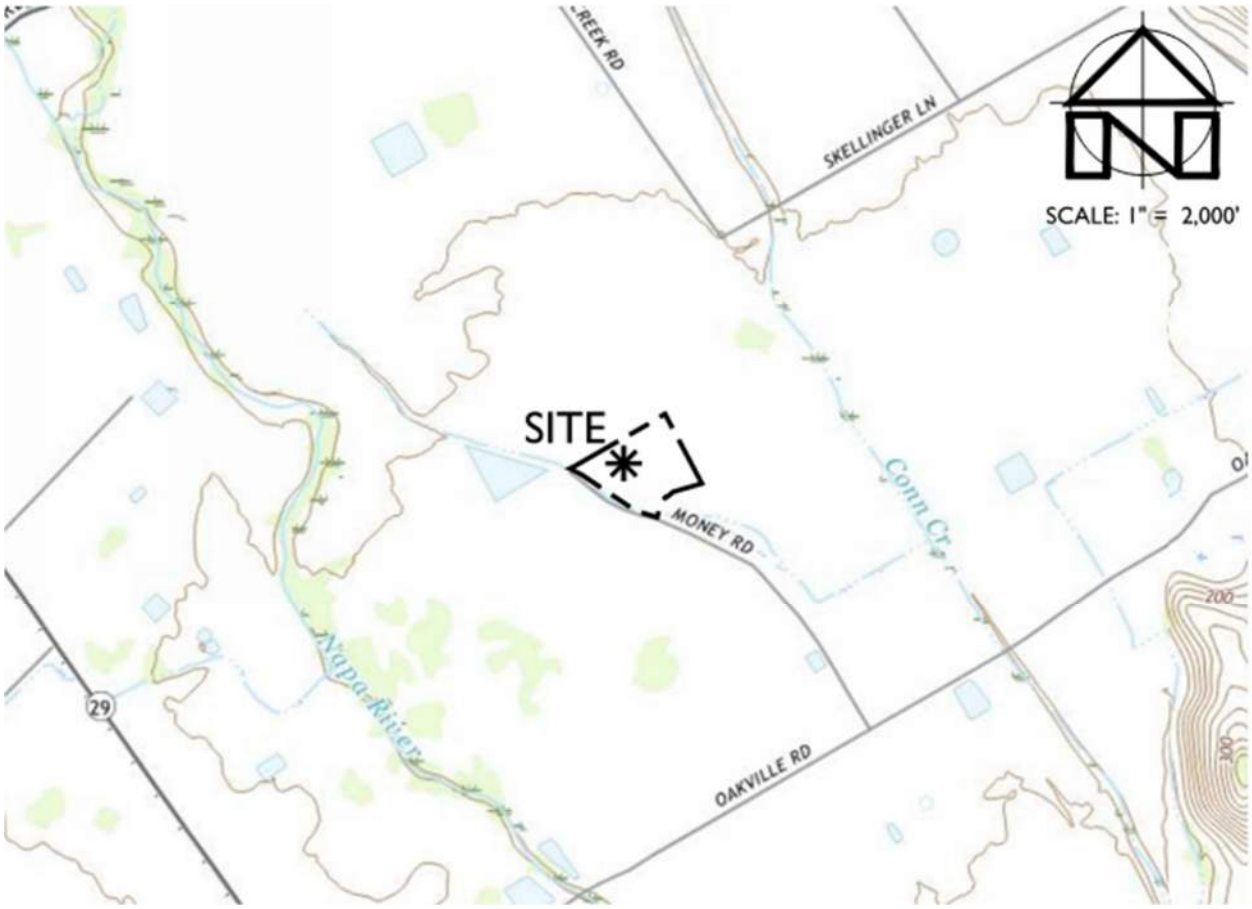

Figure 1: Location Map

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

- Wine Production:
  - 20,000 gallons of wine per year
  - Crushing, fermenting, aging and bottling

- Employees:
  - 2 full time employees
  - 3 part time employees
  - 4 seasonal employees

- Marketing Plan:
  - Daily Tours and Tastings by Appointment
    - 30 visitors per day maximum
  - Marketing Event Type A
    - 12 per year
    - 25 guests maximum
    - Food prepared offsite by catering company
  - Marketing Event Type B
    - 5 per year
    - 50 guests maximum
    - Food prepared offsite by catering company
    - Portable toilets brought in for guest use
  - Marketing Event Type C
    - 2 per year
    - 125 guests maximum
    - Food prepared offsite by catering company
    - Portable toilets brought in for guest use

Existing development on the property includes two dwellings, vineyards, orchards, two groundwater wells, drainage improvements and the access and utility infrastructure typical of these existing residential and agricultural uses. Please see the Castellucci Estate Winery Conceptual Site Improvement Plans for approximate locations of existing and proposed features.

Groundwater is currently used for domestic use and vineyard and orchard irrigation and will continue to be used for these uses as well as for the proposed winery facility in the future.

Antonio Castellucci has requested that Applied Civil Engineering Incorporated (ACE) prepare a 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 and the Interim Napa County Well Permit Standards and WAA Requirements – January 2024. 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 6.5 acres of planted vineyard, 0.4 acres of orchard within the winery parcel (APN 031-030-024) and 0.5 acres of orchard on the parcel to the south (7888 Money Road, APN 031-030-026) as shown in Figure 2 below, as well as irrigated landscaping on the winery parcel and dwellings on both parcels. The 0.4 acre orchard on the winery parcel is planned to be replaced with vineyards to partially compensate for loss of about 1.4 acre of vineyard elsewhere on the site due to the winery construction.

Figure 2: Existing Water Use Map

In addition to the vineyards and orchards, the winery parcel is improved with a main residence, a second dwelling, and a pool. The parcel to the south previously used water from the winery parcel well but has since applied for a new well permit and will become independent from the winery parcel.

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 1. New landscape irrigation water use was taken from the WELO documentation package instead of the prescriptive method from the WAA - Guidance Document since this results in a higher water demand for the proposed condition.

Table 1: Estimated Groundwater Demand

	Existing (ac-ft/yr)	Proposed (ac-ft/yr)
Residential	1.35	1.35
Winery	0	0.70
Vineyard Irrigation	3.25	2.95
Orchard Irrigation	1.6	0
Landscape Irrigation	8.5	8.6
Total	**14.7**	**13.6**

TIER 1 ANALYSIS

The subject property is located in the Napa Valley Floor area and the geology is mapped as Qhy (alluvium) on the USGS geology maps as shown in Figure 3.

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.

Furthermore, Napa County is now also requiring that properties in the Napa Valley Floor 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.

Figure 3: Geology Map Created with Google Earth Pro
(Source USGS Scientific Investigations Map 2918)

Since all groundwater extraction is from the Napa Valley Floor area we have evaluated the screening criteria associated with the Napa Valley Floor.

The parcel size is approximately 14.96 acres. The water use screening criteria for the winery parcel is calculated as follows:

WAA Guidance Document Water Use Screening Criteria = 14.96 acres x 1.0 acre-foot per acre per year

WAA Guidance Document Water Use Screening Criteria = 14.96 acre-feet per year

Reduced Water Use Screening Criteria = 14.96 acres x 0.3 acre-feet per acre per year

Reduced Water Use Screening Criteria = 4.49 acre-feet per year

The total Estimated Water Use for existing conditions (13.6 ac-ft/yr) is greater than the Reduced Water Use Screening Criteria (4.49 ac-ft/yr), however no net increase in water use is proposed and therefore the project complies with Tier 1 requirements.

TIER 2 ANALYSIS

Even though the winery project's well will be less than 500 feet from the new well that will be drilled on the parcel to the south, a Tier 2 Analysis is not required according to the Interim Napa County Well Permit Standards and WAA Requirements – January 2024 since the winery project is not increasing groundwater use. There are also no known springs in the vicinity.

TIER 3 ANALYSIS

According to the Interim Napa County Well Permit Standards and WAA Requirements – January 2024 a Tier 3 Analysis is not required since the site is greater than 1,500-feet from significant streams. Figure 4 below shows the winery well is over 1,600-feet to Conn Creek and over 3,600-feet to the Napa River.

Figure 4: Proximity to Significant Streams Map created with ArcGIS

CONCLUSION

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. The new winery is estimated to add 0.8 acre-ft/yr of water use including the reflecting pond. 1.4 acres of vineyard, 0.4 acre of orchard, and 0.1 acres of landscaping that is currently irrigated by the project well is being removed, while a small amount of new irrigated landscaping and 0.8 acres of new vineyard are being planted. This results in a decrease of 1.8 acre-ft/yr of irrigation water use, and a net decrease in total water use of 1.1 acre-ft/yr and therefore complies with the no-net increase criteria.

Tier 2 and Tier 3 Analyses are not required according to the WAA – Guidance Document and Interim Napa County Well Permit Standards and WAA Requirements – January 2024.

APPENDIX 1: Water Use Estimate Supporting Calculations

APPLIED CIVIL ENGINEERING INCORPORATED

Castellucci Estate Winery - Groundwater Use Estimate

	Estimated Water Use (Acre-Feet / Year)		
	Existing		Proposed
Residential Water Use			
Primary Residence	0.750		0.750
Pool	0.100		0.100
Second Dwelling Unit "bunkhouse"	0.500		0.500
Total Residential Domestic Water Use	1.350		1.350
Winery Domestic & Process Water Use			
Winery - Daily Visitors[(1)(2)]	0		0.101
Winery - Events with Meals Prepared Onsite[(1)(3)]	0		0
Winery - Events with Meals Prepared Offsite[(1)(4)]	0		0.015
Winery - Employees[(1)(5)]	0		0.151
Winery - Event Staff[(1)(5)]	0		0.005
Winery - Process[(6)]	0		0.430
Total Winery Water Use	0		0.70
Irrigation Water Use			
Lawn[(7)]	3.920		3.920
Other Landscape[(8)]	4.574		4.356
New Landscape[(11)]	n/a		0.2
Orchard - Irrigation[(10)]	1.600		0
Vineyard - Irrigation[(9)]	3.250		2.950
Vineyard - Frost Protection	0		0
Reflection Pond	0		0.100
Vineyard - Heat Protection	0		0
Total Irrigation Water Use	13.344		11.524
Total Combined Water Use	14.7		13.6

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

(1) See attached Winery Production, Guest, Employee and Event Staff Statistics

(2) 3 gallons of water per guest per Napa County WAA Guidance Document

(3) 15 gallons of water per guest per Napa County WAA - Guidance Document

(4) 6 gallons of water per guest used because all food preparation, dishwashing, etc. to occur offsite

(5) 15 gallons per shift per Napa County WAA - Guidance Document

(6) 2.15 ac-ft per 100,000 gallons wine per Napa County WAA - Guidance Document

(7) 0.1 ac-ft/yr per 1,000 sf of lawn per Napa County WAA - Guidance Document - 0.9 acre lawn

(8) 0.1 ac-ft/yr per 2,000 sf landscape per WAA - Guidance Document - 2.1 acre (E) & 2.0 acre (P) sf landscape

(9) 0.5 ac-ft/ac/yr - 6.5 ac vineyard (E) & 5.9 ac vineyard (P)

(10) 4 ac-ft/ac/yr per acre of orchard - 0.4 ac orhcard (E) & 0 ac orchard (P)

(11) 64,482 gallons per year from the WELO package