WATER SYSTEM FEASIBILITY REPORT

Bella Oaks Winery

1271 Manley Lane

Napa, California

APN 027-260-001

SUMMIT

CIVIL STRUCTURAL ELECTRICAL WATER|WASTEWATER PLANNING

Project No. 2021167
Revised April 2026

TABLE OF CONTENTS

Project Introduction 1
Water System Information 1
Managerial 6
Financial 6

LIST OF ENCLOSURES

Enclosure A: Overall Site Plan

Enclosure B: Replacement Well Permit

Enclosure C: Well Completion Report

Enclosure D: Water Efficient Landscape Ordinance (WELO) Calculations

Enclosure E: 8-Hour Pump Test Results

PROJECT INTRODUCTION

Bella Oaks Winery (previously Swanson Winery), located at 1271 Manley Lane in Napa (APN 027-260-001), is applying for a use permit (UP) minor modification to the approved UP #U-288788 to revise the entitled number of employees and marketing events.

An overall site plan for the proposed winery is provided in Enclosure A. Details of the proposed use permit modification are summarized below:

- No change to existing wine production entitlement of 42,500 gallons per year.
- No change to existing daily visitation (25 vehicles per day; assumed 60 average visitors/day and 75 maximum visitors/day).
- Increased employees from 4 full-time (FTE) to 10 FTE.
- Revised marketing program to include:
  - 10 events/year with 40 guests/event.
  - 1 event/year with 80 guests/event.
- Addition of a new "high-risk" commercial kitchen.

The existing well water system is not categorized as a Public Water System (PWS). However, the visitation changes proposed as part of the use permit modification application will require the facility to become permitted as a Transient Non-Community (TNC) PWS.

Summit Engineering has prepared the following Water System Feasibility Report for inclusion with the project use permit modification application.

WATER SYSTEM INFORMATION

Water System Name: Bella Oaks Winery

Name of Person who Prepared the Report: Gina Giacone, Summit Engineering, Inc.

Technical Capacity:

System Description

Historically, there were two wells onsite. Napa County approved permit #E22-00755 (issued December 16, 2022) to destroy the two existing wells and drill a new replacement well. The replacement well permit is provided in Enclosure B. The well completion log for the replacement well has been submitted to Napa County under permit #E22-00755, and is provided in Enclosure C. An estimated yield of 200 gpm over 8 hours was noted in the Well Completion Report. The water quality report and complete yield testing for the new well will be provided when the facility applies to become a Transient Non-Community Public Water System.

The replacement well is proposed to supply the water demand for the Bella Oaks Winery. New underground treated water storage tanks are proposed to provide water storage for the facility.

Process Water Demand Projection

The proposed process water demand is calculated in Table 1.

Table 1: Estimate of proposed annual process water demand.

Parameter	Value	Units
Wine Production	42,500	gal wine / year
Water Demand for Wine Production (Note 1)	6.0	gal water / gal wine
Total Annual Process Water Demand	255,000	gal water / year
	0.783	acre-feet water / year
Average Daily Process Water Demand (Note 2)	**699**	**gal water / year**
Peak Daily Process Water Demand (Note 3)	**1,417**	**gal water / day**
Notes:		
1. Water demand for wine production is based on industry standard values.		
2. Assumes the total annual process water demand is spread evenly across 365 days.		
3. Calculated assuming a 45-day harvest per guidelines in the Napa County OWTS Technical Standards.		

Domestic Water Demand Projection

Domestic water use at the winery is determined based on the total number of employees, daily visitors, and event guests. Using Napa County standards, the proposed average daily domestic water demand for the winery facility is estimated in Table 2:

Table 2: Estimate of proposed domestic water demand on an average day.

Category	Number People / Day	Domestic Water Demand, gal/person	Total Domestic Water Demand, gal/day
Full-Time Employee (FTE)	10	15	150
Tasting Visitors (Note 1)	60	8	480
Total	**—**	**—**	**630**
Notes:			
1. Tasting assumed to occur seven days per week. Assumes "bar and cocktail food", not meals, are prepared onsite and served to wine tasting visitors; 5 gallons of kitchen waste per person and 3 gallons of water per visitor per Table 4 in the Napa County ASTS Standards (July 2019).			

For this report, it has been assumed that there are 15 days per year with maximum daily visitation of 75 people per day. The total domestic water demand on a day with maximum tasting visitors is calculated below.

Table 3: Estimate of proposed domestic water demand on a maximum visitation day.

Category	Number People / Day	Domestic Water Demand, gal/person	Total Domestic Water Demand, gal/day
Full-Time Employee (FTE)	10	15	150
Tasting Visitors (Note 1)	75	8	600
Total	—	—	**750**
Notes:			
1. Tasting assumed to occur seven days per week. Assumes "bar and cocktail food", not meals, are prepared onsite and served to wine tasting visitors; 5 gallons of kitchen waste per person and 3 gallons of water per visitor per Table 4 in the Napa County ASTS Standards (July 2019).			

The winery also proposes to host events. The size and frequency of proposed events are as follows:

- Large Event: 80 attendees max, 1 event per year
- Small Event: 40 attendees max, 10 events per year

The estimated domestic water demand on a day with a large event is summarized in Table 4 and for a day with a small event is summarized in Table 5.

Table 4: Estimate of proposed domestic water demand on a large event day.

Category	Number People / Day	Domestic Water Demand, gal/person	Total Domestic Water Demand, gal/day
Full-Time Employee	10	15	150
Tasting Visitors (Notes 1, 2)	0	8	0
Event Guest (Note 3)	80	15	1,200
Total	—	—	**1,350**
Notes:			
1. Assumes tasting room is closed on 80-person event days.			
2. Assumes "bar and cocktail food", not meals, are prepared onsite and served to wine tasting visitors; 5 gallons of kitchen waste per person and 3 gallons of water per visitor per Table 4 in the Napa County ASTS Standards (July 2019).			
3. Assumes event guests are served full meals, and that meals are prepared onsite.			

Table 5: Estimate of proposed domestic water demand on a small event day.

Category	Number People / Day	Domestic Water Demand, gal/person	Total Domestic Water Demand, gal/day
Full-Time Employee	10	15	150
Tasting Visitors (Notes 1, 2)	75	8	600
Event Guest (Note 3)	40	15	600
Total	—	—	**1,350**
Notes:			
1. Based on 25 vehicles per day. Assumes peak visitation of 75/day and 60/day average.			
2. Assumes "bar and cocktail food", not meals, are prepared onsite and served to wine tasting visitors; 5 gallons of kitchen waste per person and 3 gallons of water per visitor per Table 4 in the Napa County ASTS Standards (July 2019).			
3. Assumes event guests are served full meals, and that meals are prepared onsite.			

The total annual domestic water demand is calculated in Table 6.

Table 6: Estimate of proposed annual domestic water demand.

Use Type	Number (persons/day)	Water Demand (gal/person)	Daily Demand (gal/day)	Frequency (days/year)	Annual Water Use (gal/year)
FTE (Note 1)	10	15	150	365	54,750
Tasting Visitors (Note 2)	60	8	480	350	168,000
Tasting Visitors (Note 2)	75	8	600	15	9,000
Event Guests (Note 3)	—	—	—	—	—
Event, 80 Guests	80	15	1,200	1	1,200
Event, 40 Guests	40	15	600	10	6,000
Total Annual Winery Domestic Water Demand (Gallons)					**238,950**
Total Annual Winery Domestic Water Demand (acre-feet/year)					**0.733**
Notes:					
1. Maximum number of FTE's assumed every day to be conservative.					
2. Tasting assumed to occur seven days per week. Assumes "bar and cocktail food", not meals, are prepared onsite and served to wine tasting visitors; 5 gallons of kitchen waste per person and 3 gallons of water per visitor per Table 4 in the Napa County ASTS Standards (July 2019. Assumes 15 "maximum visitation days" with 75 visitors per day each year.					
3. Assumes event guests are served full meals, and that meals are prepared onsite.					

Irrigation Water Demand Projection

The total annual landscape irrigation water demand is estimated to be 166,030 gallons per year. The estimate is based on Water Efficient Landscape Ordinance (WELO) calculations provided by the Landscape Architect. These calculations are provided in Enclosure D.

Source Adequacy

The well completion report for the replacement well (Enclosure C) has been submitted to Napa County and will be included in the application when the facility applies to become a Transient Non-Community (TNC) Public Water System (PWS). The well completion report shows a site plan showing the approximate new well location, borehole specifications, completion depth, annular seal depth, and casing diameter and specifications.

Water Supply Capacity

The total estimated annual water demand is summarized in Table 7. See the accompanying Tier 1 Analysis Letter (dated April 2026) for a detailed demonstration on how the proposed increase to employees outlined in the use permit minor modification will not result in water demand increase for the property.

Table 7: Estimate of total annual water demand.

Parameter	Value	Units
Process Water	255,000	gal water / year
Domestic Water	238,950	gal water / year
Irrigation Water	166,030	gal water / year
Total Annual Water Demand	**659,980**	**gal water / year**

The winery plans for the irrigation water to tee-off from the water distribution piping prior to storage. Therefore, the irrigation water demand is not considered in the following calculations.

The estimated annual process water demand is 255,000 gallons per year and the estimated annual domestic water demand is 238,950 gallons per year, for a combined total of 493,950 gallons per year. Averaged over 365 days, this corresponds to an average daily combined water demand of 1,353 GPD.

The California Code of Regulations provides guidance for estimating peak demand when water usage data are not available. Applying a peaking factor of 2.25 to the average daily water demand of 1,353 GPD, the estimated maximum daily demand (MDD) is 3,045 GPD. This MDD corresponds to an average hourly flow rate of approximately 127 gallons/hour (over 24 hours). Applying a peaking factor of 1.5, the peak hourly demand (PHD) is estimated to be 190 gallons/hour (equivalent to approximately 3.2 gallons/minute).

After the replacement well was drilled, a yield test was done to confirm the well's ability to satisfy the PHD. A sustained yield of 25 gallons per minute (gpm) was observed over the 8-hour pump test, see Enclosure E for the pump test form. The site also proposes to have at least 3,100-gallons of treated well water storage, which exceeds the estimated MDD.

Characterization of Water Quality

Water quality testing of the new well will be provided when the facility applies to become a TNC PWS.

Feasibility of Consolidation

The existing system can meet the facility demands and consolidation with another existing water system is not financially feasible for an existing system.

MANAGERIAL

Bella Oaks Winery owns and operates the winery and is responsible for all finances, operations, compliance requirements, and establishment of policies. The winery's domestic water system is currently not classified as a public water system. As part of the use permit modification process, the winery intends to apply to become a transient non-community public water system.

Personnel at the winery are employed by Bella Oaks Winery and are responsible for day-to-day routine inspection and operation of the water system and treatment equipment. A contracted maintenance provider will service the well and water treatment system equipment on a periodic basis. Major repairs, replacements, and other engineering and professional services are contracted out to third-party service providers.

FINANCIAL

Bella Oaks is not currently encumbered by any judgements, liens, or other financial liability that would prevent the operation of the winery's water system. Revenue from the existing winery has historically provided adequate funding for the capital, operating, and maintenance costs of the water system and is proposed to continue as the funding source. Due to minimal anticipated changes to the water system infrastructure and an anticipated increase in revenue associated with the expanded marketing plan, the winery's ability to continue supporting operation of the water system is considered financially feasible.

ENCLOSURE A
OVERALL SITE PLAN

ABBREVIATIONS:

AC	ASPHALT CONCRETE
AD	AREA DRAIN
APN	ASSESSOR'S PARCEL NUMBER
BASMAA	BAY AREA STORMWATER MANAGEMENT AGENCIES ASSOCIATION
BFE	BASE FLOOD ELEVATION
BLDG	BLDG
℄	CENTERLINE
CONC	CONCRETE
DI	DRAIN INLET
DS	DOWNSPOUT
DG	DECOMPOSED GRANITE
(E)	EXISTING
EV	ELECTRIC VEHICLE
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISH FLOOR
FH	FIRE HYDRANT
FS	FINISHED SURFACE
GB	GRADE BREAK
LIDF	LOW IMPACT DEVELOPMENT FACILITY
LL	LOWER LEVEL
PD	PLANTER DRAIN
PIP	PROTECT IN PLACE
PIV	POST INDICATOR VALVE
PW	PROCESS WASTE
ROW	RIGHT OF WAY
SAD	SEE ARCHITECT'S DRAWINGS
SB	SETBACK
SD	STORM DRAIN
SLAD	SEE LANDSCAPE ARCHITECT'S DRAWINGS
SS	SANITARY SEWAGE
STD	STANDARD
TD	TRENCH DRAIN
TG	TOP OF GRATE
TI	TRAFFIC INDEX
TYP	TYPICAL
UL	UPPER LEVEL
UG	UNDERGROUND
USP	UNDER SEPARATE PERMIT

NOTES:

1. EXCESS SOILS WILL BE OFF-HAULED TO AN APPROVED SITE.
2. FIRE HYDRANTS ARE LOCATED IN A LOCATION ACCESSIBLE BY A FIRE TRUCK AND CONFORMING TO NAPA COUNTY CODE.
3. PROPOSED SELF-RETAINING AREAS AND BIORETENTION FACILITIES SHALL MEET CRITERIA PER BASMAA POST-CONSTRUCTION MANUAL.
4. ACCESS DRIVE STRUCTURAL PAVEMENT SECTION SHALL BE BASED ON A MINIMUM TI OF 6.0 & APPROPRIATE "R" VALUE. PROPOSED PAVEMENT SECTIONS PROVIDED BY THE GEOTECHNICAL ENGINEER SHALL MEET OR EXCEED NAPA COUTNY ROAD AND STREET STANDARDS.
5. DRIVEWAYS SHALL BE DESIGNED TO HAVE A VERTICAL CLEARANCE OF 13.5' MIN
6. REFER TO THE WASTEWATER FEASIBILITY STUDY FOR PROPOSED LOCATION OF SS RESERVE DISPOSAL AREA AND PW DISPOSAL AREA ON NON-ADJACENT PARCEL.
7. IF AN ONSITE PW TREATMENT SYSTEM IS REQUIRED AS AN ALTERNATE TO HOLD-AND-HAUL, THE PW TREATMENT SYSTEM IS PROPOSED TO USE AN UNDERGROUND 15,000-GALLON TREATMENT TANK IN THE SAME LOCATION AS THE HOLD-AND-HAUL TANK.

PARKING TABLE

NUMBER	TYPE
15	STANDARD SPACE
–	COMPACT SPACE
–	STANDARD ACCESSIBLE SPACE
1	VAN ACCESSIBLE SPACE
–	EV SPACE
1	EV ACCESSIBLE SPACE
–	EV VAN ACCESSIBLE SPACE
–	BUS PARKING SPACES
17	**TOTAL SPACES**

EARTHWORK

VALUES ARE FOR PERMITTING ONLY AND ARE NOT TO BE USED FOR BIDDING. CONTRACTOR SHALL PERFORM THEIR OWN EARTHWORK CALCULATIONS.

CUT VOLUME:	380 CU. YDS.
FILL VOLUME:	10 CU. YDS.
NET VOLUME:	370 CU. YDS. (CUT)

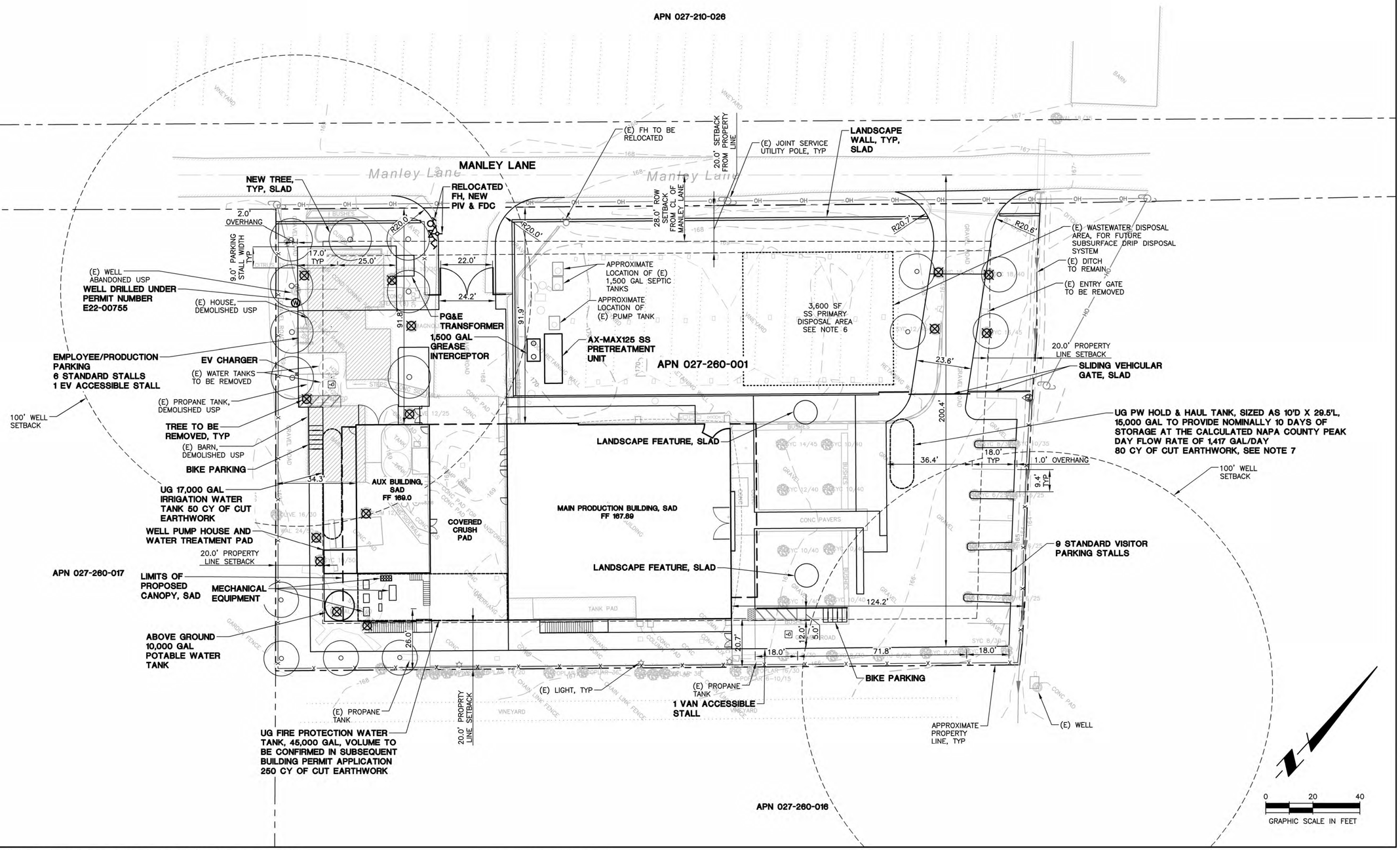
EXCESS SOILS WILL BE OFFHAULED TO AN APPROVED SITE.

OWNER:

MANLEY ACQUISITION, LLC
P.O. BOX 823
RUTHERFORD, CA 94573
SIGNATORY: SUZANNE DEAL BOOTH

APPLICANT:

FARELLA BRAUN + MARTEL
899 ADAMS STREET, SUITE J
ST. HELENA, CA 94574



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SUMMIT
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707-527-0775 • www.summit-sr.com

BELLA OAKS WINERY
1271 MANLEY LANE
NAPA, CA 94558
APN 027-260-001

BELLA OAKS WINERY
OVERALL SITE PLAN

	2023-02-10 USE PERMIT SUBMITTAL
	2023-12-22 USE PERMIT RESUBMITTAL
	2024-05-29 USE PERMIT RESUBMITTAL
	2024-08-02 USE PERMIT RESUBMITTAL
	2024-09-24 USE PERMIT RESUBMITTAL
	2024-11-12 USE PERMIT RESUBMITTAL

DATE:	2024-08-01
JOB NO:	2021167
SCALE:	AS SHOWN
DRAWN:	BG
CHECKED:	DR
SHEET	UP1 1OF 8

ENCLOSURE B
REPLACEMENT WELL PERMIT

Planning, Building & Environmental Services

1195 Third Street, 2nd Floor
Napa CA 94559
www.countyofnapa.org
Main: (707) 253-4417

Brian Bordona
Interim Director

A Tradition of Stewardship
A Commitment to Service

WELL PERMIT

Planning, Building & Environmental Services - Environmental Health Division

Record Number: E22-00755
Parcel Number: 027-260-001-000

Submittal Date: 10/20/2022
Issued Date: 12/16/2022
Expiration Date: 12/15/2024

Application Type: Environmental / Online / Water Wells / Class I With Destruction
Site Address: 1271 Manley Ln, Napa
Contact: Brandon Burgess
Weeks Drilling LIC 177681
Owner: MANLEY ACQUISITION LLC

WELL CONSTRUCTION

Proposed use: Private
To serve this parcel only? Yes If No, list other APN(s):
Is this a replacement well? Yes Replacement reason: Other
Additional Comments:

Setbacks

Setbacks Met? Yes

Sewer Line:	25.00 ft	Septic Tank:	100.00 ft	Disposal Field:	100.00 ft

Additional Comments:

Well Specifications

Casing Diameter:	6.00 in	Boring Diameter:	12.00 in	Annular Seal:	3.00 in
Sealing Method:	Tremie Pipe/Pump	Min. Seal Depth:	50 ft or first impervious layer, whichever is greater		
Sealing Material:	Other	Other Material:	bent-cement		

Additional Comments:

WELL DESTRUCTION

Type of Well to be Destroyed: Cased Well

If Other, explain:

Cased Wells

Casing Material:	PVC	Other Casing Material:	
Total Depth of Well:	397.00 ft	Well Screen Interval(s):	80-397
Depth of seal known?	Yes	Total Depth of Seal:	25.00 ft
Casing Diameter:	5.00 in	Annular Seal:	2.00 in
Well Pack Material:	gravel	Static Water Level:	25.00 ft

Hand Dug Wells

Total Depth of Well:	Diameter of Well:
Well Const. Material:	Static Water Level:

Destruction Procedures

Describe method to be used to perforate the casing: dynamite

Type of suitable fill material to be placed below seal: pea gravel

Total depth of suitable fill material: 347.00 ft

Sealing Material: Bentonite Other Material:

Driller's Comments: 50' bentonite seal, tramie

TO PERMITEE:

By executing this application, the applicant agrees to comply with all conditions, inspections and comments of the issued permit and all federal, state and county code requirements applicable to this permit.

Issued By:

Staff Signature: Kim Williams Date: 12-16-22

CONDITIONS/INSPECTIONS/COMMENTS

Record Number: E22-00755

Parcel Number: 027-260-001-000

Conditions:

Code	Condition
WELL-04	Destroy existing well(s) per county requirements
Groundwater Sustainability Plan	This well is located within the Napa Valley Subbasin and in the future may be subject to requirements of the Groundwater Sustainability Plan (GSP) as administered by the Groundwater Sustainability Agency (GSA).
WELL-02	This permit covers the well construction only. A separate building permit must be obtained for the installation/construction of any pump, electrical, plumbing and/or mechanical features. Failure to obtain a building permit for that work is cause for enforcement action. Questions related to building permit requirements should be directed to the building division.
WELL-01	A copy of the State of California Well Completion Report must be submitted within 60 days of well completion.
STRM-02	The owner shall comply with the Napa Countywide Stormwater Pollution Prevention Program, "Erosion and Sediment Control Measures for Construction Projects". Failure to comply with best management practices for erosion and sediment control will result in issuance of a stop-work order.
Replacement Well - No net increase	This permit is issued to replace an existing well to serve existing uses on the parcel. No net increase in groundwater use is approved without obtaining approval from pertinent agencies (Planning, Engineering).

Inspections: **Inspected By:** **Date:**

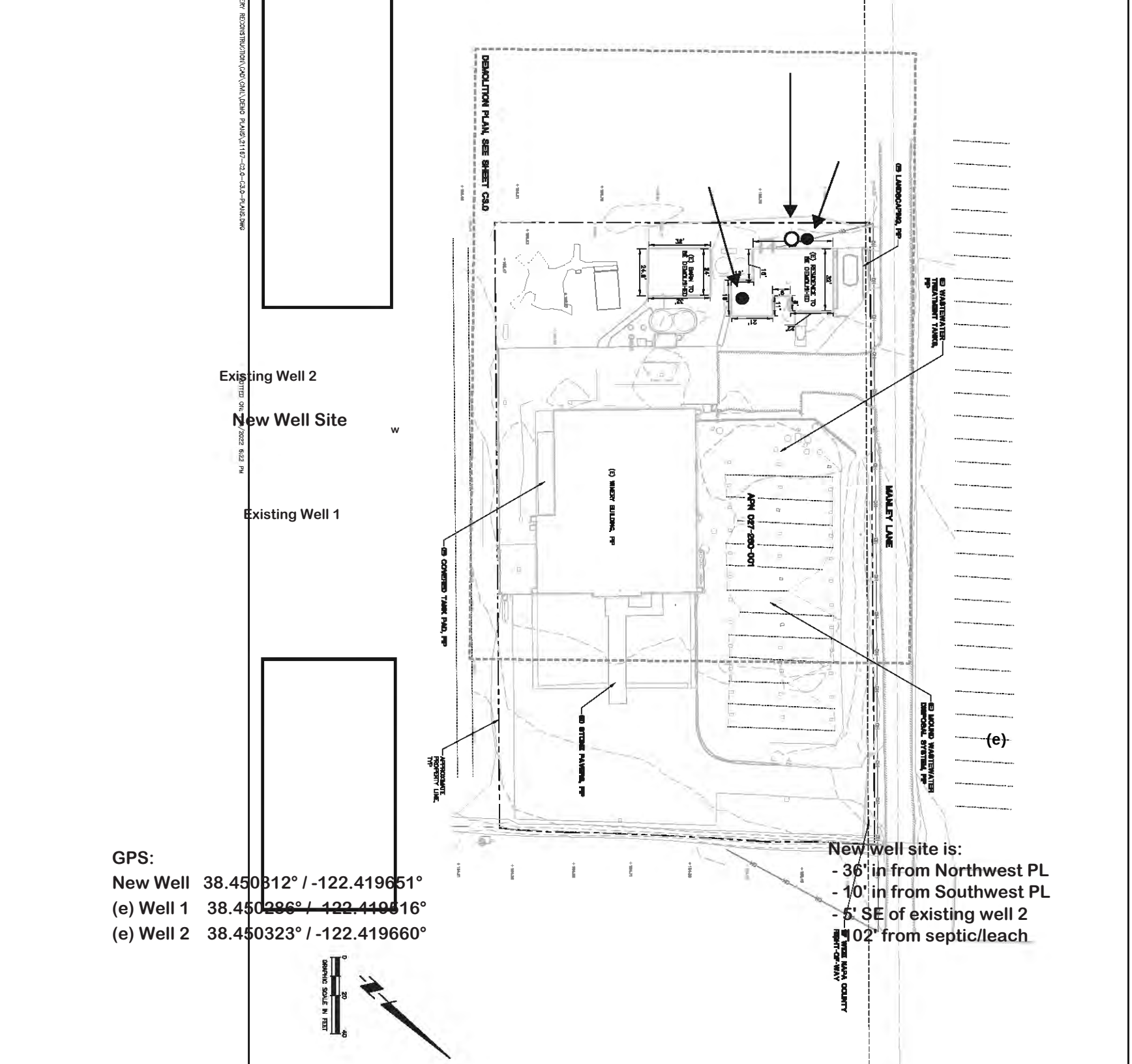
Inspection Type

Construction Inspection

Destruction Inspection (x2)

Comments:

Date	Comment
12/16/2022	Call 253-4135 at least 48 hours in advance during normal business hours to schedule inspection requests. Inspections are taken on a first-come-first-served basis so if you need a specific date and time be sure to call well in advance Well permits are issued only to licensed well drillers. A copy of the well driller's license (C-57) must be on file with DEM. If a claim is to be submitted for a refund, per County Code, a 25% processing fee will be retained. Such claims must be made within one year of the date on the receipt. If this well will at any point serve a public water system, the siting, construction, capacity testing and additional requirements must comply with Title 22 California Code of Regulations (CCR), Chapter 16, California Waterworks Standards. This office may deny an application for a water supply permit if the well does not meet the above noted requirements.



GPS:
New Well 38.450312° / -122.419651°
(e) Well 1 38.450286° / -122.419616°
(e) Well 2 38.450323° / -122.419660°

New well site is:
- 36' in from Northwest PL
- 10' in from Southwest PL
- 5' SE of existing well 2
- 102' from septic/leach

WEEKS
Drilling & Pump Company

TITLE	DESCRIPTION
1271 Manley Lane Napa, Ca.	Replacement Well
DATE	PAGE
October 11, 2022	1 of 1

Planning, Building & Environmental Services

1195 Third Street, Suite 210
Napa, CA 94559
www.countyofnapa.org

David Morrison
Director

WELL DESTRUCTION APPLICATION

A Tradition of Stewardship
A Commitment to Service

Date: October 18, 2022 **Well Permit Number:** E220755

PROPERTY OWNER INFORMATION

Name: Manley Acquisition LLC c/o Centric Builders

Address: 1271 Manley Lane, Napa

APN: 027-260-001

Phone # (707) 968-2900 Ben Snead

WELL DRILLER INFORMATION LICENSE # 177681

Company Name: Weeks Drilling & Pump Co

Contact person: Brandon Burgess

Address: P.O. Box 176, Sebastopol, Ca. 95473

Phone # (707) 823-3184

TYPE OF WELL TO BE DESTROYED: ☑ CASED WELL ☑ HAND DUG WELL ☐ OTHER: _____

FOR CASED WELLS:

Casing material ☐ Steel ☑ PVC ☐ Other: _____

Total Depth of Well: 397 Feet Well Screen interval(s): 80' - 397'

Total Depth: 25 Feet (For no seal – write "NONE", if unknown write "Unknown")

Casing Diameter: 5 Inches Annulus Diameter: 2 inches (For no annulus, write "None". If unknown, write "Unknown")

Well Pack Material: Gravel Static water level: 25 feet.

FOR HAND DUG WELLS:

Total Depth of Well: 40 feet Diameter of Well: 18 inches

Well construction material (brick, stone, etc.) Brick lined

DESTRUCTION PROCEDURES:

Filling well with (choose one): ☑ Pea Gravel ☐ Concrete

Well filled to 50 feet below ground surface.

Describe method of perforating casing (i.e. Mills Knife, Dynamite, etc.):

Dynamite

Sealing Material: ☐ Concrete ☐ Neat Cement ☐ Cement Grout ☑ Bentonite Grout (high solids) ☐ Other: _____

Driller's Comments:

See attached for methods of destruct

WEEKS
DRILLING & PUMP CO. • WATER TREATMENT
6100 SEBASTOPOL AVE
SEBASTOPOL, CA 95472
WWW.WEEKSDRILLING.COM
OFFICE: (707) 823-3184
(707) 542-3272
FAX: (707) 823-4258

October 7, 2022

Method of Destruction for: 1271 Manley Lane, Napa

Destruction Proposed:		
	Well Diameter	18"
	Well Depth	40'
	Well Casing	Hand dug – Brick lined
	Well Diameter	5"
	Well Depth	397'
	Well Casing	PVC

Method of Destruction: Brick lined Well
Break-up concrete lining from 4' to surface
Tremie 10.3 sac sand grout from bottom to 4' bg
Backfill to grade with native soils

5" Well
Set tremie pipe, detonation cord
Clean gravel bottom to 50' bg
Tremie cement grout from 50' to surface
Blast perforate casing from 50' to surface

John

FEE 79.00 DATE 8-18-87

RECEIPT NO. 2--6 BY [illegible]

A.P. NO. 27-260-01

~~19-123-60~~

NAPA COUNTY HEALTH DEPARTMENT
DIVISION OF ENVIRONMENTAL HEALTH

APPLICATION & PERMIT TO CONSTRUCT A WATER WELL

NAME [redacted] (Owner) ADDRESS [redacted] (Job Location) Oakville

NAME Pullman Well Drilling (Well Driller) ADDRESS 3877 Piedmont DATE 9-17-87

TYPE OF WORK: NEW WELL X; RECONDITIONING ____; DEEPENING ____; TYPE I PERMIT X; DESTROY ____; OTHER ____; TYPE II PERMIT ____; TEST HOLE ____

PROPOSED USE: DOMESTIC X; IRRIGATION ____; INDUSTRIAL HOT WATER X; MUNICIPAL ____; TEST WELL ____; OTHER ____

Sewage Disposal on site (existing or proposed) Public ____ Individual X Private ____
Distance from well to any part of nearest sewage disposal system 100 feet.
(Sketch of site to accompany application) County road setback 48 feet from centerline.

TYPE OF EQUIPMENT TO BE USED: Rotary X Cable ____ Hand Dug ____ Other ____

WORKER'S COMPENSATION COVERAGE: (Check one of the following)

☐ A certificate of current Worker's Compensation Insurance coverage is presently on file with this office.

☐ A certificate of current Worker's Compensation Insurance is being filed with this application.

☑ I certify that in the performance of the work for which this permit is issued I shall not employ any person in any manner so as to become subject to the Worker's Compensation laws in California.

Bill Pullman — Signature of Applicant

8-17-87 — Date

CASING

CONSTRUCTION:
Total Depth 397 Ft. Depth of Casing 397
Surface Seal to 25 Ft.
Any Stratas Sealed: Yes ____ No X
If yes, depth of stratas: ____
From ____ Ft. to ____ Ft./From ____ Ft. to ____ Ft.
Perforations:
From 80 Ft. to 397 Ft./From ____ Ft. to ____ Ft.
From ____ Ft. to ____ Ft.

WATER LEVELS

First Water at 30 Ft. Static level at 25 Ft.
Well adja[illegible]

WELL TESTS

How performed AIR LIFT 10 to 20
Yield 60 GPM with 150 Ft. Drawdown after 2
Hrs. Annular space depth 25 Ft./Thickness ____
2 in. Diameter of casing 5 Material PLASTIC
Gravel Pack: Yes X No ____ Conductor Casing:
Yes ____ No X Sealed with: Concrete X
Grout ____ Neat Cement ____ Pudd. Clay ____
Other ____ Chlorination by: Owner X
Pump Co. ____ Driller ____

WELL LOG

(Formation; described by color, size of material, structure)

Ft. to Ft.

0-10' clay
10-18' clay, gravel
18-30' clay
30-80' clay, boulders
80-90' Sandy clay gravel
90-120' clay
120-127' Sandy clay, gravel
127-270' clay, streaks of boulders
270-370' clay, boulders, streaks of gravel
370-397' Hard grey clay rock

RECEIVED
JAN 15 1988
DIVISION OF ENVIRONMENTAL HEALTH

CONTRACTOR'S STATEMENT: I, Bill Pullman, contractor for the above work, hereby certify that the above was installed according to all applicable rules and regulations covered by this permit, and that the information is true and correct to the best of my knowledge.

12-30

White-Office Pink-Owner
Return to Office Orange-Contractor Bill Pullman
Contractor's Signature

ENCLOSURE C
WELL COMPLETION REPORT

State of California

Well Completion Report

Form DWR 188 Submitted 2/28/2023

WCR2023-003118

Owner's Well Number: WW3 | Date Work Began: 01/10/2023 | Date Work Ended: 02/08/2023

Local Permit Agency: Napa County Planning Building and Environmental Services

Secondary Permit Agency: | Permit Number: E22-00755 | Permit Date: 12/16/2022

Well Owner (must remain confidential pursuant to Water Code 13752)

[redacted]

Planned Use and Activity

Activity: New Well

Planned Use: Water Supply Domestic

Well Location

Address: 1271 Manley LN

City: Napa | Zip: 94558 | County: Napa

	Deg.	Min.	Sec.	
Latitude	38	27	1.1232	N
Longitude	-122	25	10.7436	W

Dec. Lat.: 38.450312 | Dec. Long.: -122.419651

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: | Location Determination Method:

APN: 027-260-001

Township: 07 N

Range: 05 W

Section: 16

Baseline Meridian: Mount Diablo

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Direct Rotary | Drilling Fluid: Bentonite

Total Depth of Boring: 600 Feet

Total Depth of Completed Well: 600 Feet

Water Level and Yield of Completed Well

Depth to first water: (Feet below surface)

Depth to Static Water Level: 107 (Feet) | Date Measured: 02/07/2023

Estimated Yield*: 200 (GPM) | Test Type: Air Lift

Test Length: 8 (Hours) | Total Drawdown: 213 (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	6	Soil
6	47	Gravels
47	59	Tan ash
59	80	Gravels
80	92	Tan ash
92	127	Gravels
127	163	Basalt
163	241	Fractured volcanics
241	249	Gray ash
249	315	Fractured volcanics
315	375	Basalt with mineralized volcanics
375	441	Hard basalt with fractures
441	600	Basalt with red volcanics

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	60	Blank	PVC	OD: 6.625 in. | SDR: 17 | Thickness: 0.390 in.	0.39	6.625			
1	60	250	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			
1	250	310	Screen	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625	Milled Slots	0.032	
1	310	330	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			
1	330	370	Screen	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625	Milled Slots	0.032	
1	370	390	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			
1	390	430	Screen	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625	Milled Slots	0.032	
1	430	450	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			
1	450	550	Screen	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625	Milled Slots	0.032	
1	550	570	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			
1	570	590	Screen	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625	Milled Slots	0.032	
1	590	600	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	50	Cement	10.3 Sack Mix		Seal
50	55	Bentonite	Non Hydrated Bentonite		Seal
55	600	Filter Pack	Other Gravel Pack	#6	Sand & 3/8 Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	260	13.5
260	600	12.25

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: WEEKS DRILLING AND PUMP CO (Person, Firm or Corporation)

PO BOX 176 (Address) | SEBASTOPOL (City) | CA (State) | 94573- (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 02/28/2023 (Date Signed) | 177681 (C-57 License Number)

Attachments

027-260-001.pdf - Location Map

DWR Use Only

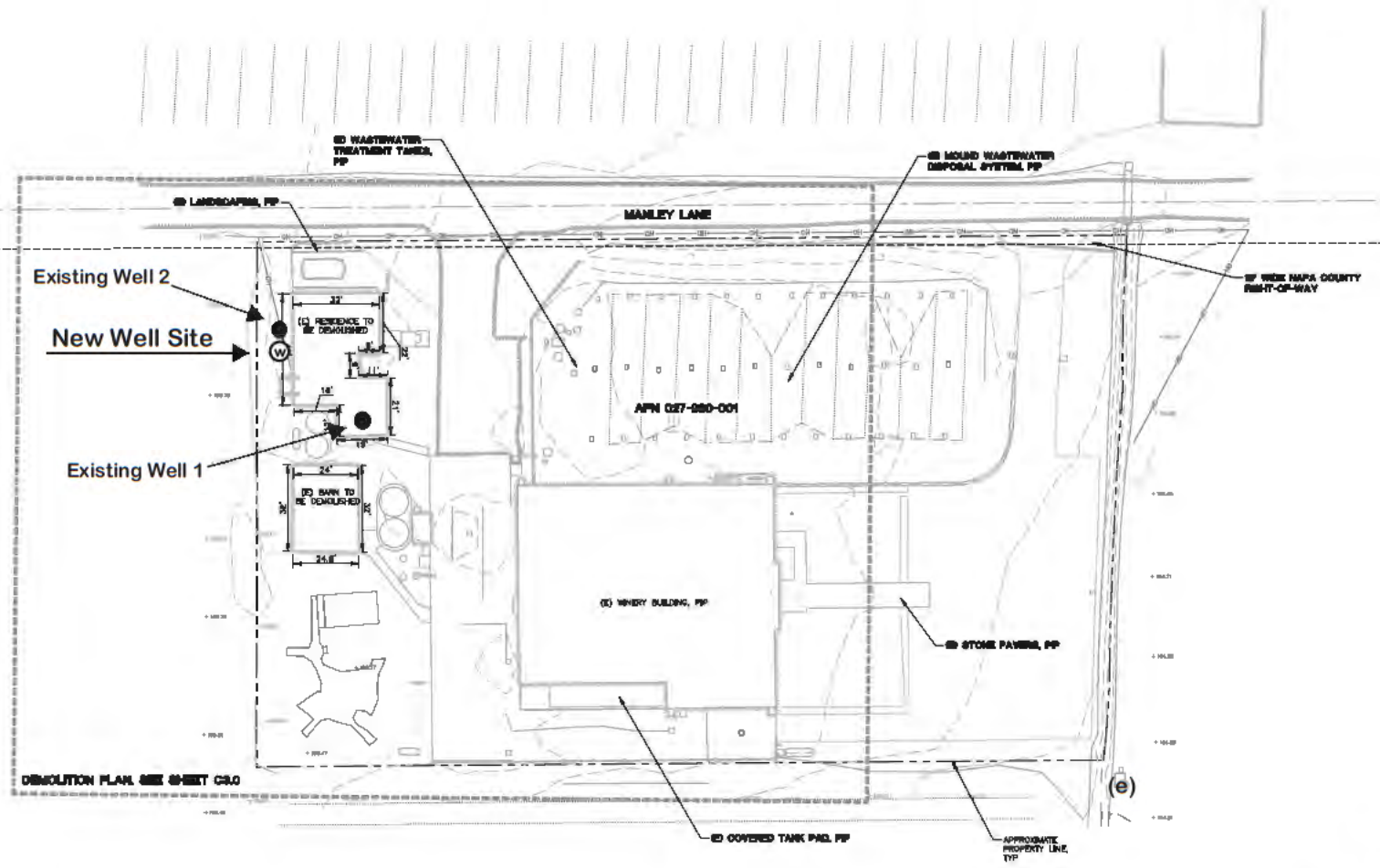
CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:



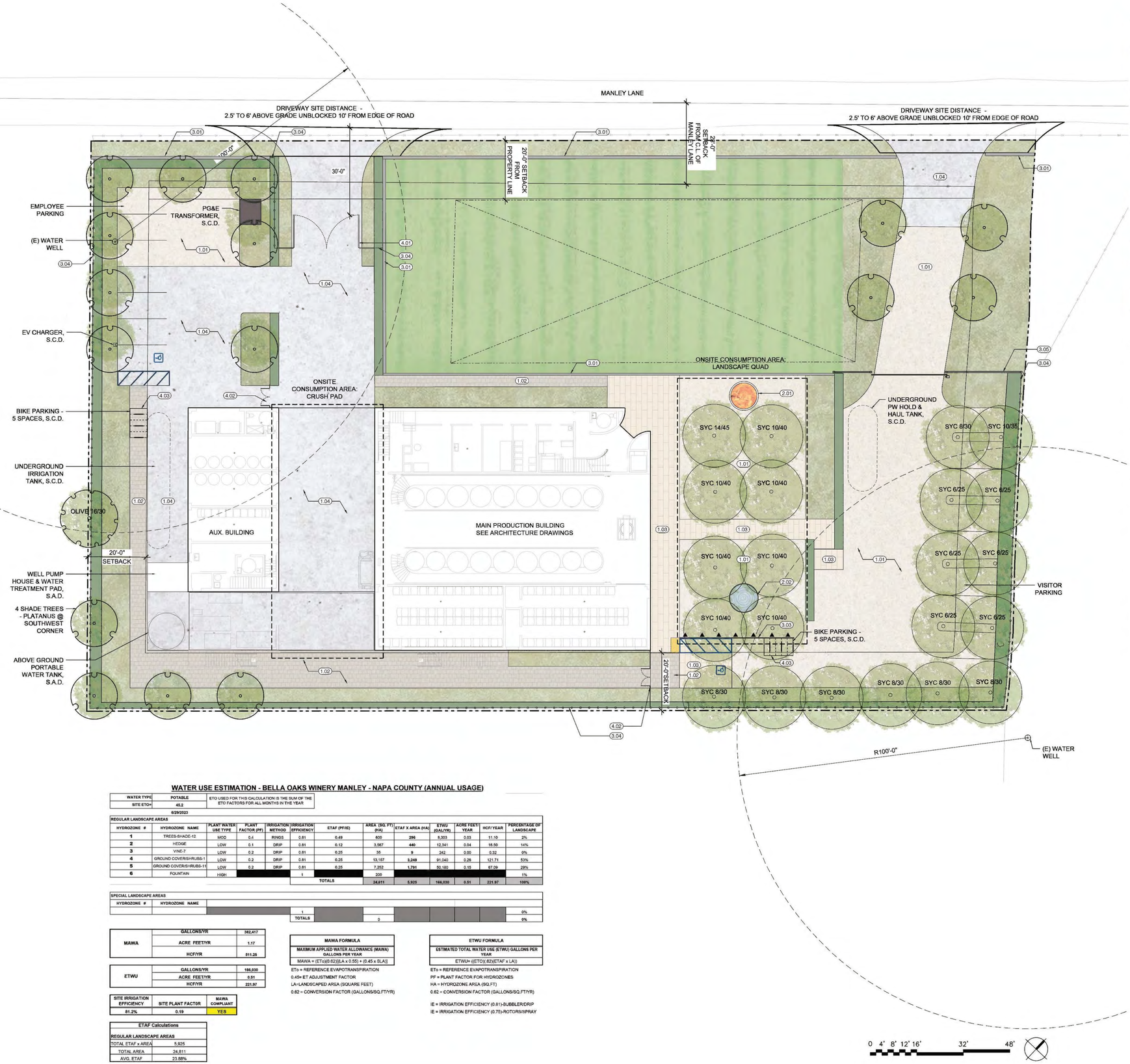
Well 38.450312° / -122.419651°
ell 1 38.450286° / -122.419516°
ell 2 38.450323° / -122.419660°

New well site is:
- 36' in from Northwest PL
- 10' in from Southwest PL
- 5' SE of existing well 2
- 102' from septic/leach

0 20 40
GRAPHIC SCALE IN FEET

ERY RECONSTRUCTION\CAD\CIVIL\DEMO PLANS\21167-C2.0-C3.0-PLANS.DWG PLOTTED ON: 1/4/2022 8:22 PM

ENCLOSURE D
WATER EFFICIENT LANDSCAPE ORDINANCE (WELO) CALCULATIONS



PLANT SCHEDULE

	SHADE TREES Shade trees - Platanus	16
	EXISTING PLANE TREES	22
	EXISTING OLIVE TREE	1
	MEDIUM WATER USE VINE	7
	LOW WATER USE I Grasses and low shrubs	13,157 sf
	LOW WATER USE II Perennials and shrubs	7,252 sf
	HEDGE Low Water use	3,567 sf

MATERIALS SCHEDULE

SYMBOL	DESCRIPTION
1.01	PERMEABLE GRAVEL PAVING
1.02	PERMEABLE STONE PAVING
1.03	STONE PAVING
1.04	CONCRETE PAVING
2.01	FIRE FEATURE
2.02	RECIRCULATING LOW-WATER FEATURE
3.01	LANDSCAPE WALLS
3.03	DECORATIVE TRELLIS FENCE WITH VINES
3.04	PROPERTY FENCE 4' tall in setback and 6' tall outside of setback
3.05	VEHICULAR GATE - SLIDING
4.01	VEHICULAR GATE - SWING
4.02	PEDESTRIAN GATE
4.03	BIKE PARKING - 10 SPACES

WATER USE ESTIMATION - BELLA OAKS WINERY MANLEY - NAPA COUNTY (ANNUAL USAGE)

WATER TYPE	POTABLE	ETO USED FOR THIS CALCULATION IS THE SUM OF THE ETO FACTORS FOR ALL MONTHS IN THE YEAR
SITE ETo=	45.2	

6/29/2023

REGULAR LANDSCAPE AREAS

HYDROZONE #	HYDROZONE NAME	PLANT WATER USE TYPE	PLANT FACTOR (PF)	IRRIGATION METHOD	IRRIGATION EFFICIENCY	ETAF (PF/IE)	AREA (SQ. FT) (HA)	ETAF X AREA (HA)	ETWU (GAL/YR)	ACRE FEET/ YEAR	HCF/ YEAR	PERCENTAGE OF LANDSCAPE
1	TREES-SHADE-12	MOD	0.4	RINGS	0.81	0.49	600	296	8,303	0.03	11.10	2%
2	HEDGE	LOW	0.1	DRIP	0.81	0.12	3,567	440	12,341	0.04	16.50	14%
3	VINE-7	LOW	0.2	DRIP	0.81	0.25	35	9	242	0.00	0.32	0%
4	GROUND COVER/SHRUBS-1	LOW	0.2	DRIP	0.81	0.25	13,157	3,249	91,040	0.26	121.71	53%
5	GROUND COVER/SHRUBS-11	LOW	0.2	DRIP	0.81	0.25	7,252	1,791	50,180	0.15	67.09	29%
6	FOUNTAIN	HIGH			1		200					1%
						TOTALS	24,811	5,925	166,030	0.51	221.97	100%

SPECIAL LANDSCAPE AREAS

HYDROZONE #	HYDROZONE NAME										
				1							0%
				TOTALS		0					0%

MAWA	GALLONS/YR	382,417
	ACRE FEET/YR	1.17
	HCF/YR	511.25
ETWU	GALLONS/YR	166,030
	ACRE FEET/YR	0.51
	HCF/YR	221.97

SITE IRRIGATION EFFICIENCY	SITE PLANT FACTOR	MAWA COMPLIANT
81.2%	0.19	YES

ETAF Calculations	
REGULAR LANDSCAPE AREAS	
TOTAL ETAF x AREA	5,925
TOTAL AREA	24,811
AVG. ETAF	23.88%

MAWA FORMULA

MAXIMUM APPLIED WATER ALLOWANCE (MAWA) GALLONS PER YEAR

MAWA = (ETo)(0.62)[(LA x 0.55) + (0.45 x SLA)]

ETo = REFERENCE EVAPOTRANSPIRATION
0.45= ET ADJUSTMENT FACTOR
LA=LANDSCAPED AREA (SQUARE FEET)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

ETWU FORMULA

ESTIMATED TOTAL WATER USE (ETWU) GALLONS PER YEAR

ETWU= ((ETO)(.62)(ETAF x LA))

ETo = REFERENCE EVAPOTRANSPIRATION
PF = PLANT FACTOR FOR HYDROZONES
HA = HYDROZONE AREA (SQ.FT)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

IE = IRRIGATION EFFICIENCY (0.81)-BUBBLER/DRIP
IE = IRRIGATION EFFICIENCY (0.75)-ROTORS/SPRAY

ANDREA COCHRAN
LANDSCAPE ARCHITECTURE
2475 Third Street #304
San Francisco CA 94107
415.503.0060

William Duff Architects
1275 Folsom Street
San Francisco, CA 94103
415-371-0900
wdarch.com

Agency Approvals

NOT FOR CONSTRUCTION

Revision No. Date

Job Title
Bella Oaks Winery

Job Address
1271 Manley Lane
Napa, CA 94558

Date: **29 May 2024**
Issued For
–

Job Number: **1310**
Drawn By: **SK, VW** Checked By:

Scale
As indicated

Sheet Title
LANDSCAPE PLAN

Sheet No.
L1.00

ENCLOSURE E
8-HOUR PUMP TEST RESULTS

Water System Name: Wright Contracting Inc.

Page 1	8-Hour Pump Test Form with Recovery Data				Static Water Level:	99'
Address:	1271 Manley Lane, Napa CA 94558					
Date	**Time**	**Interval**	**Water Level**	**GPM**	**Comments**	
5/9/2023	8:25 AM	30 Mins	99'	25		
	8:55 AM	30 Mins	99.5'	25		
	9:25 AM	30 Mins	99.5'	25		
	9:55 AM	30 Mins	99.5'	25		
	10:25 AM	30 Mins	99.5'	25		
	10:55 AM	30 Mins	99.5'	25		
	11:25 AM	30 Mins	99.5'	25		
	11:55 AM	30 Mins	99.5'	25		
	12:25 PM	30 Mins	99.5'	25		
	12:55 PM	30 Mins	99.5'	25		
	1:25 PM	30 Mins	99.5'	25		
	1:55 PM	30 Mins	99.5'	25		
	2:25 PM	30 Mins	99.5'	25		
	2:55 PM	30 Mins	99.5'	25		
	3:25 PM	30 Mins	99.5'	25		
	3:55 PM	30 Mins	99.5'	25		
	4:25 PM	30 Mins	99.5'	25		

END OF PUMPING TEST (10 hours, if needed) - START RECOVERY DATA ON PAGE 2

Page 2	8-Hour Pump Test Form with Recovery Data			
Address:	1271 Manley Lane, Napa CA 94558			
Date	**Time**	**Interval**	**Water Level**	**Comments**
5/9/2023	4:40 PM	15 Mins	99'	100 % RECOVERY
		15 Mins		
		15 Mins		
		15 Mins		
		15 Mins		
		15 Mins		
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		30 Mins		
		30 Mins		
END OF RECOVERY DATA (10 hours, if needed) END OF PUMP TEST PROCEDURES				

SUMMIT ENGINEERING, INC.
575 W. College Ave., Suite 201
Santa Rosa, CA 95401
707 527-0775
Contact: sfo@summit-sr.com

April 28, 2026

Kim Withrow
Napa County Planning, Building, & Environmental Services
1195 Third Street, Second Floor
Napa, CA 94559

RE: Swanson Winery - 1271 Manley Lane
Project Number 2021167

Dear Kim:

Swanson Winery, located at 1271 Manley Lane in Napa, CA (APN 027-260-001), is applying for a use permit minor modification to the approved UP #U-288788 to revise the entitled number of employees and marketing events. The facility is located within the Napa Valley Floor. Details of the proposed use permit modification are summarized below:

- No change to existing wine production entitlement of 42,500 gallons per year
- No change to existing daily visitation (25 vehicles per day; assumed 60 average visitors/day and 75 maximum visitors/day)
- Increased employees from 4 full-time (FTE) to 10 FTE
- Revised marketing program to include:
  - 10 events/year with 40 guests/event
  - 1 event/year with 80 guests/event
- Addition of a new "high-risk" commercial kitchen

There is one existing well onsite. A new well was installed in 2023 to replace the existing well, that has since been destroyed, due to deterioration of the well casing and reduced well yield. There is no net increase in the intensity of groundwater usage anticipated due to proposed use permit modification.

Summit Engineering has prepared this updated letter to demonstrate that the proposed increase in employees and marketing events will not result in an increase in water demand for the property.

Existing (Historical) Water Use

Heritage Systems completed a Water System Assessment for Swanson Vineyards in 2021. A copy of the assessment is provided in Enclosure A. Page 8 of the assessment includes a tabulation of water usage by month during 2020. The data indicates a total water usage of 708,070 gallons during 2020.

Anticipated Water Use

The estimated annual water consumption under the proposed entitlement is provided in Table 1. There is no segregation of water metering at site, so individual categories of flow quantities are estimated

based on a combination of overall best standard practice methods and projections using established County metrics.

The anticipated water use for the proposed use permit medication has been updated in this letter from what was presented in the October 14, 2022, letter, which was provided as part of the replacement well permit application and representative of anticipated theoretical water demand associated with Use Permit #U-288788. This updated letter is also provided to address recent County comments and to provide alignment with what's presented in the Water Feasibility study associated with this Use Permit modification application.

Table 1: Estimate of proposed annual water demand based on proposed use permit modification.

Use Type	Number (persons/day)	Water Demand (gal/person)	Daily Demand (gal/day)	Frequency (days/year)	Annual Water Use (gal/year)
FTE (Note 1)	10	15	150	365	54,750
Tasting Visitors (Note 2)	60	8	480	350	168,000
Tasting Visitors (Note 2)	75	8	600	15	9,000
Event Guests (Note 3)	—	—	—	—	—
Event, 80 Guests	80	15	1,200	1	1,200
Event, 40 Guests	40	15	600	10	6,000
Total Annual Winery Domestic Water Demand (Gallons/year)					**238,950**
Parameter				**Value**	**Units**
Wine Production (gallons of wine per year)					42,500
Water Demand for Wine Production (Note 4)					6
Total Annual Process Water Demand (Gallons/year)					**255,000**
Total Annual Irrigation Water Demand (Gallons/year) – See Note 5					**166,030**
Total Annual Water Demand (Gallons/year)					***659,980***
Total Annual Winery Water Demand (acre-feet/year)					**2.03**

Notes:

1. Maximum number of FTE's assumed every day to be conservative.
2. Tasting assumed to occur seven days per week. Assumes "bar and cocktail food", not meals, are prepared onsite and served to wine tasting visitors; 5 gallons of kitchen waste per person and 3 gallons of water per visitor per Table 4 in the Napa County ASTS Standards (July 2019). Assumes 15 "maximum visitation days" with 75 visitors per day each year.
3. Assumes event guests are served full meals, and that meals are prepared onsite.
4. Water demand for wine production is based on industry standard values.
5. The total annual landscape irrigation water demand is estimated to be 166,030 gallons per year. The estimate is based on Water Efficient Landscape Ordinance (WELO) calculations provided by the Landscape Architect. These calculations are provided in Enclosure B.

Conclusion

Groundwater demand for the winery operations under the anticipated use permit minor modification is expected to remain below the historical annual water use of 708,070 gallons per year, showing that there is no increase in water demand for the proposed use permit minor modification. This conclusion is in line with the latest WAA requirements for a Tier 1 Analysis of an existing well for a discretionary project within the Napa Valley Subbasin. Please feel free to contact me with any questions regarding the information presented in this letter.

Total annual water demand under the Use Permit minor modification is estimated to be approximately 50,000 gallons less annually than under the Use Permit as-is. Best management practices (BMPs) such as installing water efficient fixtures on site, low-impact developments (LIDs) such as permeable pavement, water efficient landscaping, and educating staff and visitors on sustainable practices are some of the methods the facility plans to implement to display and promote water conservation on the property.

Sincerely,

Gina Giacone
Principal

cc: Teddy Stebbins, Summit Engineering

ENCLOSURE A

HERITAGE SYSTEMS SWANSON VINEYARDS WATER SYSTEM ASSESSMENT

HERITAGE SYSTEMS

Delivering Liquid Solutions

Water System Assessment
Swanson Vineyards and Tasting Room

Performed by Heritage Systems Inc.
Ashley Boudet and Marc Haefke
On Monday, February 1, 2021

Table of Contents

3-5 System Assessment

6 Attachment A – 2019-2020 potable flow and treatment system data

7 Attachment B – Waste System Permit

8 Attachment C – McCollum Engineering Inspection Reports

HERITAGE SYSTEMS
Delivering Liquid Solutions

February 5, 2021

Vintage Wine Estates
Robin Akhurst
Swanson Vineyards and Tasting Room
1271 Manley Lane
Napa, CA 94558

RE: Potable Water and Wastewater Systems Assessment

Mr. Akhurst,

Introduction
Heritage Systems was asked to complete an assessment of the water systems at 1271 Manley Lane in Napa California. Specifics of our findings are within this assessment.

Swanson Vineyards and Tasting Room has one groundwater source onsite, for domestic use, that appears to be in good standing. The well feeds two raw storage tanks that are daisy chained together at the bottom of each tank. The discharge of the tanks then T-off. One side feeds a treatment system that feeds the buildings and a small garden on the South West side of the property and the other side feeds Landscape irrigation on the Eastern side of the property.

The buildings Sanitary Waste and Process Waste are combined into an alternative Sewage Treatment System. This system pumps to leach lines that are located between the vineyard rows on the North Side of the property.

Potable Water System
Source: The domestic ground water source is not permitted by the state, therefore not regulated. The source has no air vent or sample port for monitoring, which both should be installed. The Source is intact and only deficiency found would be small holes on the back of the electrical box for the well that could allow for insect to get into the well.

Storage: There are two (possibly) 5,000 gallon storage tanks, side by side that contain raw ground water. No overflows or air vents were observed, but it is probably being vented from the top some how, since the tank has not cavitated. There is some pipe work that is rusted at the foot of the storage tanks this should be replaced.

Treatment: There is an old filter prior to exchangeable softener bottles and UV that we assume is either Calcite or Sand. This filter had routine maintenance done by Jerry and Dons Yeager Pump in 2020. The exchangeable bottles need to be upgraded to a larger system, they are inadequately sized for the current flows and only last one to three weeks before needing to be exchanged. The UV light if functional but wiring seems to be questionable, this system will need to be upgraded or replaced in the near future.

Distribution: On the treated water line leaving treatment, there is an isolation valve that appears to be leaking. This should be replaced.

Drains: All drains in facility seem to be clean and clear of debris.

Wastewater System
McCollum Engineering was consulted with about the integrity of this system. Inspection reports and permit are attached. System is up to date on inspections and is functioning properly.

Conclusion
Although the property and its infrastructure are older, there appeared to be no major deficiencies causing the system to be dysfunctional. There are a few things that should be upgraded/fixed. An air vent and sample port should be added to the well head and holes on electric box should be silicone sealed, a large percentage of the piping is above ground and should be buried if possible, there should be back flow prevention devices installed on the well head and one placed where irrigation tees off of the domestic line before treatment, the softener system is undersized and will eventually destroy the UV unit, these systems should be upgraded/replaced. Please note that if any pipe work is done, the lines should be properly disinfected.

Attachment A

Swanson
Water System
Non-Regulated

HERITAGE SYSTEMS
Delivering Liquid Solutions

Meter Readings	January	February	March	April	May	June	July	August	September	October	November	December	Jan-20
Well Meter	977,160	986,134	1,016,290	1,050,276	1,085,918	1,119,884	1,155,880	1,214,850	1,290,995	1,353,716	1,390,855	1,440,125	1,461,260

Flow	January	February	March	April	May	June	July	August	September	October	November	December
Well Flow	8,974	30,156	33,986	35,642	33,966	35,996	58,970	76,145	62,721	37,139	49,270	21,135

Annual sum = 483,916 gallons

UV Disinfection	January	February	March	April	May	June	July	August	September	October	November	December
Ballast #1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Softener Unit	January	February	March	April	May	June	July	August	September	October	November	December
Well Hardness, ppm	350	350	350	350	350	350	350	350	350	350	350	320
Post Treatment Hardness, ppm	0	0	0	0	0	0	0	0	0	0	0	0

Quarterly Regulatory P/A Coliform	January	February	March	April	May	June	July	August	September	October	November	December
Date Collected	1/10/2019	2/7/2019	3/26/2019	4/24/2019	5/3/2019	6/19/2019	7/8/2019	8/6/2019	9/10/2019	10/15/2019	11/4/2019	12/9/2019
Present or Absent	A	A	A	A	A	A	A	A	A	A	A	A

Swanson
Water System
Non-Regulated

HERITAGE SYSTEMS
Delivering Liquid Solutions

Meter Readings	January	February	March	April	May	June	July	August	September	October	November	December	Jan-21
Well Meter	1,461,260	1,481,098	1,527,845	1,600,430	1,705,600	1,770,210	1,828,266	1,902,111	1,981,453	2,050,920	2,113,359	2,150,102	2,169,330

Flow	January	February	March	April	May	June	July	August	September	October	November	December
Well Flow	19,838	46,747	72,585	105,170	64,610	58,056	73,845	79,342	69,467	62,439	36,743	19,228

Annual sum = 708,070 gallons

UV Disinfection	January	February	March	April	May	June	July	August	September	October	November	December
Ballast #1	116	86	112	86	84	19	0	344	317	283	272	240

Softener Unit	January	February	March	April	May	June	July	August	September	October	November	December
Well Hardness, ppm	250	250	220	210	220	250	260	240	210	240	240	240
Post Treatment Hardness, ppm	150	120	110	120	110	200	110	40	30	30	60	120

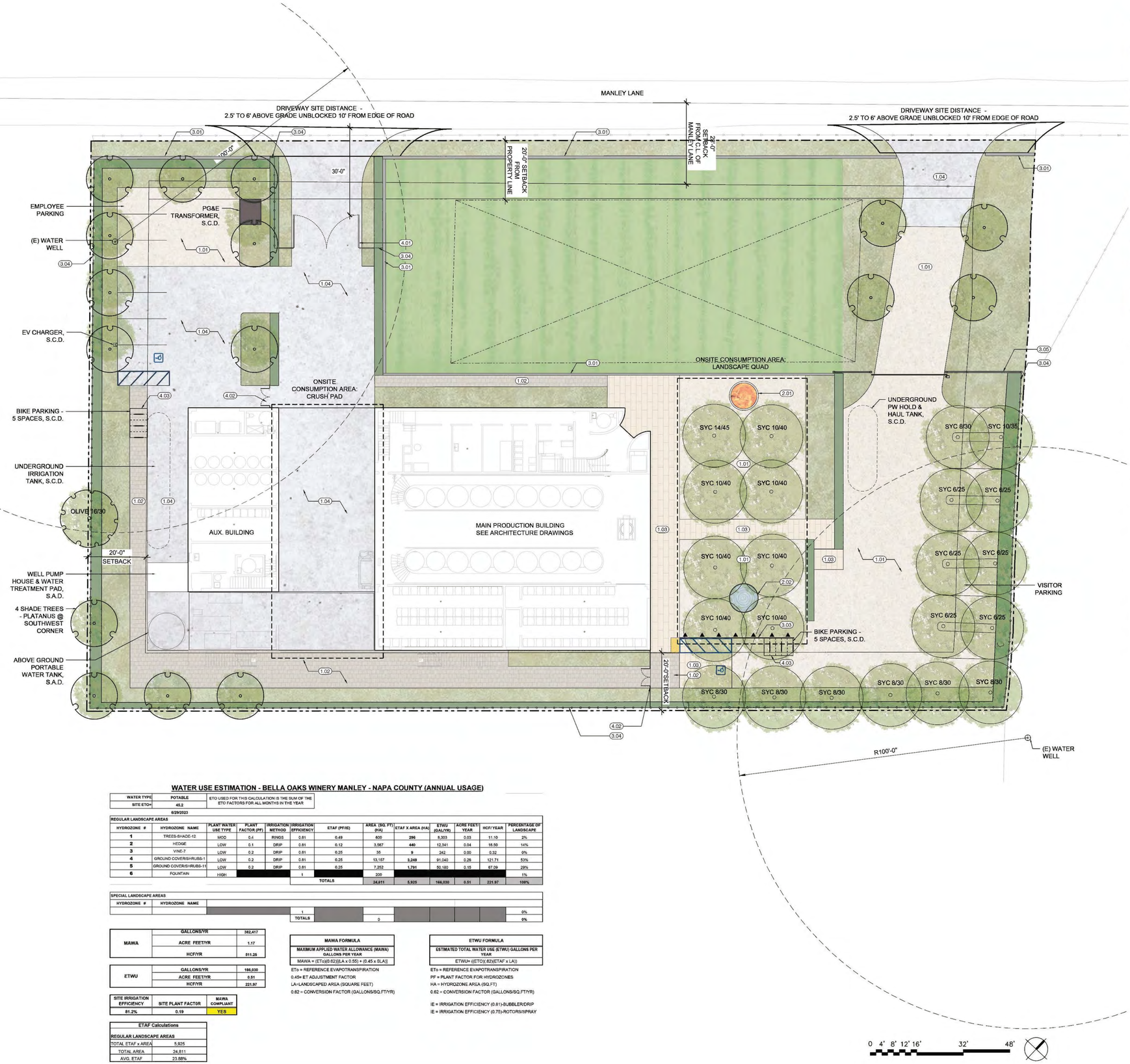
Quarterly Regulatory P/A Coliform	January	February	March	April	May	June	July	August	September	October	November	December
Date Collected	1/10/2020	2/7/2020	3/3/2020	4/13/2020	5/11/2020	6/24/2020	7/1/2020	8/13/2020	9/10/2020	10/15/2020	11/5/2020	12/7/2020
Present or Absent	A	A	A	A	A	A	A	A	A	A	P	A

Notes:

Collected repeats in November and all were Absent for total coliform

ENCLOSURE B

WATER EFFICIENT LANDSCAPE ORDINANCE (WELO) CALCULATIONS



PLANT SCHEDULE

	SHADE TREES Shade trees - Platanus	16
	EXISTING PLANE TREES	22
	EXISTING OLIVE TREE	1
	MEDIUM WATER USE VINE	7
	LOW WATER USE I Grasses and low shrubs	13,157 sf
	LOW WATER USE II Perennials and shrubs	7,252 sf
	HEDGE Low Water use	3,567 sf

MATERIALS SCHEDULE

SYMBOL	DESCRIPTION
1.01	PERMEABLE GRAVEL PAVING
1.02	PERMEABLE STONE PAVING
1.03	STONE PAVING
1.04	CONCRETE PAVING
2.01	FIRE FEATURE
2.02	RECIRCULATING LOW-WATER FEATURE
3.01	LANDSCAPE WALLS
3.03	DECORATIVE TRELLIS FENCE WITH VINES
3.04	PROPERTY FENCE 4' tall in setback and 6' tall outside of setback
3.05	VEHICULAR GATE - SLIDING
4.01	VEHICULAR GATE - SWING
4.02	PEDESTRIAN GATE
4.03	BIKE PARKING - 10 SPACES

WATER USE ESTIMATION - BELLA OAKS WINERY MANLEY - NAPA COUNTY (ANNUAL USAGE)

WATER TYPE	POTABLE	ETO USED FOR THIS CALCULATION IS THE SUM OF THE ETO FACTORS FOR ALL MONTHS IN THE YEAR
SITE ETo=	45.2	

6/29/2023

REGULAR LANDSCAPE AREAS

HYDROZONE #	HYDROZONE NAME	PLANT WATER USE TYPE	PLANT FACTOR (PF)	IRRIGATION METHOD	IRRIGATION EFFICIENCY	ETAF (PF/IE)	AREA (SQ. FT) (HA)	ETAF X AREA (HA)	ETWU (GAL/YR)	ACRE FEET/ YEAR	HCF/ YEAR	PERCENTAGE OF LANDSCAPE
1	TREES-SHADE-12	MOD	0.4	RINGS	0.81	0.49	600	296	8,303	0.03	11.10	2%
2	HEDGE	LOW	0.1	DRIP	0.81	0.12	3,567	440	12,341	0.04	16.50	14%
3	VINE-7	LOW	0.2	DRIP	0.81	0.25	35	9	242	0.00	0.32	0%
4	GROUND COVER/SHRUBS-1	LOW	0.2	DRIP	0.81	0.25	13,157	3,249	91,040	0.26	121.71	53%
5	GROUND COVER/SHRUBS-11	LOW	0.2	DRIP	0.81	0.25	7,252	1,791	50,180	0.15	67.09	29%
6	FOUNTAIN	HIGH			1		200					1%
						TOTALS	24,811	5,925	166,030	0.51	221.97	100%

SPECIAL LANDSCAPE AREAS

HYDROZONE #	HYDROZONE NAME										
				1							0%
				TOTALS		0					0%

MAWA	GALLONS/YR	382,417
	ACRE FEET/YR	1.17
	HCF/YR	511.25
ETWU	GALLONS/YR	166,030
	ACRE FEET/YR	0.51
	HCF/YR	221.97

SITE IRRIGATION EFFICIENCY	SITE PLANT FACTOR	MAWA COMPLIANT
81.2%	0.19	YES

ETAF Calculations

REGULAR LANDSCAPE AREAS	
TOTAL ETAF x AREA	5,925
TOTAL AREA	24,811
AVG. ETAF	23.88%

MAWA FORMULA

MAXIMUM APPLIED WATER ALLOWANCE (MAWA) GALLONS PER YEAR

MAWA = (ETo)(0.62)[(LA x 0.55) + (0.45 x SLA)]

ETo = REFERENCE EVAPOTRANSPIRATION
0.45= ET ADJUSTMENT FACTOR
LA=LANDSCAPED AREA (SQUARE FEET)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

ETWU FORMULA

ESTIMATED TOTAL WATER USE (ETWU) GALLONS PER YEAR

ETWU= ((ETO)(.62)(ETAF x LA))

ETo = REFERENCE EVAPOTRANSPIRATION
PF = PLANT FACTOR FOR HYDROZONES
HA = HYDROZONE AREA (SQ.FT)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

IE = IRRIGATION EFFICIENCY (0.81)-BUBBLER/DRIP
IE = IRRIGATION EFFICIENCY (0.75)-ROTORS/SPRAY

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Agency Approvals

NOT FOR CONSTRUCTION

Revision No. Date

Job Title
Bella Oaks Winery

Job Address
1271 Manley Lane
Napa, CA 94558

Date: **29 May 2024**
Issued For
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Job Number: **1310**
Drawn By: **SK, VW** Checked By:

Scale
As indicated

Sheet Title
LANDSCAPE PLAN

Sheet No.
L1.00