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## Water Availability Analysis & Transient Non-Community Water System Information

TIER I WATER AVAILABILITY ANALYSIS

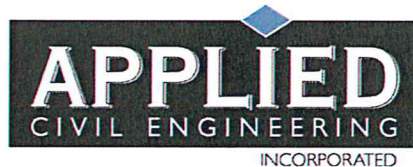
FOR THE

YOUNTVILLE WASHINGTON STREET WINERY

LOCATED AT:  
6170 Washington Street  
Napa, CA 94558  
NAPA COUNTY APN 036-110-009

PREPARED FOR:  
James Keller  
1775 Lincoln Avenue  
Napa, CA 94558  
Telephone: (707) 258-5230

PREPARED BY:



2074 West Lincoln Avenue  
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Job Number: 15-113

Original Date: January 28, 2016  
Revision #1: April 29, 2016



*Michael R. Muelrath*

Michael R. Muelrath R.C.E. 67435

4/29/2016

Date

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## INTRODUCTION

James Keller is applying for a Use Permit to construct and operate a new winery at the property located at 6170 Washington Street in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 036-110-009, is located along the east side of Washington Street approximately 0.6 miles south of the intersection of Washington Street and California Boulevard.

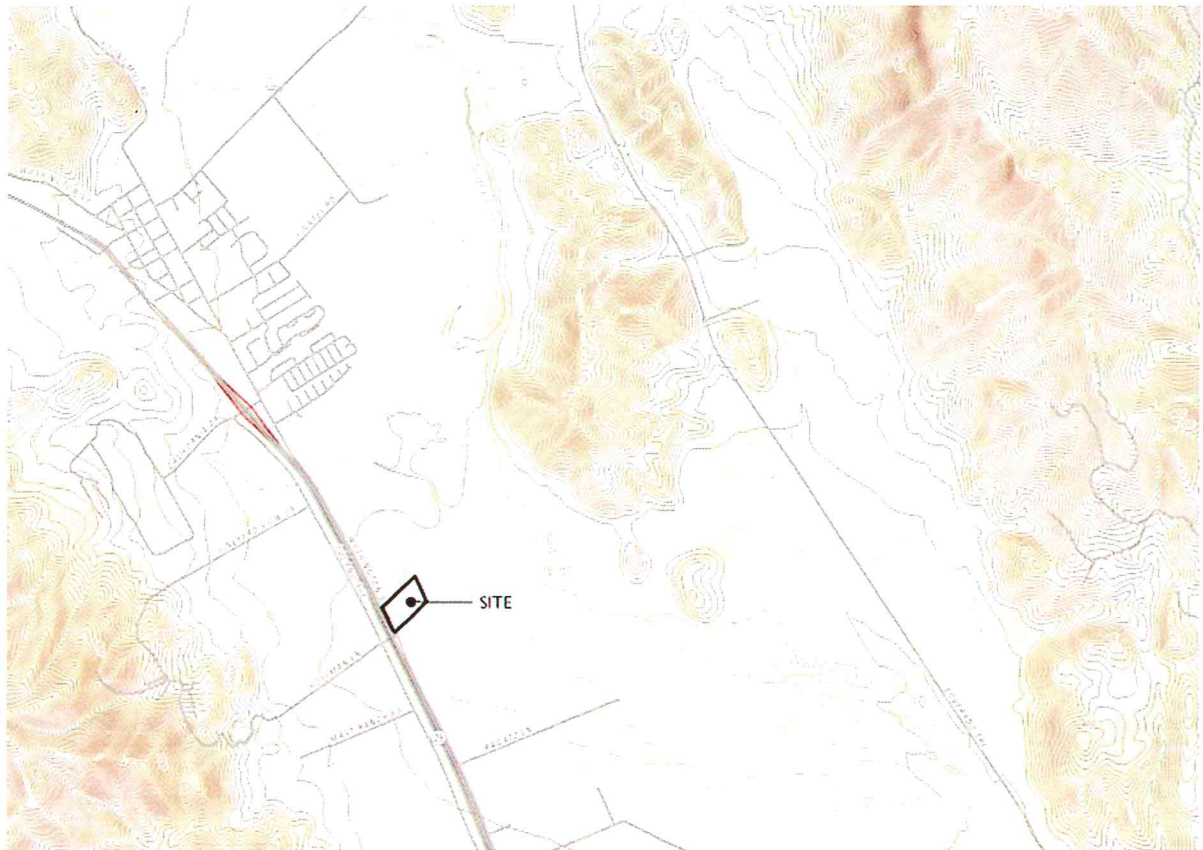


Figure I: Location Map

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

- Wine Production:
  - 30,000 gallons of wine per year
  - Crushing, fermenting, aging and bottling
- Employees:
  - 3 full time employees
  - 4 part time employees
- Marketing Plan:
  - Daily Tours and Tastings by Appointment
    - 25 visitors per day maximum
  - Marketing Events
    - 10 per year
    - 30 guests maximum
    - Food prepared offsite by catering company
  - Events
    - 1 per year
    - 100 guests maximum
    - Food prepared offsite by catering company
    - Portable toilets brought in for guest use

Existing improvements on the property include approximately 9.3 acres of vineyard, a well and the associated access and utility infrastructure typical of this type of agricultural development.

Groundwater is currently used for vineyard irrigation and will be used for vineyard irrigation as well as for the proposed winery facility in the future.

Jim Keller has requested that Applied Civil Engineering Incorporated (ACE) prepare a Tier I 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. 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 9.3 acres of vineyard as shown in Figure 2.

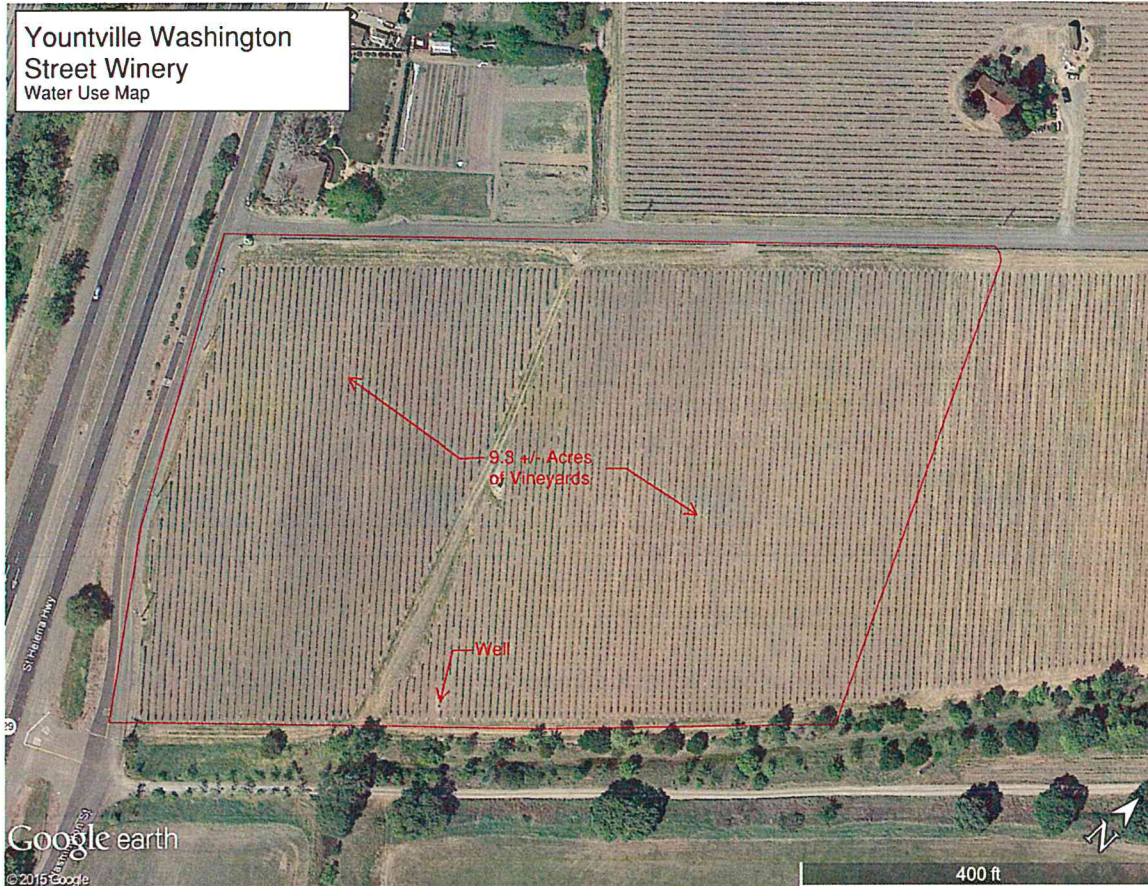


Figure 2: Water Use Map

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 I.

Table I: Estimated Groundwater Demand

	Existing (ac-ft/yr)	Proposed (ac-ft/yr)
Residential	0	0
Winery	0	0.85
Vineyard Irrigation	4.65	3.7
Landscape Irrigation	0	0.75
Total	4.7	5.3

## WATER USE SCREENING CRITERIA

According to the 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. If the Tier 1 Water Use Screening Criteria is met and the property is located in the Napa Valley Floor area Tier 2 and Tier 3 Analyses are not required unless substantial evidence exists in the record that indicates a potential significant impact from the project.

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

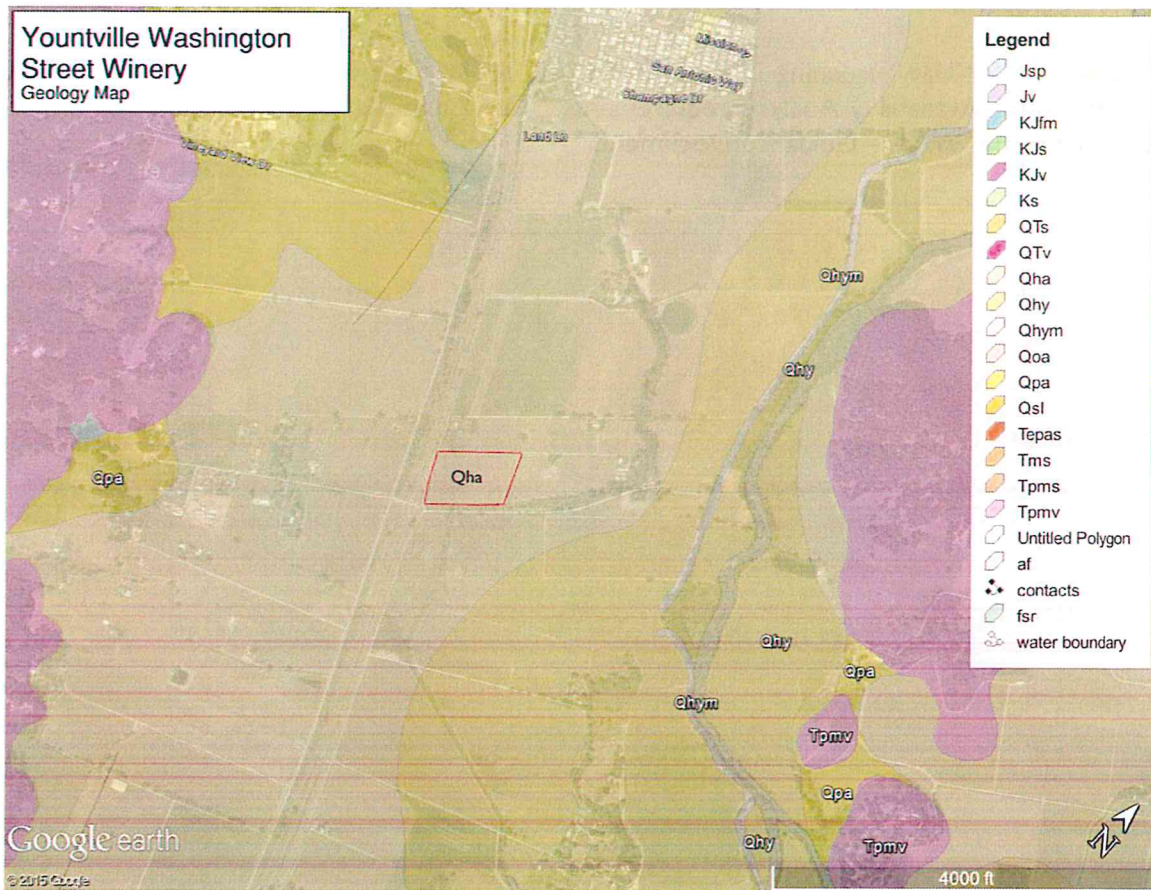


Figure 3: Geology Map Created with Google Earth Pro  
(Source USGS Scientific Investigations Map 2918)

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 10.5 acres and therefore the water use screening criteria is calculated as follows:

Water Use Screening Criteria = 10.5 acres x 1.0 acre-foot per acre per year

Water Use Screening Criteria = 10.5 acre-feet per year

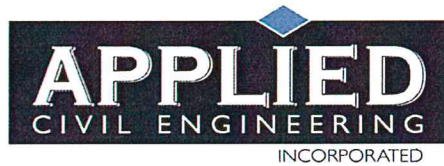
## **ANALYSIS**

The total Estimated Water Use for existing conditions (4.7 ac-ft/yr) and proposed conditions (5.3 ac-ft/yr) are both significantly less than the Water Use Screening Criteria (10.5 ac-ft/yr).

## **CONCLUSION**

Since the Water Use Screening Criteria is met the project is found to comply with the Napa County Water Availability Analysis requirements. Tier 2 and Tier 3 Analyses are not required according to the WAA – Guidance Document.

## APPENDIX I: Water Use Estimate Supporting Calculations



**Yountville Washington Street Winery  
Groundwater Use Estimate**

	Estimated Water Use (Acre-Feet / Year)		
	Existing		Proposed
<b>Residential Water Use</b>			
Primary Residence - Not Applicable	0.000		0.000
Pool - Not Applicable	0.000		0.000
Second Dwelling Unit - Not Applicable	0.000		0.000
Guest Cottage - Not Applicable	0.000		0.000
Total Residential Domestic Water Use	0.000		0.000
<b>Winery Domestic &amp; Process Water Use</b>			
Winery - Daily Visitors <sup>(1)(2)</sup>	0.000		0.084
Winery - Events with Meals Prepared Onsite <sup>(1)(3)</sup>	0.000		0.000
Winery - Events with Meals Prepared Offsite <sup>(1)(4)</sup>	0.000		0.006
Winery - Employees <sup>(1)(5)</sup>	0.000		0.118
Winery - Event Staff <sup>(1)(5)</sup>	0.000		0.002
Winery - Process <sup>(6)</sup>	0.000		0.645
Total Winery Water Use	0.000		0.854
<b>Irrigation Water Use</b>			
Lawn <sup>(7)</sup>	0.000		0.000
Other Landscape <sup>(8)</sup>	0.000		0.750
Vineyard - Irrigation <sup>(9)</sup>	4.650		3.700
Vineyard - Frost Protection	0		0
Vineyard - Heat Protection	0		0
Total Irrigation Water Use	4.650		4.450
<b>Total Combined Water Use</b>	<b>4.7</b>		<b>5.3</b>

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

<sup>(1)</sup> See attached Winery Production, Guest, Employee and Event Staff Statistics

<sup>(2)</sup> 3 gallons of water per guest per Napa County WAA Guidance Document

<sup>(3)</sup> 15 gallons of water per guest per Napa County WAA - Guidance Document

<sup>(4)</sup> 5 gallons of water per guest used because all food preparation, dishwashing, etc. to occur offsite

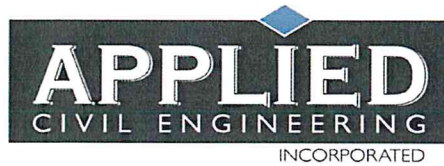
<sup>(5)</sup> 15 gallons per shift per Napa County WAA - Guidance Document

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

<sup>(7)</sup> 0.1 ac-ft/yr per 1,000 sf of lawn per Napa County WAA - Guidance Document - 0 sf lawn

<sup>(8)</sup> 0.1 ac-ft/yr per 2,000 sf landscape per Napa County WAA - Guidance Document - 15,000 +/- sf landscape

<sup>(9)</sup> 0.5 ac-ft/ac/yr per applicant - 9.3 ac vineyard (E) & 7.4 ac vineyard (P)



**Yountville Washington Street Winery**  
**Winery Production, Visitor, Employee & Event Staff Statistics**

<b>Winery Production<sup>(1)</sup></b>	30,000	gallons per year
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**Tours and Tastings by Appointment<sup>(1)</sup>**

Monday through Thursday	25 guests max per day	
Friday through Sunday	25 guests max per day	
<b>Total Guests Per Year</b>		9,100

**Events - Meals Prepared Offsite<sup>(1)</sup>**

10 per year	30 guests max	300
0 per year	75 guests max	0
1 per year	100 guests max	100
<b>Total Guests Per Year</b>		400

**Events - Meals Prepared Onsite<sup>(1)</sup>**

0 per year	0 guests max	0
0 per year	0 guests max	0
0 per year	0 guests max	0
<b>Total Guests Per Year</b>		0

**Winery Employees<sup>(2)</sup>**

7 employees	1 shift per day	
<b>Total Employee Shifts Per Year</b>		2,555

**Event Staff<sup>(3)</sup>**

10 per year, 30 guests	3 event staff	30
0 per year, 75 guests	8 event staff	0
1 per year, 100 guests	10 event staff	10
<b>Total Event Staff Per Year</b>		40

<sup>(1)</sup> Winery production, tours and tasting and event guest statistics per Winery Use Permit Application

<sup>(2)</sup> Employee counts per Winery Use Permit Application

<sup>(3)</sup> Assumes 1 event staff per 10 guests (in addition to regular winery employees)



TRANSIENT NON-COMMUNITY  
WATER SYSTEM INFORMATION

RECEIVED

MAR 02 2016

Napa County Planning, Building  
& Environmental Services

FOR THE

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1/28/2016

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## INTRODUCTION

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Figure 1: Location Map

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Existing development on the property includes vineyard, a groundwater well, drainage improvements and the access and utility infrastructure typical of these existing agricultural uses. Please see the Yountville Washington Street Winery Use Permit Conceptual Site Plans for approximate locations of existing and proposed features.

Since the number of employees plus the number of visitors is expected to exceed 24 for 60 or more days out of the year, the project will be required to implement a Transient Non-Community Public Water System.

James Keller has requested that Applied Civil Engineering Incorporated (ACE) prepare a brief report outlining the anticipated technical, managerial and financial aspects of the water system that will be required to serve the proposed winery to accompany the winery Use Permit application as required by Napa County.

## **WATER SYSTEM NAME**

The water system will be known as the “Yountville Washington Street Winery Water System”.

## **NAME OF PERSON WHO PREPARED THIS REPORT**

This report was prepared by Michael Muelrath, PE of Applied Civil Engineering Incorporated. Information regarding the parameters of the subject Use Permit application, well yield and water quality testing results were provided by James Keller.

## **TECHNICAL CAPACITY**

### **System Description**

Water for the existing agricultural uses is provided by an existing onsite well. According to the Water Well Drillers Report by Doshier & Gregson Drilling, Inc. the well is 200 feet deep and has a sanitary seal depth of 25 feet. Since the sanitary seal depth is less than the required 50 feet a new well with a 50 foot deep annular seal is required to serve the new water system. The new well must be constructed per Napa County standards and treatment must be provided as required to meet applicable local, state and federal water quality requirements. Detailed plans for the water treatment system will be prepared and presented to Napa County for review during

the building permit stage, after the new well is drilled and the required yield and water quality testing is performed.

### **Water Demand Projection**

We have used the Napa County Water Availability Analysis guidelines to estimate the annual water demand for the existing agricultural and proposed winery and agricultural uses to be approximately 5.3 acre-feet per year. It is planned that the existing well will continue to be used for the vineyard and landscape irrigation and that the new well will only serve domestic uses. The total annual domestic water demand is estimated to be approximately 0.9 acre-feet per year. Using the projected annual demand, we have calculated an average daily demand of approximately 803 gallons and a maximum daily demand (MDD) of 1,807 gallons (calculated per California Waterworks Standards Section 64554b.3.(C)).

### **Source Adequacy**

As previously noted, a new well must be constructed with a minimum 50 foot deep, 3 inch wide concrete annular seal to meet the requirements for public water systems. A copy of the Well Completion Report providing information about the new well will be included with the water system application with the winery building permit application package.

### **Water Supply Capacity**

Assuming a conservative well pumping cycle of 12 hours per day the new well must be capable of producing at least 2.5 gallons per minute to meet the water system's MDD. Furthermore, the water system must include a new storage tank that can store at least the MDD (1,807 gallons).

The estimated yield of the existing well is over 64 gallons per minute based on a pumping test performed by LGS Drilling, Inc. on January 15, 2015. The yield was limited by the equipment that is in the well and it was noted in the LGS Drilling, Inc. report that the well could provide more water with a larger pump. Based on the yield of the existing well and our experience with groundwater wells in this area we judge that it will be feasible to develop a new well that will meet or exceed the required yield of 2.5 gpm to meet the needs of the water system.

Prior to water system and building permit issuance the new well must be constructed and the new well yield must be verified by pumping and measuring drawdown in accordance with California Waterworks Standards Section 64554.

Once the water system is permitted and constructed we recommend that the water level, yield and drawdown in the well be monitored on an ongoing basis to detect any trends in changing water table levels and well yield so that alternate sources can be developed if needed.

### **Water Quality Characterization**

Water samples were taken from the existing well by LGS Drilling, Inc. on January 15, 2015 and were analyzed by Caltest Analytical Laboratory in Napa, California. The analysis included only a subset of the chemical groups required by Napa County and no bacteriological testing. Based on

these test results we have concluded that it will likely be necessary to provide treatment to reduce Manganese levels to below the maximum contaminant level (MCL). Prior to permitting and construction of the water system it will be necessary to perform a full panel of water quality testing that covers all parameters required by Napa County. The water treatment system must then be designed to reduce all required contaminant levels to below the regulatory maximum contaminant level (MCL) for each constituent.

### **Consolidation Analysis**

The subject parcel does not fall within the service area of a known existing public water system and thus consolidation is not feasible.

## **MANAGERIAL**

### **Organization**

Management and routine operation of the water system will be performed by the winery staff. One staff member will be responsible for performing sampling, reporting and keeping up to date records onsite in accordance with Napa County requirements. The winery staff person in charge of the water system will consult with water system specialists as needed if issues arise with any components of the water system.

### **Land Ownership**

The well is located on the same property as the proposed winery. This property is owned by the Keller and Taylor families. Since the well and all water system components are to be located on the same property as the winery no access or maintenance easements will be required.

### **Water Rights**

The Yountville Washington Street Winery Water System will use groundwater from a non-adjudicated groundwater basin exclusively and is therefore not subject to water rights through the State Water Resources Control Board.

## **FINANCIAL**

There will be no revenue generated by the water system.

The expected expenses for the water system can be broken down into initial startup cost and ongoing operational cost as shown below.

### **Startup Cost**

Startup cost includes a pump for the new well, water transmission piping, water storage tank, water treatment system equipment, booster pump and installation. The water treatment and storage equipment will be designed based on a full panel of water quality test results that will be performed on water from the new well. Based on previous experience we estimate that the cost

for the new well, well pump, water transmission piping, water treatment system equipment and installation will be in the range of \$75,000 to \$100,000.

Actual costs will be dependent upon the results of the water quality testing and design of the water treatment system.

### **Annual Operating Cost**

Annual operating cost for the water system will include a portion of one employee's salary, cost for performing quarterly and annual water quality testing, equipment maintenance and replacement, replacement of consumable items and electrical service charges. The actual cost to operate and maintain the water system will be dependent on the final design of the water system. We estimate that the annual cost associated with operating and maintaining the water system will be in the range of \$5,000 to \$10,000 per year depending on final water system design.

### **Funding**

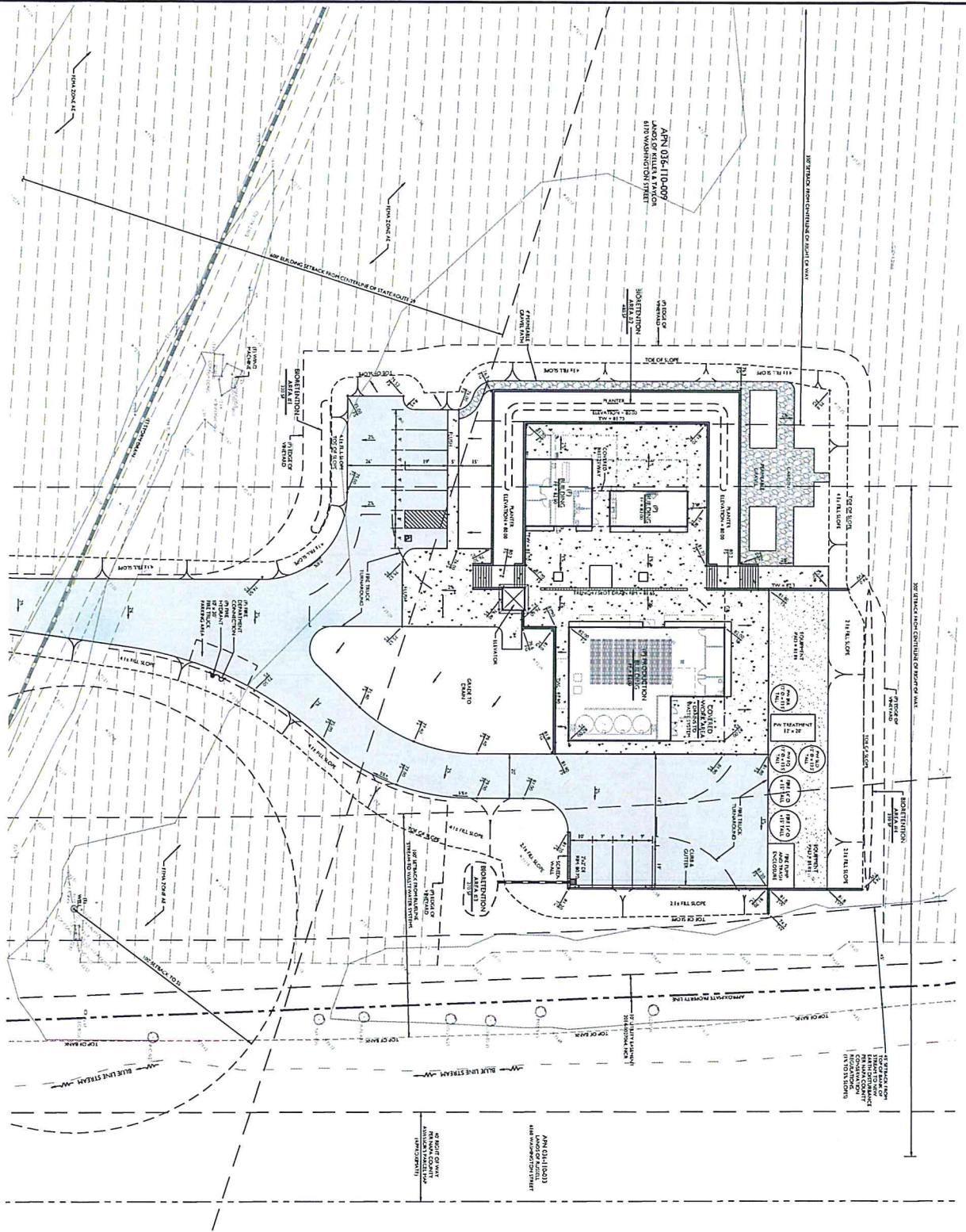
The startup cost will be financed along with the construction of the winery. The winery's annual budget will include a line item for water system operation and maintenance cost to ensure finances are available to operate and maintain the water system throughout the life of the winery.

APPENDIX I: Yountville Washington Street Winery Conceptual Site Plans



CONCEPTUAL SITE GRADING & LAYOUT PLAN

SCALE 1" = 30'



**LEGEND**

	PROPOSED AC PAVING
	PROPOSED CONCRETE
	PROPOSED GRAVEL
	PROPOSED RIPRAP

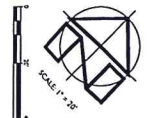
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OF  
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JOB NUMBER	15-111
FILE	15-111\CONCEPT GRADING
ORIGINAL SIZE	24" X 36"
SHEET NUMBER	C2
DATE	JANUARY 18, 2018
EXTENSION	BY:
CHECKED BY	RT DRAWING
DESIGNED BY	RT DRAWING
APPROVED BY	RT DRAWING

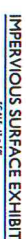


PREPARED UNDER THE  
DIRECTION OF

**YOUNTVILLE WASHINGTON STREET WINERY**  
CONCEPTUAL SITE IMPROVEMENT PLANS  
CONCEPTUAL SITE GRADING & LAYOUT PLAN



**APPLIED**  
INCORPORATED  
2274 West Lincoln Avenue  
Napa, CA 94558  
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PROJECT	NEW AREA RECONSTRUCTED	TOTAL NEW AND
AREA (FT <sup>2</sup> )	(FT <sup>2</sup> )	AREA (FT <sup>2</sup> )
	RECONSTRUCTED	RECONSTRUCTED
TOTAL PROJECT AREA	4,176	4,176

RECONSTRUCTED AREA WAS 4,176 SQUARE FEET. PROJECT THAT WAS BEING IMPROVED WITH NEW IMPROVEMENTS.

