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## Water Availability Analysis

**WATER AVAILABILITY ANALYSIS FOR  
PARADUXX WINERY  
7257 SILVERADO TRAIL, NAPA COUNTY, CA  
APN 031-170-019**

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As required by Napa County Planning, Building and Environmental Services (PBES), this analysis outlines the existing and proposed water use for an existing winery located at 7257 Silverado Trail, Napa, CA 94558.

**PROJECT DESCRIPTION**

The 45.56± acre parcel is currently developed with an existing winery (hospitality building, fermentation building, and barrel building), 34.78± acres of vineyard, an access road, parking lots, a well, and an agricultural building. The project proposes to remodel the existing hospitality building and increase the annual wine production of the existing winery. Remodeling the existing hospitality building entails modifying interior spaces, upgrading the existing commercial kitchen, expanding the footprint by building an addition to the north, and adding a porch. It is also the intent of this project to increase the existing full crush facility's production capability of 200,000 to 300,000 gallons of wine per year. A very small reduction in vineyard area is anticipated as a result of the project. Refer to the associated Use Permit drawings for the details of the existing and proposed development conditions.

The current number of 41 employees, which includes 36 full-time employees and five (5) part-time employees, will remain constant; however, along with the proposed physical improvements and production increase described previously, the project proposes a modification to the winery's current visitation plan. The project proposes to increase private tour and tasting with food appointments to a maximum number of 144 guests per day (an average of 800 guests per week). The project also proposes to adjust the current marketing plan to offer three (3) small events for parties up to 24 guests each week with two (2) additional event staff. In addition, the marketing plan will be adjusted to accommodate 33 medium events for groups of up to 60 guests per year, five (5) open houses for groups of up to 125 guests per year, two (2) auction events for groups of up to 300 guests per year, and two (2) large events for groups of up to 400 guests per year with additional staff for each event type of up to four (4), ten (10), 20, and 30, respectively.

**EXHIBITS**

The associated USGS "Topographic Site Location Map" shows the project site, approximate property line locations, and topographic features while information regarding existing structures and the well on the parcel are shown on the associated Use Permit Drawings provided in the Use Permit application package. A "Well Location Exhibit" is provided with this analysis that displays approximate parcel lines and the location of existing wells and structures on and around the subject parcel. All exhibits and drawings mentioned above were prepared by Bartelt Engineering.

**WATER USE CRITERIA**

<b>TABLE 1: SCREENING CRITERIA</b>	
Parcel Zoning	Agricultural Preserve (AP)
Project Parcel Location	Napa Valley Floor
Parcel Size	45.56± acres
Water Use Criteria	1.0 acre-feet per acre 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 within the Agricultural Preserve (AP) Zoning District on the Napa Valley Floor. 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. Furthermore, a Tier 2 well interference analysis need only be conducted when “substantial evidence in the record indicates the need to do so under California Environmental Quality Act (CEQA).”<sup>1</sup>. At the time this analysis was drafted, there is no such evidence in the record therefore only the Tier 1 requirements need to be met.

**SOURCE WATER INFORMATION**

The sources of water for the subject parcel are an existing onsite well (irrigation well) and a connection to the Veterans Home of California (VHC) Water System. The irrigation well is located approximately mid-parcel along the east property line near Silverado Trail and is shown on the “Well Location Exhibit” prepared by Bartelt Engineering. The VHC connection is located at the north east corner of the property and incorporates a backflow prevention device to reduce the possibility of contamination from the Paraduxx winery private water distribution system to the offsite VHC public water system.

The irrigation well currently supplies water to the onsite vineyards, the hose bibs of the fermentation and barrel buildings, and seven (7) onsite storage tanks necessary for firefighting. The irrigation well water supplied to the fermentation and barrel buildings is first filtered and treated before being stored in an onsite 12,000± gallon tank. Irrigation well water supplied to the vineyards is pumped directly from the well head to the vineyard irrigation system through a separate distribution system.

A Domestic Water Supply Permit from the State of California for a public water system (PWS) has not been obtained for the onsite treatment process because the source (irrigation) well does not meet the annular seal requirements. The offsite VHC water system is a

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<sup>1</sup> From Table 2A from the Napa County *Water Availability (WAA) - Design, Construction and Guidance Document*.

permitted public water system (ID CA2810008) and supplies water to the hospitality building, landscape irrigation, and all the winery's restrooms and breakrooms.

A new well (here on referred to as the "domestic well") is proposed and estimated to satisfy the additional domestic (hospitality and production) and landscape water demands associated with this Use Permit application. This new domestic well is required because the existing irrigation well only has a 30± foot annular seal which doesn't meet the State of California's requirements for a PWS source. The proposed domestic well will meet the requirement of a 50 foot minimum annular seal.

Under the proposed conditions, the existing irrigation well will continue to supply water to the onsite vineyards but will be disconnected from the hose bibs of the fermentation and barrel buildings and firefighting storage tanks. The VHC connection will remain and continue to provide the allotted water volume for domestic water demands under the existing Will Serve agreement. The proposed domestic well will supply the firefighting storage tanks and a proposed onsite public water system that, along with the VHC supply, will satisfy the proposed water demand of the winery.

### **Well Description**

According to the Well Completion Report (No. 103391) signed and dated August 29, 1979, Doshier-Gregson Drilling, Inc. began well construction on August 13, 1979 and completed the well on August 27, 1979. The well is reported to be constructed of six (6) inch diameter 160 gage plastic pipe to a completed depth of 250 feet with a 30 foot grout annular seal. Refer to the attached Water Well Drillers Report for more information.

Under the proposed conditions, this existing well will only provide irrigation water to the vineyard. One (1) new well will be constructed to satisfy the domestic demand of the winery. Two (2) possible sites for the new well are identified on the Use Permit plans prepared by Bartelt Engineering.

### **Yield Test**

A yield test was performed on the existing irrigation well by Doshier-Gregson Drilling, Inc at the time the well was constructed in 1979. Prior to the start of the yield test, static water level was recorded at 80 feet below ground surface. A yield of 200 gallons per minute (gpm) was recorded after an unreported time of continuous pumping. Refer to the attached Water Well Drillers Report for more information.

### **Neighboring Water Source(s)**

Refer to the attached "Well Location Exhibit" for the location of the existing irrigation well, the two (2) possible sites identified for the proposed domestic well, and the neighboring water sources.

### **Water Quality**

Water quality results were not available for the irrigation well prior to completion of this WAA. Water quality results were not requested from the VHC nor reviewed by Bartelt

Engineering because it is assumed the VHC water system complies with all Federal, State, and local laws governing public water systems.

**GROUNDWATER SUBAREA**

According to the Napa County Watershed Information & Conservation Council (WICC), the subject parcel is located within the Napa Valley Floor – Napa groundwater subarea, which resides within the Napa River Watershed. The Napa River Watershed consists of approximately 234,194± acres.

**WATERSHED INFORMATION**

The subject parcel is located within two different watersheds, Conn Creek-Lower Reach and Caymus Creek, which are sub basins of the Napa River Watershed. Neither the Conn Creek-Lower Reach nor the Caymus Creek watersheds are located within a municipal watershed or a water deficient area.

**GEOLOGICAL FEATURES**

According to the WICC Soil and Geology Map, the subject parcel and surrounding areas' geology appears to be Surficial Deposits. The Custom Soil Resource Report identifies the following (map unit symbol) soil names (104) Bale clay loam, 0 to 2 percent slopes, (105) Bale clay laom, 2 to 5 percent slopes, (110) Boomer-Foarward-Felta complex, 30 to 50 percent slopes, (125) Cortina very stony loam, 0 to 5 percent slopes, and (174) Riverwash being present on and around the parcel.

**WATER DEMAND**

**Allowable Water Allotment**

Per *Table 2A: Water Use Criteria* from the WAA Guidance Document (2015), the water use criteria for a parcel located within the “Napa Valley Floor” area is defined as 1.0 acre-feet per acre per year. The allowable groundwater allotment based on Napa County Requirements for the subject parcel is calculated below.

$$\begin{aligned}
 \text{Allowable Water Allotment} &= \text{Parcel Area} \times \text{Water Use Criteria} \\
 \text{(acre-feet per year)} & \quad \text{(acres)} \quad \quad \quad \text{(acre-feet per acre per year)} \\
 &= 45.56\pm \text{ acres} \quad \times \quad 1.0 \text{ acre-feet per acre per year} \\
 &= 45.56\pm \text{ acre feet per year}
 \end{aligned}$$

<b>TABLE 2: WATER ALLOTMENT FROM ALL SOURCES</b>	
<b>Description</b>	<b>Water Allotment (acre-feet per year)</b>
<u>Napa County Water Use Criteria - Groundwater</u> Subject parcel groundwater allotment	45.56±
<u>State Water Board – VHC Supply</u> Diversion and Use of water under Claim of riparian right	1.0
<b>Total Water Allotment =</b>	<b>46.56±</b>

**Estimated Non-Residential Water Usage**

The total estimated non-residential water usage for the existing and proposed uses for the project was determined by following the Guidelines for Estimating Non-Residential Water Usage from the WAA Guidance Document (2015). The proposed water demand is estimated to increase from 23.97± to 26.71± acre-feet per year as part of the proposed Use Permit modification. Refer to Table I Existing Water Usage and Table II Proposed Water Usage for a detailed accounting of the existing and proposed water demand calculations.

A summary of the detailed calculations can be found in Table 3: Existing Non-Residential Water and Table 4: Proposed Non-Residential Water Usage below:

<b>TABLE 3: EXISTING NON-RESIDENTIAL WATER USAGE</b>	
<b>Category</b>	<b>Estimated Water Usage (acre-feet/year)</b>
Vineyard (34.78 ± acres)	17.39
Winery (Production and Hospitality)	6.58
Total Existing Demand =	23.97±

<b>TABLE 4: PROPOSED NON-RESIDENTIAL WATER USAGE</b>	
<b>Category</b>	<b>Estimated Water Usage (acre-feet/year)</b>
Vineyards ( 34.50 ± acres)	17.25
Winery (Production and Hospitality)	9.46
Total Proposed Demand =	26.71±

**SUMMARY**

Proposed domestic water use (demand) is estimated to increase from existing as a result of the proposed marketing and production increases associated with this Use Permit application. A new well will be constructed to satisfy this volume increase in domestic water demand. The water volume supplied by the VHC will remain capped at the existing allotment amount. Groundwater volume used as irrigation for the onsite vineyards will decrease slightly while the volume used to satisfy domestic water demand will increase. Vineyard irrigation will only be sourced from the existing onsite well, which has a reported yield rate of 200 gpm. The VHC PWS and the proposed well and associated onsite PWS will satisfy all domestic water demands. The existing water volume allotment from the VHC PWS will remain constant.

Since the parcel resides within the “Napa Valley Floor” area, the Water Use Criteria for the subject parcel is 1.0 acre-feet per acre per year. Therefore, the proposed project estimate water usage of 26.71± acre-feet per year is less than the Water Use Criteria for the subject parcel of 45.56± acre-feet per year.

**CONCLUSION**

This WAA shows that the water usage for the proposed project will be greater than the existing water usage and can be sourced from the existing well, connection to the Veterans Home of California (VHC) Water System, and the construction of a proposed well. Furthermore, the project satisfies the Tier 1 Water Use Criterion of the Napa County Water Availability Analysis.

**ATTACHMENTS**

Well Location Exhibit

Table I – Existing Water Demand

Table II – Proposed Water Demand

Water Well Drillers Report

## REFERENCES

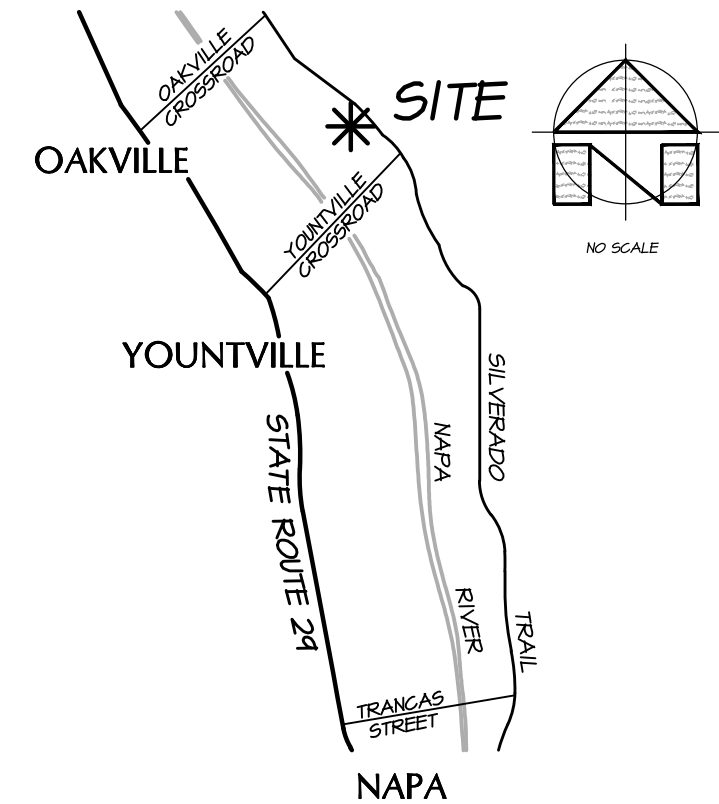
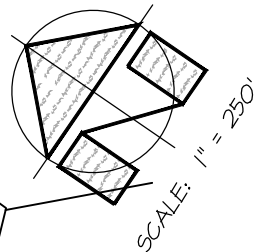
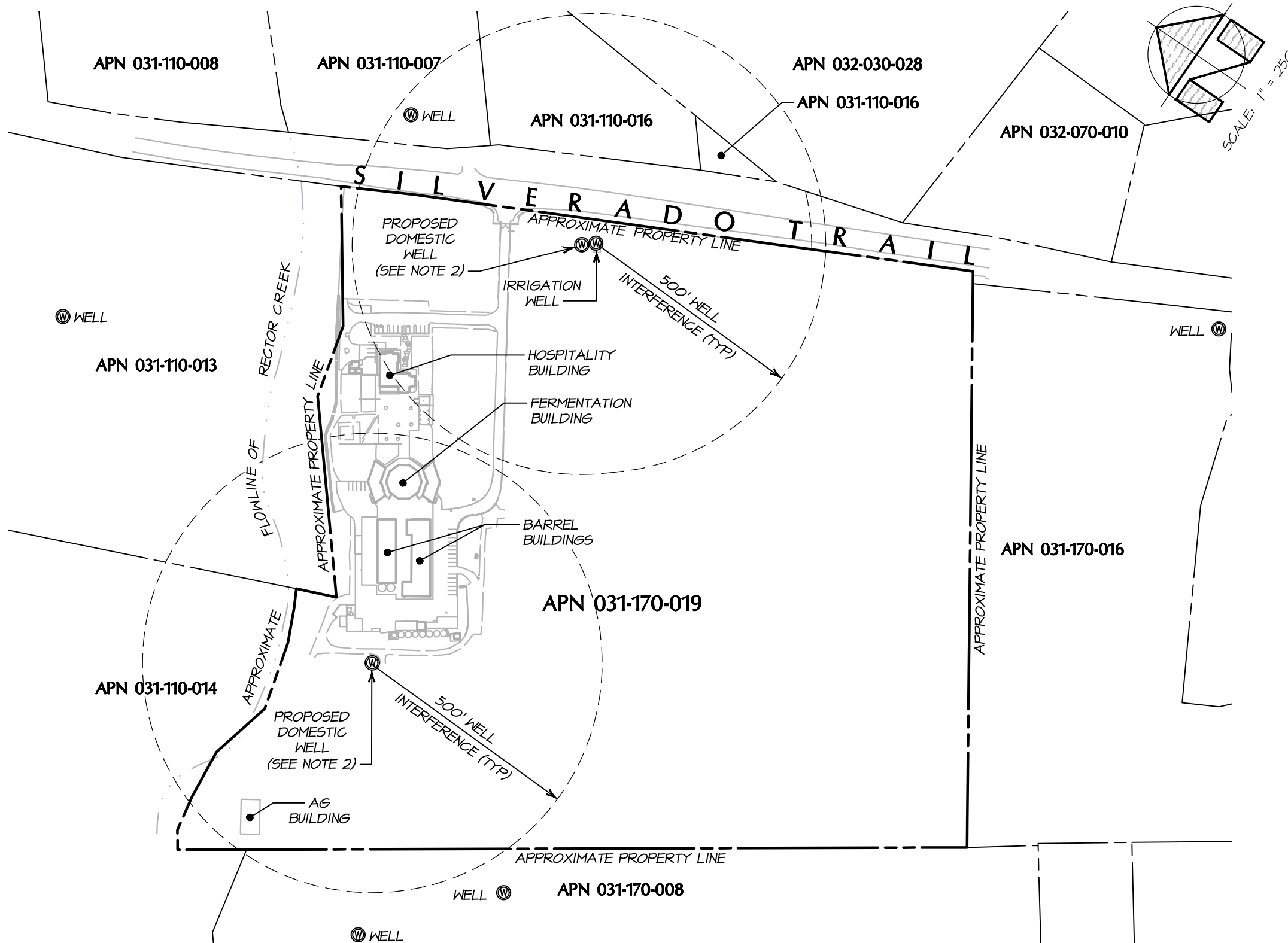
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Luhdorff & Scalmanini Consulting Engineers. 2017, March. Napa County Comprehensive Groundwater Monitoring Program 2016 Annual Report and CASGEM Update. Prepared for Napa County.

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

Napa County Watershed Information & Conservation Council (WICC). (n.d.). Retrieved from [www.napawatershed.org](http://www.napawatershed.org)





**LOCATION MAP**  
NO SCALE

# **BARTELT** **ENGINEERING**

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## WELL LOCATION EXHIBIT

SCALE: 1" = 250'

### NOTES:

1. PROPERTY LINES DERIVED FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM MAPS.
2. EXISTING CONDITIONS SHOWN, EXCEPT FOR IDENTIFICATION OF TWO (2) POTENTIAL WELL LOCATIONS.

Paraduxx Winery  
7257 Silverado Trail  
Napa, CA 94558  
APN 031-170-019  
Job No. 08-17  
April 2019 - Revised  
Sheet 1 of 1

**Paraduxx Winery**  
**Existing Water Usage**  
**Table I**



<b>EXISTING WATER USAGE</b>		
<b>Description</b>	<b>Water Usage Rate<sup>1</sup></b>	<b>Water Demand (acre-feet/year)</b>
<u>Residential</u>		
Primary Residence	0.00 acre-feet/acre-year	-
Secondary Residence or Farm Labor Dwelling	acre-feet/acre-year	-
<u>Agricultural</u>		
Vineyards		
Irrigation Only	0.50 acre-feet/acre-year	17.39
Heat Protection	0.25 acre-feet/acre-year	0.00
Frost Protection	0.25 acre-feet/acre-year	0.00
Irrigated Pastures	4 acre-feet/acre-year	0.00
Orchards	4 acre-feet/acre-year	0.00
Livestock (sheep or cows)	0.01 acre-feet/acre-year	0.00
<u>Winery</u>		
Process Water	2.15 acre-feet/100,000 gallon of wine	4.30
Domestic & Landscaping	0.50 acre-feet/100,000 gallon of wine	1.00
Employees	15 gallons per shift	0.75
Tasting Room Visitation	3 gallons per visitor	0.17
Events and Marketing, with onsite catering	15 gallons per visitor/event staff	0.36
<u>Industrial</u>		
Food Processing	31.00 acre-feet/employee-year	0.00
Printing/Publishing	0.60 acre-feet/employee-year	0.00
<u>Commercial</u>		
Office Space	0.01 acre-feet/employee-year	0.00
Warehouse	0.05 acre-feet/employee-year	0.00

*Estimated Existing Water Usage (acre-feet/year):* 23.97  
*Estimated Existing Water Usage (gallons/year):* 7,810,648

1) Water usage rates referenced from *Appendix B: Estimated Water Use of Specified Land Use* from Napa County WAA-Guidance Document (2015) unless noted otherwise

**Paraduxx Winery**  
**Proposed Water Usage**  
**Table II**



<b>PROPOSED WATER USAGE</b>		
<b>Description</b>	<b>Water Usage Rate<sup>1</sup></b>	<b>Water Demand (acre-feet/year)</b>
<u>Residential</u>		
Primary Residence	0.00 acre-feet/acre-year	0.00
Secondary Residence or Farm Labor Dwelling	0.5 acre-feet/acre-year	-
<u>Agricultural</u>		
Vineyards		
Irrigation Only	0.50 acre-feet/acre-year	17.25
Heat Protection	0.25 acre-feet/acre-year	0.00
Frost Protection	0.25 acre-feet/acre-year	0.00
Irrigated Pastures	4 acre-feet/acre-year	0.00
Orchards	4 acre-feet/acre-year	0.00
Livestock (sheep or cows)	0.01 acre-feet/acre-year	0.00
<u>Winery</u>		
Process Water	2.15 acre-feet/100,000 gallon of wine	6.45
Domestic & Landscaping	0.50 acre-feet/100,000 gallon of wine	1.50
Employees	15 gallons per shift	0.75
Tasting Room Visitation	3 gallons per visitor	0.39
Events and Marketing, with onsite catering	15 gallons per visitor/event staff	0.37
<u>Industrial</u>		
Food Processing	31.00 acre-feet/employee-year	0.00
Printing/Publishing	0.60 acre-feet/employee-year	0.00
<u>Commercial</u>		
Office Space	0.01 acre-feet/employee-year	0.00
Warehouse	0.05 acre-feet/employee-year	0.00

*Estimated Proposed Water Usage (acre-feet/year):* 26.71  
*Estimated Proposed Water Usage (gallons/year):* 8,703,480

1) Water usage rates referenced from *Appendix B: Estimated Water Use of Specified Land Use* from Napa County WAA-Guidance Document (2015)

DUPLICATE Driller's Copy

STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES WATER WELL DRILLERS REPORT

YENGER

Do not fill in

No. 103391

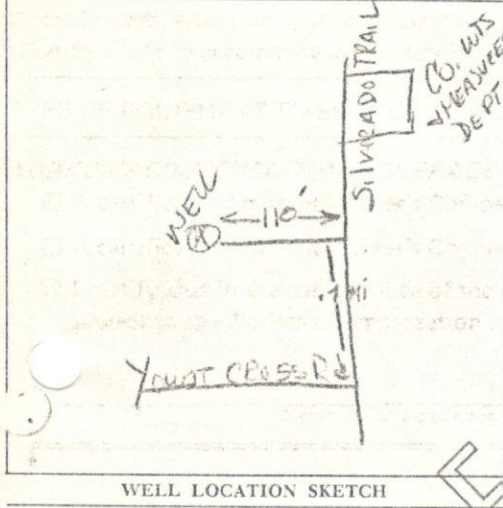
Intent No. Permit No. or Date

State Well No. Other Well No.

(1) OWNER: Name NESTLE COMPANY INC. Address PO Box 61867 City Sunnyvale, Ca Zip 94088

(2) LOCATION OF WELL (See instructions): County Napa Owner's Well Number 31-017-01

(12) WELL LOG: Total depth 250ft. Depth of completed well 250ft. from ft. to ft. Formation (Describe by color, character, size or material) 0 - 4 Loose boulders 4 - 41 Tufa & boulders 41 - 76 Gray ash 76 - 94 Gray, black purple rock 94 - 104 Soft yellow & white rock 104 - 188 Hard gray & black rock 188 - 192 Hard black rock 192 - 250 Med soft gray rock & gray ash stringers



(3) TYPE OF WORK: New Well [X] Deepening [ ] Reconstruction [ ] Reconditioning [ ] Horizontal Well [ ] Destruction [ ] (Describe destruction materials and procedures in Item 12) (4) PROPOSED USE: Domestic [ ] Irrigation [X] Industrial [ ] Test Well [ ] Stock [ ] Municipal [ ] Other [ ]

(5) EQUIPMENT: Rotary [ ] Cable [ ] Other [ ] Reverse [ ] Air [X] Bucket [ ]

(6) GRAVEL PACK: Yes [ ] No [X] Size 9 7/8 Diameter of bore Packed from to ft.

(7) CASING INSTALLED: Steel [ ] Plastic [X] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
0	80	6 1/2	160

(8) PERFORATIONS: machine

From ft.	To ft.	Slot size
80	250	1/8x3

(9) WELL SEAL: Was surface sanitary seal provided? Yes [X] No [ ] If yes, to depth 30 ft. Were strata sealed against pollution? Yes [ ] No [X] Interval ft. Method of sealing grout

(10) WATER LEVELS: Depth of first water, if known 80 ft. Standing level after well completion 80 ft.

(11) WELL TESTS: Was well test made? Yes [X] No [ ] If yes, by whom? driller Type of test Pump [ ] Bailer [ ] Air lift [X] Discharge 200 gal/min after hours At end of test ft. Water temperature

Work started 8/13 1979 Completed 8/27 1979 WELL DRILLER'S STATEMENT: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief. SIGNED: [Signature] (Well Driller) NAME: Doshier-Gregson Drilling, Inc. Address: 5365 Napa-Vallejo Hwy City: Vallejo, Ca Zip: 94590 License No.: 294001 Date of this report: Aug 29, 1979