

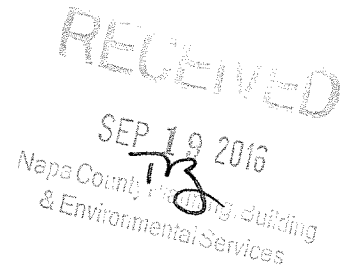
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## Water Availability Analysis

September 19, 2016

Dana Ayers, Planner III  
1195 Third Street, Suite 210  
Napa, CA 94559

*Via Hand Delivery*



**RE: Sam Jasper Winery - Use Permit Application P15-00077 UP**  
**4059 Silverado Trail, Assessor's Parcel No. 039-390-023**

Ms. Ayers,

This letter provides additional information on water use at the Sam Jasper site and the project's Water Availability Analysis (WAA) dated May 20, 2015. This information demonstrates that the WAA's calculation of reduced usage (.25 AF or approx. 81,463 gallons) is a conservative figure.

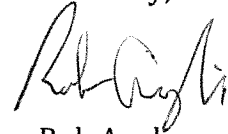
The WAA assumes .5 AF/acre of vineyard for irrigation on the post-project 4.86 acre vineyard (i.e. 2.43 AF/year). Enclosed please find a letter from Charlie Hossum, the Director of Viticulture for Delicato Family Wines. Now that DFV owns and is farming the property, we expect a lower water use, which Mr. Hossum calculates will be .446 AF/acre. For the resulting 4.86 acre vineyard, DFV's anticipated water savings equal .26 (approx. 84,721 gallons) over the amount shown in the WAA. Second, the project WAA documents that .43 AF of recycled winery process water will be available for vineyard irrigation.

Applying Mr. Hossum's irrigation calculation and the .43 AF of recycled process water means that Sam Jasper can expect to use a total of .94 AF (approx. 306,300 gallons) less than existing conditions. For comparison purposes, Beau Vigne's WAA reflected an expected reduction of .53 AF (approx. 172,701 gallons).

Lastly, two other sources of water are available to the Sam Jasper site. The property fronts the Napa River and has riparian rights to use river water for irrigation just as the Beau Vigne project asserted in its application. Additionally, the property's vineyard drainage system conveys sheet flow to an existing on-site reservoir. While these sources are not documented and quantified by the WAA, both are relevant for the project's consideration.

Please contact me with any questions or concerns regarding this request. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Rob Anglin". The signature is fluid and cursive, with the first name "Rob" being more prominent than the last name "Anglin".

Rob Anglin

cc: Client



September 14, 2016

#### Sam Jasper Property Water Use

It is anticipated the existing 7.25 acre vineyard will be reduced in size to 4.86 acres at a density of 1,815 vines per acre. An efficient drip irrigation system applying .5 gallons per vine per hour would have an instantaneous application rate of 908 gallons per hour per acre.

Average seasonal use would typically have a twenty week irrigation season. Likely consumptive use by the vineyard will vary during the season based on evaporative demand; but is currently estimated to average 4 gallons per week.

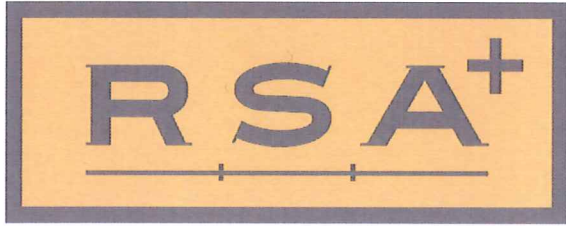
Thus average anticipated irrigation demand for the season would be 145,200 gallons per acre or .446 acre feet per acre. When the vineyard is replanted, or in the event of a dry spring irrigation demand might exceed this number but would not exceed .5 acre foot per acre.

A handwritten signature in cursive script that reads "Charles Hossom".

Charles Hossom

Director of Viticulture

Delicato Family Vineyards



# WATER SYSTEM FEASIBILITY STUDY FOR A REGULATED WATER SYSTEM

SAM JASPER WINERY  
NAPA COUNTY, CA

APN 039-390-023

Prepared for:

San Bernabe Vineyard LLC  
Chris Indelicato  
455 Devlin Road, Suite 201  
Napa, California 94558

Project #4114025.0

July 10, 2015





## **TECHNICAL CAPACITY**

### **System Description**

The proposed Sam Jasper Winery is located at 4059 Silverado Trail, Napa. Previously the site was a residence and vineyard. The existing well on site will serve the proposed 20,000 gallon per year winery, existing residence and vineyard. The existing annual water usage is estimated to be 4.38 acre-feet (1,430,000 gallons). See attached Phase 1 Water Availability Analysis.

The current system source is an existing Class I well. The well permit and well completion reports document the well as being 8-inch cased steel to a depth of 520-ft with a 57-ft annular seal of 3-inch cement. Treatment will be implemented to remove arsenic to meet the California Department of Health Services recommended drinking water standard of 10 µg/L. No other chemical or biological treatment will be performed on the well water unless quarterly testing results deem further treatment is necessary. Treated water will be stored in a proposed +/- 5,000 gallon tank. Separate tanks will be installed for firewater and irrigation. Separate pumps will supply the domestic water, irrigation water and fire water. See the Use Permit-Utility Plan, attachment, for system layout.

### **Projected Water Demand**

Based on the calculated annual water demand of 1,350,000 gallons, the daily average demand is 3,690 gallons. Peak daily demand is estimated at 7,380 gallons per day being 200% of average daily demand. This demand is less than the existing water demand.

### **Water Supply Capacity**

The existing water source is capable of supporting the proposed peak daily demand of 8,100 - gal/day. A well test performed by McLean & Williams Drilling, Inc. demonstrates the well can supply 60-gal/min. Well test results are on file at Napa County.

$$60 \text{ gpm} * 1440 \text{ min/ day} = 86,400 \text{ gal / day} \geq 7,380 \text{ gallons (peak daily demand)}$$

### **Source Adequacy**

The current well has a 57-ft seal with a 3-inch annular seal to comply with Napa County Code 13.12.270 as a Class IB well. 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).



## **MANAGERIAL**

### **General**

The owner of the water system will be the property owner of the 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:

<b>Tasks</b>	<b>Frequency</b>	<b>Action</b>
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 approved laboratory for testing.

## **FINANCIAL**

Below is a brief summary of the system's annual estimated financial capacity. Capital improvement costs, including drilling a new well and installation of the treatment and distribution systems, are estimated to be a one-time expense of \$100,000, amortized over 20 years.

Capital Improvements: \$5,000

Power: \$2,000

Maintenance: \$3,500

Water Quality Testing: \$1,500

Total: \$12,000

Projected Annual Gross Revenue: \$2,520,900 (Based on 8,403 cases at \$300/case)

Annual Operating Costs: \$2,016,720 (at 20% profit)

Percent of Total Operating Costs: 0.60%



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**Donald G. Ridenhour, P.E.**  
Director

**WATER AVAILABILITY ANALYSIS - PHASE ONE STUDY**

**Introduction:** As an applicant for a permit with Napa County, It has been determined that Chapter 13.15 of the Napa County Code is applicable to approval of your permit. One step of the permit process is to adequately evaluate the amount of water your project will use and the potential impact your application might have on the static groundwater levels within your neighborhood. The public works department requires that a Phase 1 Water Availability Analysis (WAA) be included with your application. The purpose of this form is to assist you in the preparation of this analysis. You may present the analysis in an alternative form so long as it substantially includes the information required below. Please include any calculations you may have to support your estimates.

The reason for the WAA is for you, the applicant, to inform us, to the best of your ability, what changes in water use will occur on your property as a result of an approval of your permit application. By examining the attached guidelines and filling in the blanks, you will provide the information we require to evaluate potential impacts to static water levels of neighboring wells.

**Step #1:**

Provide a map and site plan of your parcel(s). The map should be an 8-1/2"x11" reproduction of a USGS quad sheet (1:24,000 scale) with your parcel outlined on the map. Include on the map the nearest neighboring well. The site plan should be an 8-1/2"x11" site plan of your parcel(s) with the locations of all structures, gardens, vineyards, etc in which well water will be used. If more than one water source is available, indicate the interconnecting piping from the subject well to the areas of use. Attach these two sheets to your application. If multiple parcels are involved, clearly show the parcels from which the fair share calculation will be based and properly identify the assessor's parcel numbers for these parcels. Identify all existing or proposed wells

**Step #2: Determine total parcel acreage and water allotment factor. If your project spans multiple parcels, please fill a separate form for each parcel.**

Determine the allowable water allotment for your parcels:

*Parcel Location Factors*

The allowable allotment of water is based on the location of your parcel. There are 3 different location classifications. Valley floor areas include all locations that are within the Napa Valley, Pope Valley and Carneros Region, except for areas specified as groundwater deficient areas. Groundwater deficient areas are areas that have been determined by the public works department as having a history of problems with groundwater. All other areas are classified as Mountain Areas.

Please underline your location classification below (Public Works can assist you in determining your classification if necessary):

<b>Valley Floor</b>	<b>1.0 acre feet per acre per year</b>
<b>Mountain Areas</b>	<b>0.5 acre feet per acre per year</b>
<b>MST Groundwater Deficient Area</b>	<b>0.3 acre feet per acre per year</b>

Assessor's Parcel Number(s)	Parcel Size (A)	Parcel Location Factor (B)	Allowable Water Allotment (A) X (B)



**Step #3:**

Using the guidelines in Attachment A, tabulate the existing and projected future water usage on the parcel(s) in acre-feet per year (af/yr). Transfer the information from the guidelines to the table below.

<b>EXISTING USE:</b>		<b>PROPOSED USE:</b>	
Residential	_____ af/yr	Residential	_____ af/yr
Farm Labor Dwelling	_____ af/yr	Farm Labor Dwelling	_____ af/yr
Winery	_____ af/yr	Winery	_____ af/yr
Commercial	_____ af/yr	Commercial	_____ f/yr
Vineyard*	_____ af/yr	Vineyard*	_____ af/yr
Other Agriculture	_____ af/yr	Other Agriculture	_____ af/yr
Landscaping	_____ af/yr	Landscaping	_____ af/yr
Other Usage (List Separately):		Other Usage (List Separately):	
_____	_____ af/yr	_____	_____ af/yr
_____	_____ af/yr	_____	_____ af/yr
_____	_____ af/yr	_____	_____ af/yr

**TOTAL:** \_\_\_\_\_ af/yr  
\_\_\_\_\_ gallons\*\*

**TOTAL:** \_\_\_\_\_ af/yr **TOTAL:**  
**TOTAL:** \_\_\_\_\_ gallons\*\*

Is the proposed use less than the existing usage? ( ) Yes ( ) No ( ) Equal

**Step #4:**

Provide any other information that may be significant to this analysis. For example, any calculations supporting your estimates, well test information including draw down over time, historical water data, visual observations of water levels, well drilling information, changes in neighboring land uses, the usage if other water sources such as city water or reservoirs, the timing of the development, etc. Use additional sheets if necessary.

**Conclusion:** Congratulations! Just sign the form and you are done! Public works staff will now compare your projected future water usage with a threshold of use as determined for your parcel(s) size, location, topography, rainfall, soil types, historical water data for your area, and other hydrogeologic information. They will use the above information to evaluate if your proposed project will have a detrimental effect on groundwater levels and/or neighboring well levels. Should that evaluation result in a determination that your project may adversely impact neighboring water levels, a phase two water analysis may be required. You will be advised of such a decision.

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Phone:** \_\_\_\_\_



Residential – Primary Residential only – (0.75 af/yr)	= 0.75 af/yr
Proposed Vineyard – Irrigation only – (0.5af/ac-yr * 4.86 acres of vineyard)	= 2.43 af/yr
Existing Vineyard – Irrigation only – (0.5af/ac-yr * 7.25 acres of vineyard)	= 3.63 af/yr
Winery – Process Water – (2.15af/100,000 gal wine * 20,000 gal)	= 0.43 af/yr

Winery Domestic Water

FT Employees – (2 @ 15gpd x 365 days/yr)	= 10,950 gpy
PT Employees – (2 @ 15 gpd x 365 days/yr)	= 10,950 gpy
Harvest Employees – (2 @ 15gpd x 45 days/yr)	= 1,350 gpy
Visitors – (25 @ 3gpd x 365 days/yr)	= 27,375 gpy
Food & Wine Pairing Events – (15 @ 15gpd x 10 days/yr)	= 2,250 gpy
(25 @ 15gpd x 10 days/yr)	= 3,750 gpy
(50 @ 15gpd x 3 days/yr)	= 2,250 gpy
<b>Total = 58,875 gpy</b>	

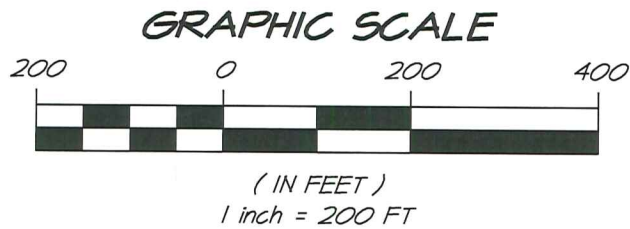
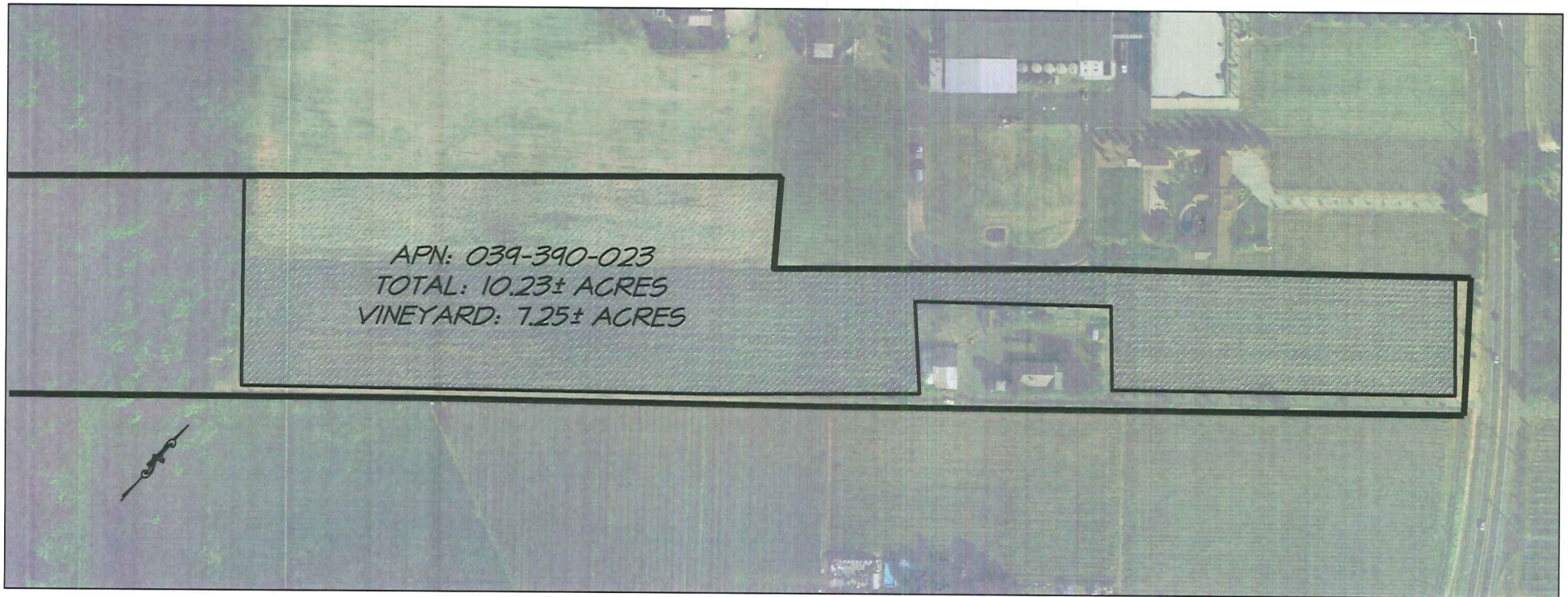
Existing = (Residential + Vineyard) = (0.75 + 3.63) = **4.38 ac-ft/yr**

Proposed = (Residential + Vineyard + Winery + Landscaping + Employees + Visitors + Events)  
= (0.75 + 2.43 + 0.43 + 0.35 + 0.07 + 0.08 + 0.03) = **4.14 ac-ft/yr**

Note 1: 0.43 af/yr of treated process wastewater will be used to irrigate 4.5 acres of vineyard. (See attached exhibit.)

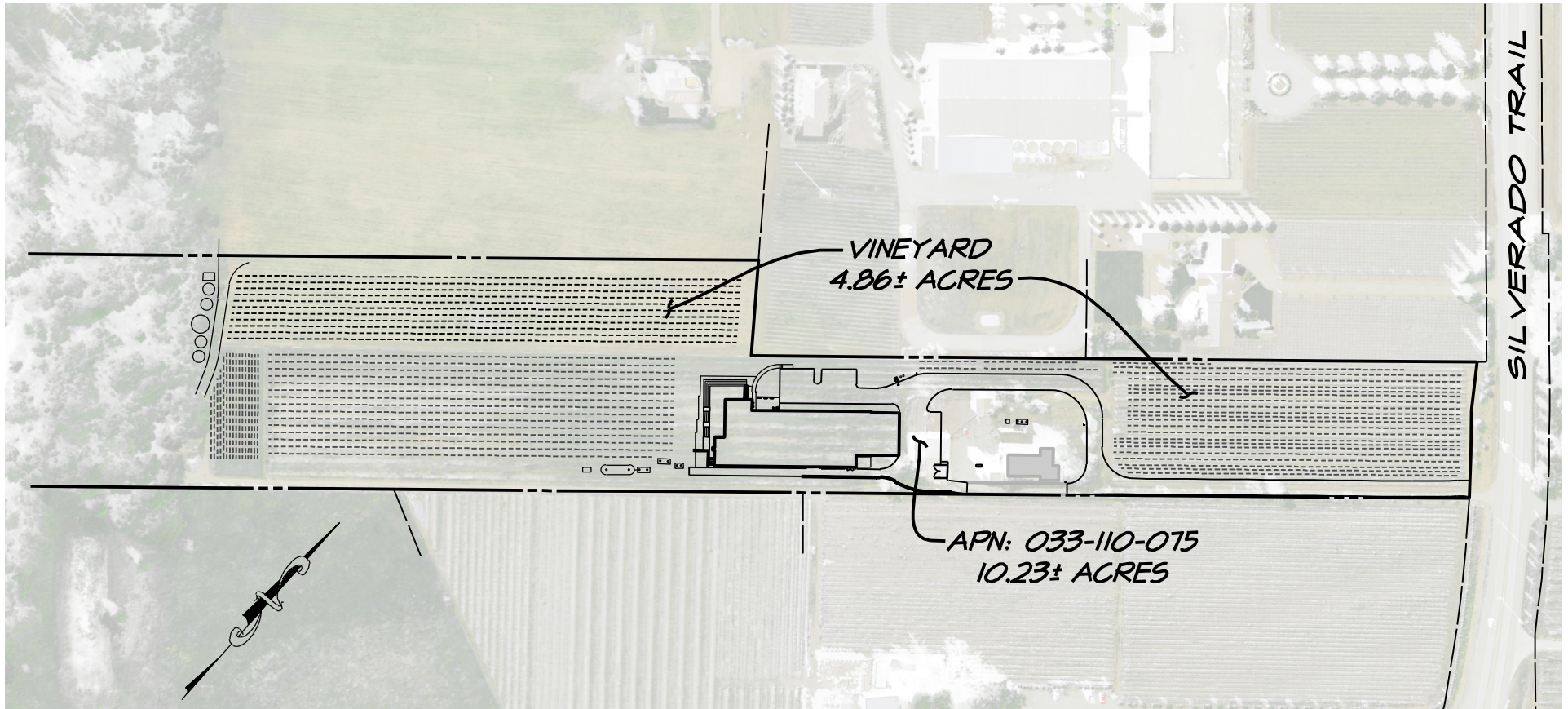
Note 2: Landscape water demand from WELO analysis. (See attached exhibit.)

# SAM JASPER WINERY EXISTING VINEYARD AREA



<b>RSA<sup>+</sup></b>	1515 FOURTH STREET NAPA, CALIF. 94559 OFFICE   707   252.3301 + <a href="http://www.RSAcivil.com">www.RSAcivil.com</a> +
	RSA <sup>+</sup>   CONSULTING CIVIL ENGINEERS + SURVEYORS + <small>est.</small> 1980

# SAM JASPER WINERY EXISTING VINEYARD AREA TO REMAIN



GRAPHIC SCALE



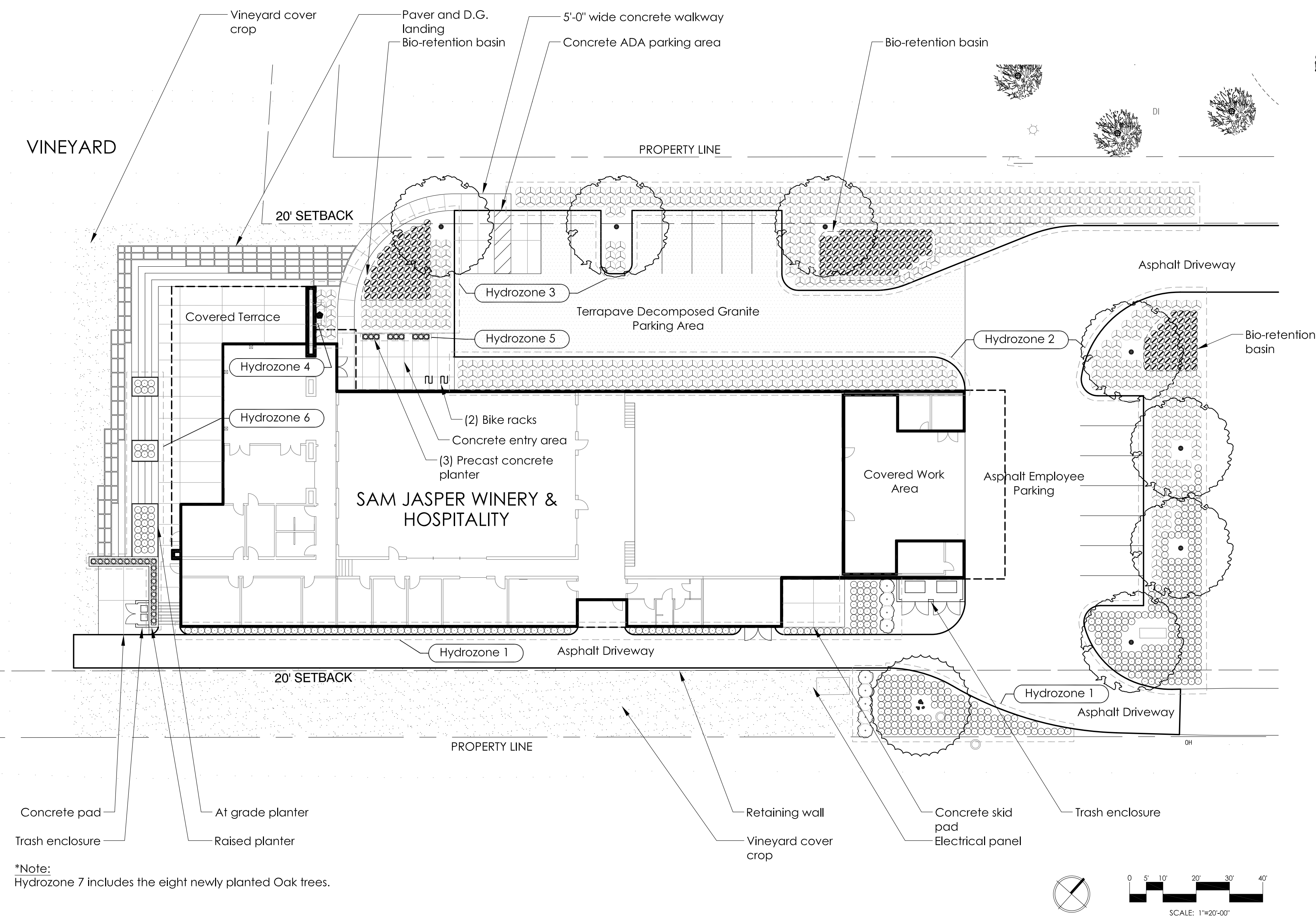
( IN FEET )  
1 inch = 200 FT

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MAY 6, 2015 4114025.0 Exh-Proposed Vines.dwg

# LANDSCAPE PLAN



\*Note:  
Hydrozone 7 includes the eight newly planted Oak trees.

## IRRIGATION STATEMENT

The landscape irrigation will be designed to meet Napa County Water Efficient Landscape Ordinance and will contain the following components:

- Weather based, self-adjusting irrigation controller with rain sensor
- Emitters to include subsurface drip irrigation, tree bubblers for new trees
- Trees to be placed on separate valves
- Isolation valves to be installed at point of connection and before each valve or manifold
- Backflow prevention device to be installed
- Pressure regulation device to be installed
- Separate valves for each hydrozone to be installed to irrigate zones of med and low water use plantings - no high water using plantings are used.
- Check valves will be installed to prevent low point drainage where necessary

## HYDROZONE TABLE

Hydrozone Areas	Area (Square Feet)	Plant Factor	Irrigation Efficiency	Percent of Landscape Area
<b>Hydrozone- Mixed Medium Water Use Vine, Drip Irrigation</b>				
5	25	0.5	0.9	0.21%
<b>Hydrozone- Mixed Low Water Use Shrubs, Drip Irrigation</b>				
1	1,474	0.3	0.9	12.49%
2	4,296	0.3	0.9	36.40%
3	4,328	0.3	0.9	36.51%
4	15	0.3	0.9	0.13%
6	283	0.3	0.9	2.40%
<b>Hydrozone- Trees, Bubbler Irrigation</b>				
7	1,400	0.3	0.9	11.86%

## MAWA CALCULATION

Maximum Applied Water Allowance				
MAWA=	(ET <sub>o</sub> )	(0.62)	(S.F.)	(.6)
	44.3	0.62	11,801	0.6
MAWA= 194,476 Gallons/Year				
Estimated Total Water Use				
ETWU=	(ET <sub>o</sub> )	(PF)	(S.F.)	(0.62)
		IE		
Hydrozone=	(44.3)	(.3)	(11,776)	(0.62)
Low Drip		0.85		
= 114,155 Gallons/Year				
Hydrozone=	(44.3)	(.5)	(25)	(0.62)
Moderate Drip		0.85		
= 404 Gallons/Year				

The ETWU (114,559) is less than the MAWA (194,476), therefore this design does comply with the California Code of Regulations Title 23, Waters- Model Water Efficient Landscape Ordinance.

## PLANT LIST

Botanical Name	Common Name	Water Use	Size	Qty
<b>Trees</b>				
Quercus agrifolia (Multi-stem)	Live Oak	Low	36" Box	1
Quercus lobata	Valley Oak	Low	36" Box	7
<b>Shrubs/ Perennials</b>				
Dianella caerulea	Blue Flax Lily	Low	5 Gal.	28
Prunus caroliniana 'Monus'	Carolina Laurel Cherry	Low	15 Gal.	9
<b>Grasses/Ground Covers</b>				
Calamagrostis 'Karl Forester'	Reed Grass	Low	1 Gal.	513
Juncus patens 'Elk Blue'	Elk Blue California Rush	Low	1 Gal.	560
Lomandra longifolia 'Breeze'	Dwarf Mat Rush	Low	1 Gal.	254
Vineyard cover crop		Un-Irrigated		6550 Sq. Ft.
<b>Vines</b>				
Parthenocissus tricuspidata	Boston Ivy	Medium	5 Gal.	1

## PLANT PALETTE



Quercus agrifolia (Multi-stem)



Quercus lobata



Dianella caerulea



Prunus caroliniana 'Monus'



Calamagrostis 'Karl Forester'



Juncus patens 'Elk Blue'



Lomandra longifolia 'Breeze'



Parthenocissus tricuspidata



Vineyard cover crop