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## Water Availability Analysis



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## WATER AVAILABILITY ANALYSIS

FOR THE

### VINCENT ARROYO WINERY USE PERMIT MODIFICATION

PROJECT LOCATED AT

2361 GREENWOOD AVENUE  
CALISTOGA, CA 94515

COUNTY: NAPA  
APN: 017-230-020

INITIAL SUBMITTAL: JUNE 8, 2016  
REVISION #1 SUBMITTAL: SEPTEMBER 5, 2017  
(MINOR REVISIONS TO MATCH NUMBERS IN USE PERMIT APPLICATION)

PREPARED FOR REVIEW BY:

**NAPA COUNTY PLANNING, BUILDING,  
AND ENVIRONMENTAL SERVICES**  
1195 THIRD STREET  
NAPA, CA 94559



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**I. BACKGROUND**

This water availability analysis is prepared for the proposed Vincent Arroyo Winery Use Permit Modification in accordance with the Water Availability Analysis (WAA), Adopted May 12, 2015, as provided by the County of Napa Planning Building, and Environmental Services Department. The winery is requesting to modify the use permit to increase the winery production from 20,000 gallons per year to 70,000 gallons per year and expand the marketing plan. There are no proposed changes to any buildings on the property.

Based on the WAA, all projects fall within at least one of the three tiers of screening when determining the level of analysis required by the County of Napa. See Table 1 from the WAA below:

**Table 1:** Project Screening Criteria Applicability

Tier	Criteria Type	Napa Valley Floor	MST	All Other Areas
1	Water Use	Yes	Yes	Yes
2	Well Interference	No <sup>1</sup>	No <sup>1</sup>	Yes
3	Groundwater/Surface Water Interaction	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>

1. Further analysis may be required under CEQA if substantial evidence, in the record, indicates a potentially significant impact may occur from the project.

The subject parcel and proposed winery development is located in the Napa Valley Floor Region and is zoned Agriculture Preserve. This project is subject to the analysis required in Tier 1. Tier 2 and Tier 3 are not expected to be required according to Table 1 above. Please see **Appendix 1** for the subject parcel location with respect to the Napa Valley Basin.

**II. TIER 1 ANALYSIS**

Tier 1 of the WAA requests the applicant estimate the existing and proposed water usage for the entire parcel, and compare the total estimated parcel water usage to the applicable water use criteria. As noted in Table 2A of the WAA (referenced below), the water use criteria is subject to the parcel location.

**Table 2A:** Water Use Criteria

Project parcel location	Water Use Criteria (acre-feet per acre per year)
Napa Valley Floor	1.0
MST Groundwater Deficient Area	0.3 or no net increase, whichever is less <sup>1</sup>
All Other Areas	Parcel Specific <sup>2</sup>
1. Does not apply to the Ministerial Exemption as outlined in the Groundwater Conservation Ordinance	
2. Water use criteria for project shall be considered in relation to the average annual recharge available to project property, as calculated by the applicant or their consultant.	

Appendix B of the WAA includes guidelines for determining the estimated water use for specified land uses. A summary of these guidelines, including the values applied in this report, are identified in the table below:

**Water Use Guidelines per Appendix B of WAA**

Use	Recommended Water Use Values	Applied Water Use Values	Unit
Residence	0.5 to 0.75	0.75	AF per Year
<b>Winery</b>			
Process Water	0.0215	0.0215	AF per 1,000 gal Wine Produced per Year
Domestic Water	0.005	0.005	AF per 1,000 gal Wine Produced per Year
Employees	15	15	Gallons Per Shift
Tasting Room Visitation	3	3	Gallons Per Visitor
Events and Marketing	15	15	Gallons Per Visitor
<b>Vineyards</b>			
Irrigation Only*	0.2 to 0.5	0	AF per Acre Planted per Year
Heat Protection**	0.25	0	AF per Acre Planted per Year
Frost Protection**	0.25	0	AF per Acre Planted per Year
Landscaping***	-	0.2	AF per year for entire property

\*Vineyards are dry-farmed and have no associated water use

\*\*There is no need for heat protection.

\*\*An existing wind mill on site provides frost protection

\*\*\*The landscaping is only around the residences and is based on the Maximum Applied Water Allowance (MAWA) Calculation

**Table 3: Water Use Guidelines**

As the subject parcel is located in 'Napa Valley Floor' Region, the Water Use Criteria allows 1 acre-foot of per acre per year for the parcel. The subject parcel is approximately 22 acres in size. Therefore, the parcel is allowed the use of 22 acre-feet of water per year.

This analysis will identify the existing and proposed water uses on the parcel, estimate the total annual water usage, and then confirm that the proposed water use for the project is less than the allowed water use.

#### A. Existing Water Usage

The existing water uses for the property consist of a main residence, guest cottage, and a winery. There are approximately 18 acres of vineyards on the parcel which are dry-farmed and do not use any groundwater from the well. There is a single well on the parcel which is the only water source for the site. Please see **Appendix 2** for the Overall Site Plan.

##### 1. Residential Use

The residential development consists of a two (2) bedroom Main Residence and a two (2) bedroom Guest Cottage. Per the water-usage values identified in Appendix B of the WAA, estimated existing water use for a primary residence with moderate landscaping is 0.50 to 0.75 acre-feet per year. This residential development is estimated to use 0.75 acre-feet per year to account for the main residence and guest cottage. The residential uses will remain the same at 0.75 acre-feet per year after the use permit modification.

2. Winery Use

The existing winery is entitled to produce 20,000 gallons of winery per year with the following marketing plan:

- *Employees:* 2 Full Time, 2 Part Time
- *Daily Visitors:* 30 per day
- *Events:* One Open House Event (200 people with portable restrooms brought in for the event) and One Winemaker Dinner Event (130 people with portable restrooms brought in for the event).

The estimated winery domestic water usage is determined from the number of daily employees, visitors, and event guests. Napa County Environmental Health Division 'Regulations for Design, Construction, and Installation of Alternative Sewage Treatment Systems' estimates the wastewater generated by employees, visitors, and event guests. For the purposes of the report, it is assumed that the wastewater generated equals the water used. Table 4, in the above noted report, estimates the water use by visitors as 3 gallons per day per person and 15 gallons per day per employee. Based on the existing winery entitlement, the associated water use is summarized as follows:

**Existing Winery Entitlement Summary**

<u>Existing Use</u>	<u>Value</u>	<u>Unit</u>
<b>Winery</b>		
Wine Produced	20	Thousand Gallons per Year
Employees (Full + Part Time)	2 Full, 2 Part	Employee Shifts per Day
Employees (Full + Part Time)	1,000	Employee Shifts per Year*
Tasting Room Visitors	10,500	Visitors per Year**
Dinner/Open House	330	Visitors per Year***
Vineyards	~18	Acres****

\* 7-day work weeks for Full-Time (50 weeks), 3-day work weeks for Part Time (50 Weeks)

\*\*Maximum of 30 visitors per day per week (50 weeks)

\*\*\*These events have catered food and portable toilets brought in

\*\*\*Vineyards are dry-farmed and have no associated water use

**Table 4: Existing Winery Marketing Plan**

Applying the water usage values identified in Appendix B of the WAA to the existing winery uses, the daily and annual water usage for wine production, visitors, employees, and event guests is estimated as follows:

**Existing Winery Water Usage**

<u>Winery Use</u>	<u>Value</u>	<u>Unit</u>
Process	0.430	AF per Year
Domestic	0.1	AF per Year
Employees	0.046	AF per Year
Visitors	0.097	AF per Year
Dinner/Open House	0.015	AF per Year
<b>Total Winery Water Usage</b>	<b>0.688</b>	<b>AF per Year</b>

**Table 5: Existing Winery Water Uses**

The estimated existing winery water usage utilizing the WAA Appendix B values is 0.688 acre-feet per year.

3. Vineyard Use

There are approximately 18 acres of vineyard on the property. Based on Appendix B of the WAA guidelines, the vineyards are estimated to use 0.2-0.5 acre-feet per acre of vineyard planted per year for irrigation. However, Vincent Arroyo Winery dry farms the vineyards and utilizes no water for the vineyards. Frost protection is provided by an existing wind machine on the parcel that does not use any water. Additionally, no heat protection is provided for the vineyards. Therefore, the vineyards are estimated to use zero acre-feet of well water per year. The vineyard size will remain at 18 acres and will continue to be dry-farmed.

Total Existing Water Use

Based on the existing water use from the residence, winery, and residence, the total existing water usage is estimated to use 1.438 acre-feet per year. See the table below for the summary:

**Total Existing Water Usage**

<u>Use</u>	<u>Value</u>	<u>Unit</u>
Winery	0.688	AF per Year
Residential	0.75	AF per Year
Vineyard	0	AF per Year
<b>Total Water Usage</b>	<b>1.438</b>	<b>AF per Year</b>

**Table 6: Existing Water Use on Parcel**

**B. Proposed Water Usage**

1. Residential Use

There is no proposed changed or increase in residential water use.

2. Winery Use

The existing winery is proposing to increase the winery production to 70,000 gallons of winery per year with the following revised marketing plan:

- *Production Capacity:* 70,000 Gallons Wine per Year
- *Employees:* 10 maximum per day (includes Full-Time and Part-Time)
- *Daily Visitors:* 50 maximum per day
- *Marketing Events:* 12 per year with 20 guests
- *Winemaker Dinners:* 4 per year with 130 guests
- *Open House:* 3 per year with 200 people
- *Harvest Party:* 1 per year with 100 people

To limit the amount of water used with the requested additional entitlement, the following limitations shall be applied:

1. Winemaker Dinners, Open House events, and Harvest parties will be catered off-site.
2. Winemaker Dinners, Open House events, and harvest parties will use portable toilets.

Utilizing the same methodology as the Existing Winery Use, the proposed marketing plan is summarized as follows:

**Proposed Winery Entitlement Summary**

<u>Use</u>	<u>Value</u>	<u>Unit</u>
Wine Produced	70	Thousand Gallons per Year
Employees (Full + Part Time)	8 Full, 2 Part	Employee Shifts per Day
Employees (Full + Part Time)	3,100	Employee Shifts per Year*
Tasting Room Visitors	17,500	Visitors Per Year**
Marketing Event	240	Visitors Per Year
Dinner/Open House/ Harvest Party	1,220	Visitors Per Year***
Vineyards	~18	Acres****

\* 7-day work weeks for Full-Time (50 weeks), 3-day work weeks for Part Time (50 Weeks)

\*\*Maximum of 50 visitors per day per week (50 weeks)

\*\*\*These events will have catered food and portable toilets brought in

\*\*\*\*Vineyards are dry-farmed and have no associated water use

**Table 7: Proposed Winery Marketing Plan**

Applying the water usage values identified in Appendix B of the WW to the proposed winery uses, the daily and annual water usage for wine production, visitors, employees, and event guests is



estimated as follows:

**Proposed Winery Water Usage**

<b>Winery Use</b>	<b>Value</b>	<b>Unit</b>
Process	1.505	AF per Year
Domestic	0.350	AF per Year
Employees	0.143	AF per Year
Visitors	0.161	AF per Year
Marketing Event	0.002	AF per Year
Dinner/Open House/ Harvest Party	0.056	AF per Year
<b>Total Winery Water Usage</b>	<b>2.217</b>	<b>AF per Year</b>

**Table 8: Proposed Winery Water Use**

The estimated proposed winery water usage utilizing the Appendix B values is 2.22 acre-feet per year.

3. Vineyard Use

As noted in section A.3, vineyards are dry farmed and there is no associated water demand. As a result, there is no proposed change or increase in vineyard water use.

Total Proposed Water use

Based on the proposed water use from the residence, winery, and residence, the total proposed water usage is estimated at 2.97 acre-feet per year. See the table below for the summary:

**Total Proposed Water Usage**

<b>Use</b>	<b>Value</b>	<b>Unit</b>
Winery Water Usage	2.217	AF per Year
Residential Water Usage	0.75	AF per Year
Vineyard Water Usage	0	AF per Year
<b>Total Water Usage</b>	<b>2.967</b>	<b>AF per Year</b>

**Table 9: Proposed Winery Water Use**

**C. Water Usage Summary**

A summary has been prepared to compare the existing and the proposed water use on the parcel after the use permit modification:



**Proposed Increase in Water Usage**

<u>Use</u>	<u>Value</u>	<u>Unit</u>
Existing Water Usage	1.438	AF per Year
Proposed Water Usage	2.967	AF per Year
Expected Water Usage Increase	1.529	AF per Year

**Table10: Proposed Increase in Water Usage**

By increasing the winery production and marketing plan, Vincent Arroyo Winery is anticipated to increase their water use on the property by approximately 1.53 acre-feet per year. The total estimated annual water use for the parcel after the use permit modification is 2.97 acre-feet per year. The total allowed annual water use for the parcel is 22 acre-feet.

The estimated water use on this parcel is less than the allowable water use.

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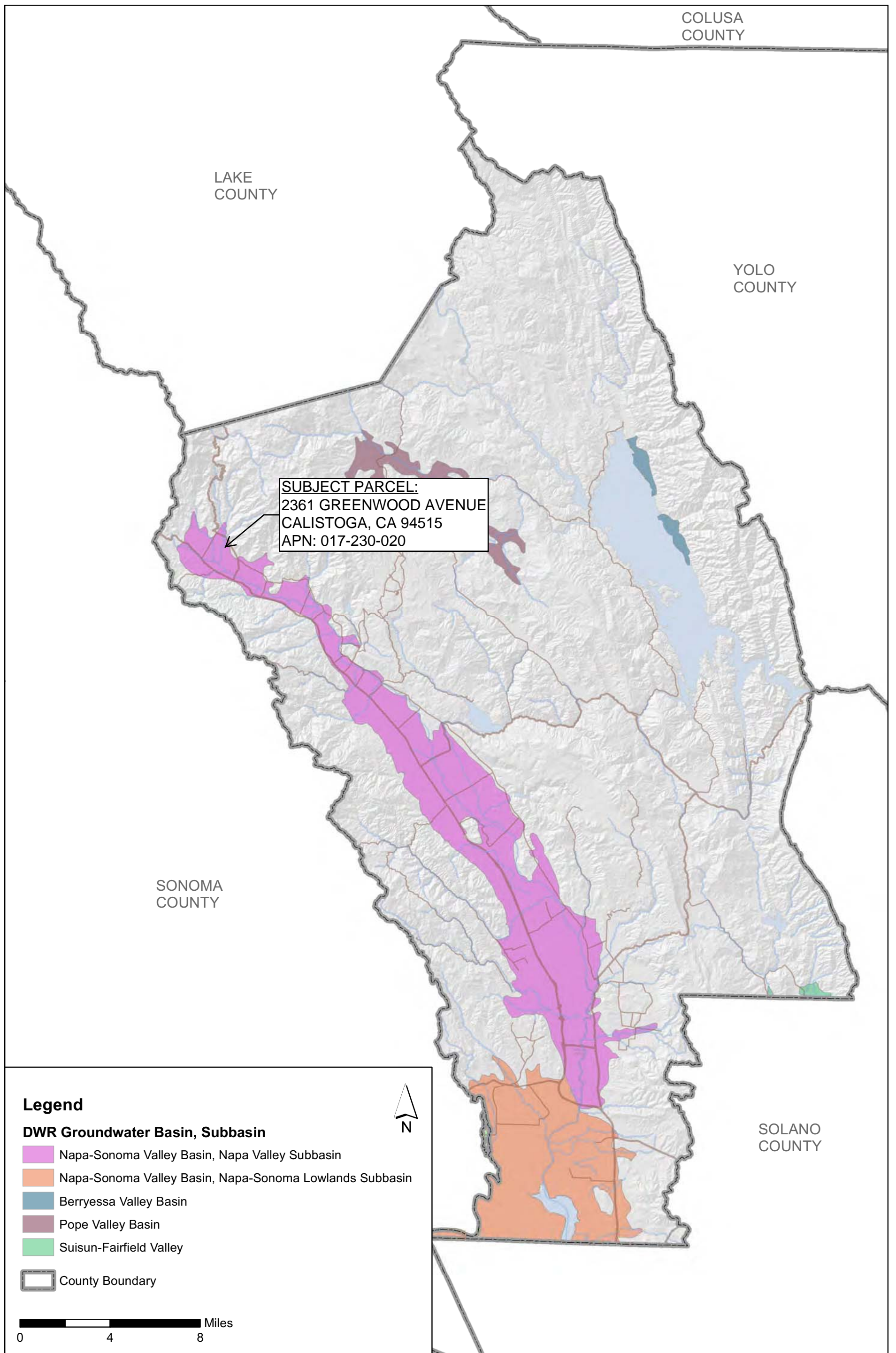
**III. REPORT CONCLUSION**

Based on the analysis completed in this report, the proposed total annual water use of 2.97 acre-feet is well within the allowable 22 acre-foot annual water use for the parcel. Therefore, the project is feasible from a water availability standpoint.

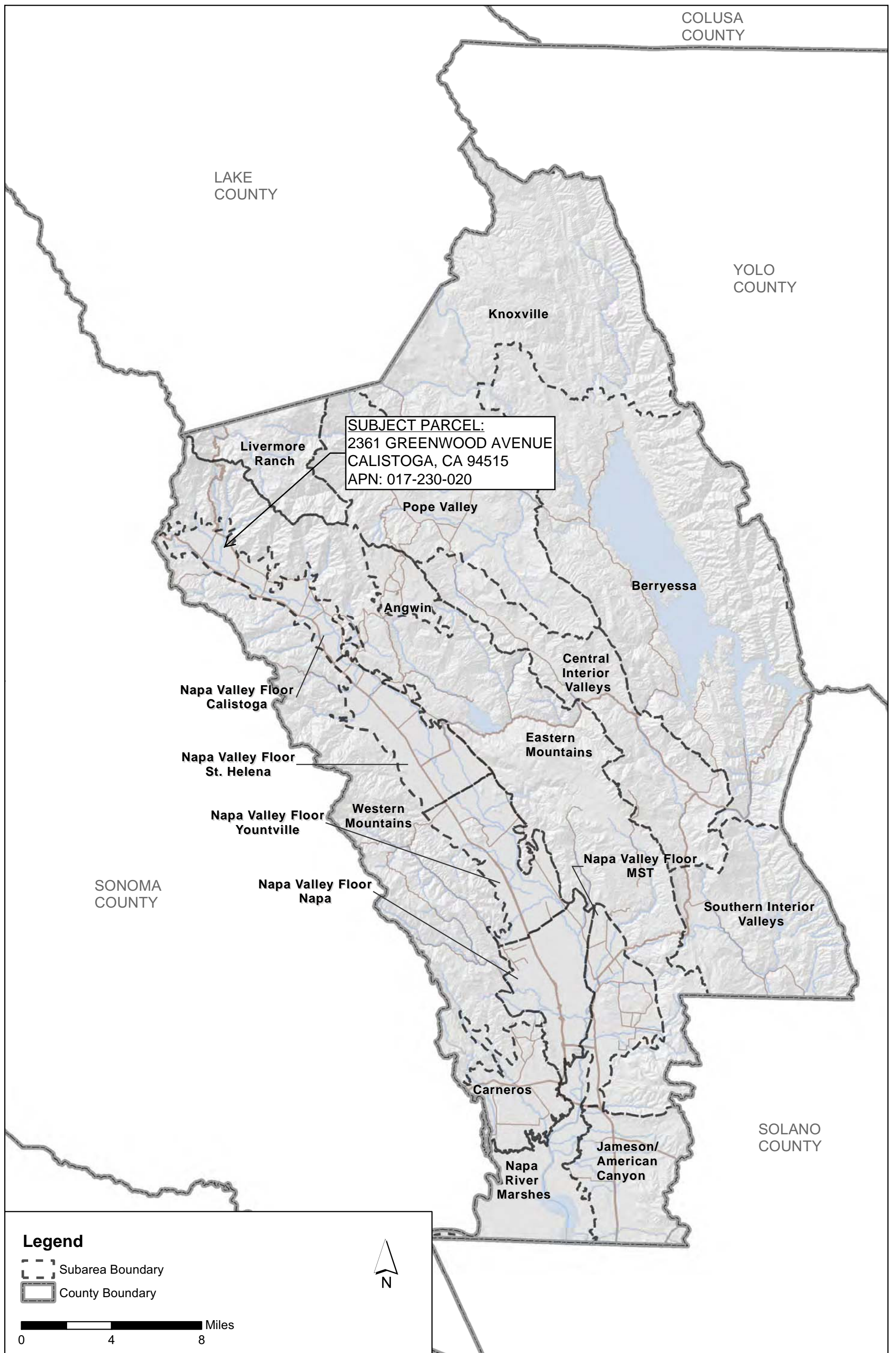
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**IV. APPENDIX**

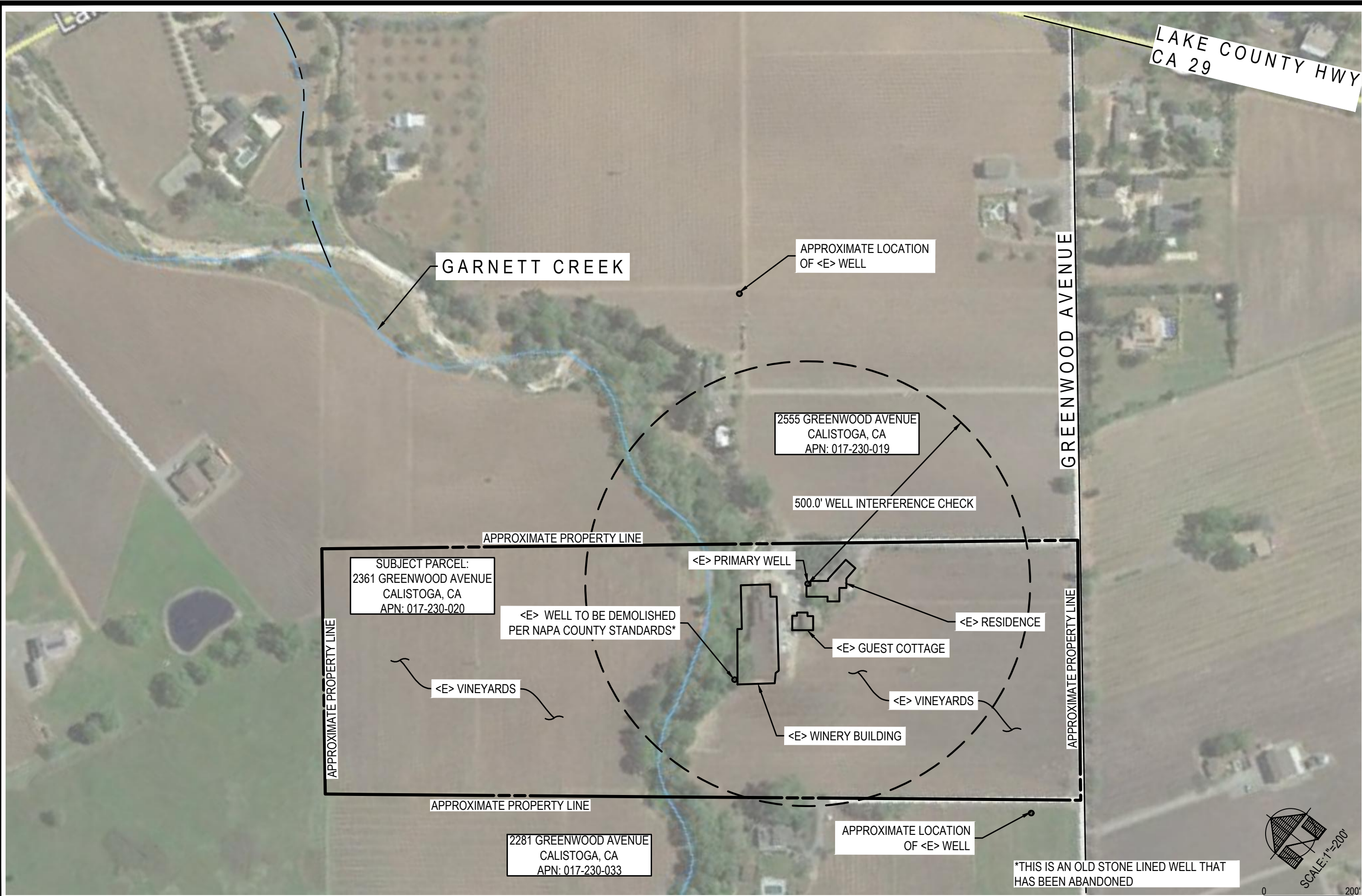
1. Napa Valley Groundwater Basin Map – Prepared by Luhdorff & Scalmanini Consulting Engineers
2. Overall Site Plan



X:\2011 Job Files\11-067\GIS\Well Map.mxd



X:\2011\_Job\_Files\11-067\GIS\Well\_Map\_FINAL.mxd



LAKE COUNTY HWY  
CA 29

GREENWOOD AVENUE

GARNETT CREEK

APPROXIMATE LOCATION  
OF <E> WELL

2555 GREENWOOD AVENUE  
CALISTOGA, CA  
APN: 017-230-019

500.0' WELL INTERFERENCE CHECK

APPROXIMATE PROPERTY LINE

SUBJECT PARCEL:  
2361 GREENWOOD AVENUE  
CALISTOGA, CA  
APN: 017-230-020

<E> PRIMARY WELL

<E> WELL TO BE DEMOLISHED  
PER NAPA COUNTY STANDARDS\*

<E> RESIDENCE

<E> GUEST COTTAGE

<E> VINEYARDS

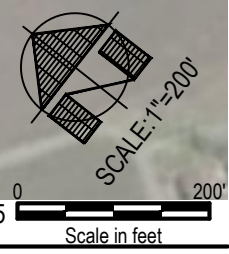
<E> VINEYARDS

<E> WINERY BUILDING

2281 GREENWOOD AVENUE  
CALISTOGA, CA  
APN: 017-230-033

APPROXIMATE LOCATION  
OF <E> WELL

\*THIS IS AN OLD STONE LINED WELL THAT  
HAS BEEN ABANDONED



OVERALL SITE PLAN

IMAGE IS FROM GOOGLE EARTH IMAGERY DATED 03/27/2015

VINCENT ARROYO WINERY  
OVERALL SITE PLAN

DELTA CONSULTING & ENGINEERING  
OF ST. HELENA  
1104 ADAMS STREET, SUITE 203 - ST. HELENA, CALIFORNIA 94574  
707-963-8456 + 707-963-8528 FAX

DATE: 06/08/2016  
SCALE: 1"=200'  
JOB #: P-105  
APN: 017-230-020

1 OF 1

CALISTOGA CA