

“F”

Wastewater Feasibility Study



May 18, 2023

Job No. 22-112

Kim Withrow, REHS
Environmental Health Division
Napa County Planning, Building and Environmental Services Department
1195 Third Street, Suite 210
Napa, CA 94559

Re: Onsite Wastewater Disposal Feasibility Study for the
Stewart Ranch Micro Winery Use Permit Application
2195 Golden Gate Drive, Napa, California APN 042-190-013

Dear Ms. Withrow:

At the request of Ailene Pritchett & Paul Tarap we have evaluated the process and sanitary wastewater flows associated with the proposed Micro Winery Use Permit application. We have also analyzed the capacity of the existing residential sanitary wastewater system serving the existing structures to determine if it is adequate to serve the proposed changes in use.

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

- Wine Production:
 - 5,000 gallons of wine per year
 - Fermentation and aging onsite
- Employees:
 - One (1) full-time employee
 - One (1) part-time employee
- Marketing Plan:
 - Daily Tours and Tastings by Appointment
 - 10 visitors per day maximum

Existing improvements on the property include a main residence, guest cottage, ag and accessory residential buildings, a groundwater well, water tanks, paved, dirt and gravel driveways and the utility infrastructure associated with this type of rural residential and agricultural development.

Two existing structures will be modified to accommodate the proposed winery production and accessory functions.

Please see the Stewart Ranch Micro-Winery Use Permit Conceptual Site Plans (attached) for approximate locations of existing and proposed facilities.

The remainder of this letter describes the existing wastewater disposal system, its design capacity, peak flows associated with the proposed changes in use and our analysis and recommendations related to the system's ability to handle the anticipated wastewater flows.

Existing Septic System

Based on information provided by the property owner the existing residential uses on the property are served by a septic tank and leach field system located to the north of the residence. No permits were discovered during our permitting review with Napa County and it is expected that the system was installed prior to permitting requirements given the age of the buildings.

Proposed Winery Process Wastewater Design Flows

It is planned that the winery will ferment and age wine but no barrel washing or tank washing will occur onsite. Therefore, there will be no process wastewater generated onsite at this winery facility.

Proposed Winery Sanitary Wastewater Design Flows

The peak sanitary wastewater flow from the winery is calculated based on the number of winery employees and the number of daily visitors for tastings. In accordance with Table 4 of the Napa County "Regulations for Design, Construction, and Installation of Alternative Sewage Treatment Systems" we have used a design flow rate of 15 gallons per day per employee and 3 gallons per day per visitor for tastings. Based on these assumptions, the peak winery sanitary wastewater flows are calculated as follows:

Employees

Peak Sanitary Wastewater Flow = 2 employees X 15 gpd per employee
Peak Sanitary Wastewater Flow = 30 gpd

Daily Tastings

Peak Sanitary Wastewater Flow = 10 visitors per day X 3 gallons per visitor
Peak Sanitary Wastewater Flow = 30 gpd

Total Peak Winery Sanitary Wastewater Flow

The worst-case peak winery sanitary wastewater flow is calculated based on two employees and 10 visitors for tours and tastings. The peak flow for this scenario is calculated as follows:

$$\text{Total Peak Winery Sanitary Wastewater Flow} = 30 \text{ gpd} + 30 \text{ gpd}$$

$$\text{Total Peak Winery Sanitary Wastewater Flow} = 60 \text{ gpd}$$

Residential Sanitary Wastewater Design Flow

It is our understanding that the main house consists of two bedrooms and the guest cottage has one bedroom. The total residential sanitary wastewater flow is based on 150 gpd per bedrooms as follows:

$$\text{Total Residential Sanitary Wastewater Design Flow} = 150 \text{ gpd} / \text{bedroom} \times 3 \text{ bedrooms}$$

$$\text{Total Residential Sanitary Wastewater Design Flow} = 450 \text{ gpd}$$

Combined Sanitary Wastewater Flow

The combined sanitary wastewater flow includes the flow from both the winery and residence and is calculated as follows:

$$\text{Combined Sanitary Wastewater Flow} = 60 \text{ gpd} + 450 \text{ gpd}$$

$$\text{Combined Sanitary Wastewater Flow} = 510 \text{ gpd}$$

Existing Septic System Capacity

As noted above there is no permit history for the existing septic system so it is assumed that it is adequate for the existing residential uses only.

Recommendations

We recommend a new standard septic system be installed to serve the Micro-Winery facility sanitary wastewater flows. Based on our site evaluation on November 30, 2022 (E22-00808) the application rate for the septic system is 0.33 gpd/sf and the acceptable soil depth is 66 inches which allows for trenches with 3 sf of sidewall per lineal foot of trench. Using these parameters the required length of trench is calculated as follows:

$$\text{Required Length of Trench} = 60 \text{ gpd} \times \frac{1 \text{ square foot}}{0.33 \text{ gpd}} \times \frac{1 \text{ lineal foot}}{3 \text{ square feet}}$$

$$\text{Required Length of Trench} = 60 \text{ lineal feet}$$

Based on the site maps ACE has determined that there is enough area to install approximately a code minimum system with 100 lf of leach line in the area of Test Pits #2 & #3 as shown on the Stewart Ranch Micro-Winery Use Permit Conceptual Site Plans prepared by ACE.

Reserve Area

The reserve must accommodate the three bedrooms from the main house and guest cottage (450 lf) as well as the micro-winery (100 lf). The reserve areas for each system are shown on the Stewart Ranch Micro-Winery Use Permit Conceptual Site Plans prepared by ACE.

Summary

The calculations presented above illustrate that the sanitary wastewater flows associated with the proposed Micro Winery Use Permit can be accommodated with a new small standard septic system. Furthermore, process wastewater will not be generated onsite and therefore the project is not subject to winery process wastewater disposal regulations at this time.

We trust that this provides the information you need to process the subject Micro Winery Use Permit application. Please feel free to contact us at (707) 320-4968 if you have any questions.

Sincerely,

Applied Civil Engineering Incorporated

By:



Michael R. Muelrath RCE 67435
Principal

Copy:

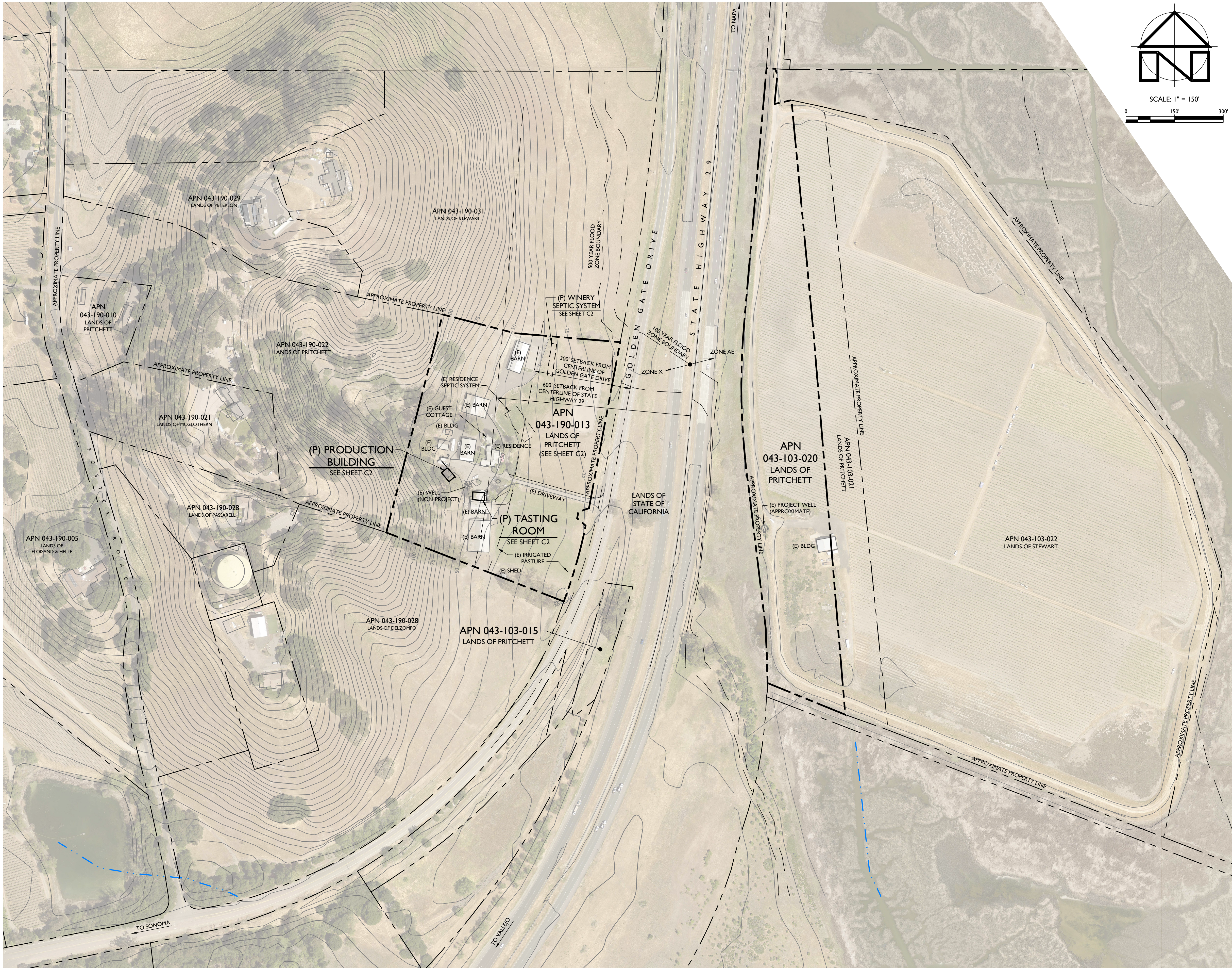
Ailene Pritchett and Paul Tarap (via email)
Jeffery Redding (via email)

Attachments:

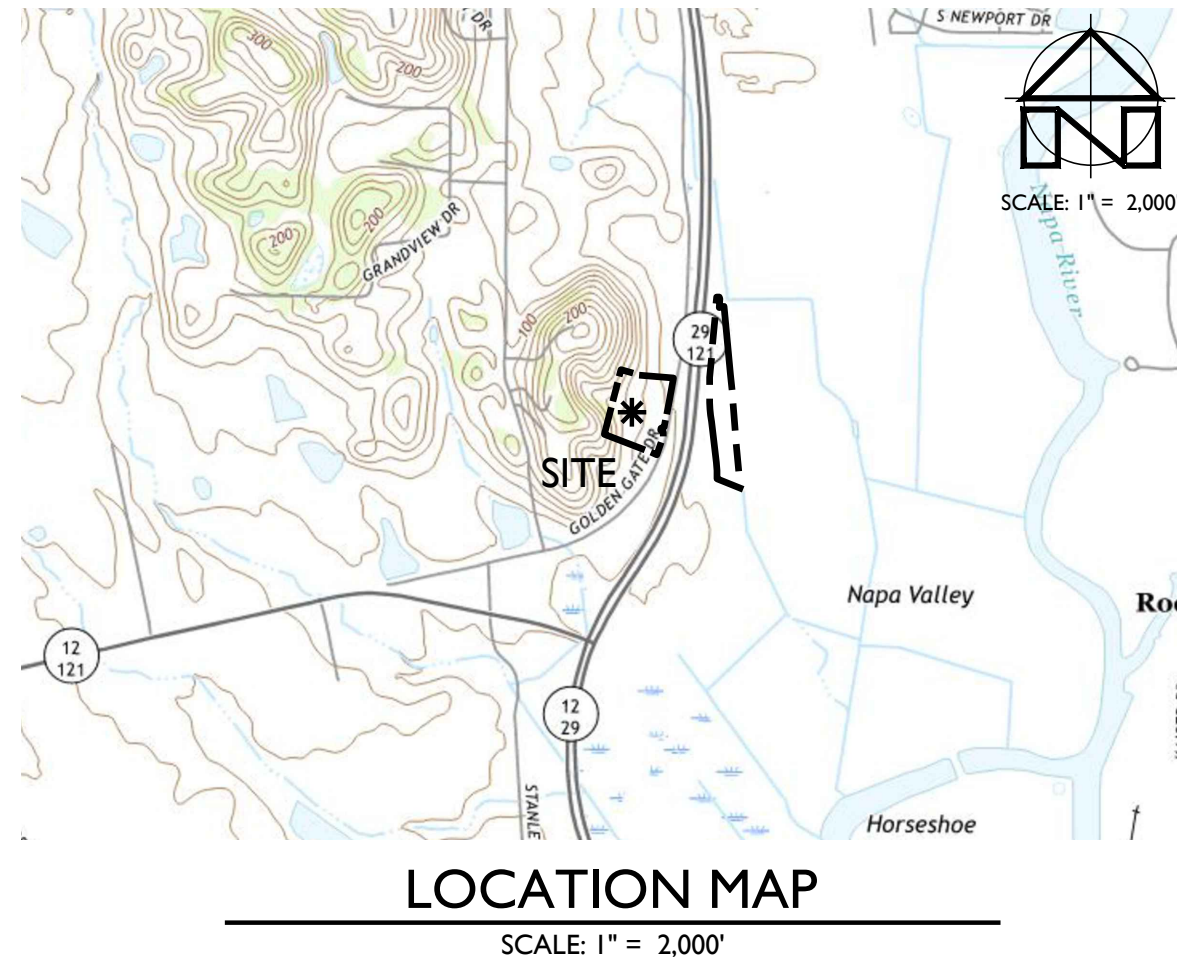
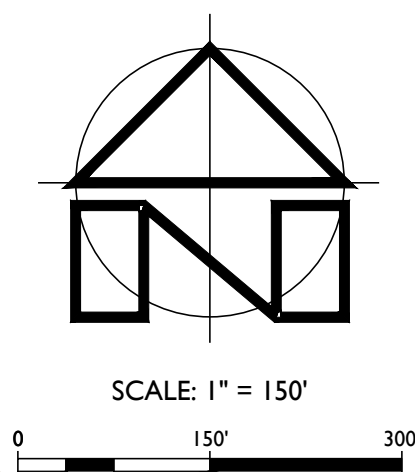
Stewart Ranch Micro Winery Use Permit Conceptual Site Plans

STEWART RANCH

MICRO-WINERY USE PERMIT CONCEPTUAL SITE PLANS



VICINITY MAP
SCALE: 1" = 150'



PROJECT INFORMATION:

PROPERTY OWNER & APPLICANT:
AILENE PRITCHETT & PAUL TARAP
2195 GOLDEN GATE DRIVE
NAPA, CA 94558
(707) 738-3079

SITE ADDRESS:
2195 GOLDEN GATE DRIVE
NAPA, CA 94558

ASSESSOR'S PARCEL NUMBERS:
043-190-013 (WINERY)
043-103-020 (WELL ONLY)

PARCEL SIZES:
12.71 ± ACRES
8.48 ± ACRES

PROJECT SIZE:
0.2 ± ACRES

ZONING:
AGRICULTURAL WATERSHED (AW)

DOMESTIC WATER SOURCE:
PRIVATE WELL

FIRE PROTECTION WATER SOURCE:
STORAGE TANK

WASTEWATER DISPOSAL:
ONSITE TREATMENT AND DISPERSAL

SHEET INDEX:

| | |
|----|----------------------------|
| C1 | VICINITY MAP |
| C2 | OVERALL SITE PLAN |
| C3 | DRIVEWAY PLAN & PROFILE |
| C4 | IMPERVIOUS SURFACE EXHIBIT |

PROJECT STATEMENT:

THE PURPOSE OF THESE PLANS IS TO ILLUSTRATE THE SITE IMPROVEMENTS ASSOCIATED WITH THE PROPOSED MICRO-WINERY USE PERMIT APPLICATION.

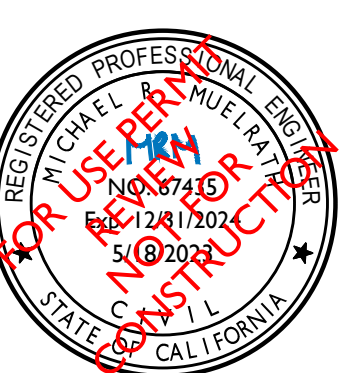
FLOOD HAZARD NOTE:

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 06055C0518G, EFFECTIVE AUGUST 3, 2016, ALL OR A PORTION OF THE PROJECT SITE IS LOCATED IN A SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 0.2% CHANCE ANNUAL FLOOD (500 YEAR FLOOD). THE APPROXIMATE FLOOD HAZARD BOUNDARY LINE IS SHOWN ON THIS PLAN. SEE FIRM FOR ADDITIONAL INFORMATION.

NOTES:

- FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION ON SHEETS C1 AND C2 WERE TAKEN FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATABASE. TOPOGRAPHIC INFORMATION ON OTHER SHEETS WAS TAKEN ON FROM THE "TOPOGRAPHIC MAP FOR THE TARAP PROPERTY" PREPARED BY CMP CIVIL ENGINEERING & LAND SURVEYING, INC., DATED JULY, 2022. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
- AERIAL PHOTOGRAPHS ARE NADIR IMAGES CAPTURED BY PICTOMETRY INTERNATIONAL DATED JULY 15, 2021 AND MAY NOT REPRESENT CURRENT CONDITIONS.
- CONTOUR INTERVAL:
SHEET C1 & C2: FIVE (5) FOOT, HIGHLIGHTED EVERY TWENTY FIVE (25) FEET.
ALL OTHER SHEETS: ONE (1) FOOT, HIGHLIGHTED EVERY FIVE (5) FEET.
- BENCHMARK: SHEETS C1 & C2 (NAVD83), SHEET C3 (ASSUMED)
- THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

PREPARED UNDER THE
DIRECTION OF:

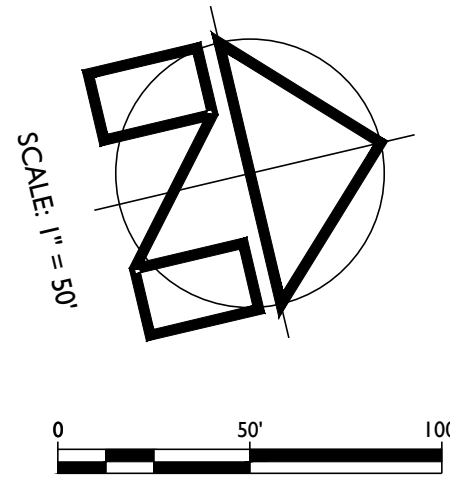


DRAWN BY: SMH
CHECKED BY: MRM
DATE: MAY 18, 2023
REVISIONS: BY:

JOB NUMBER: 22-112
FILE: 22-112CONC_VICIN.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER:



OVERALL SITE PLAN
SCALE: 1" = 50'

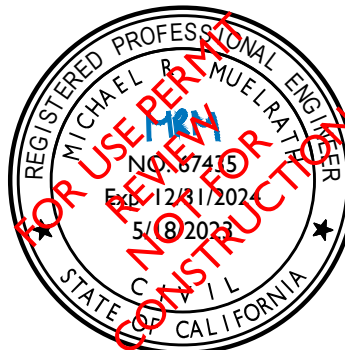


TEST PIT NOTES:

1. TEST PITS ONE THROUGH FIVE (TP #1 - TP #5) WERE EXCAVATED BY THE OWNER AND WERE WITNESSED BY MIKE MUELRATH OF APPLIED CIVIL ENGINEERING INCORPORATED AND ARMEDA SIMPSON-VAN DAM OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION ON NOVEMBER 30, 2022.

STEWART RANCH
MICRO-WINERY USE PERMIT CONCEPTUAL SITE PLANS
OVERALL SITE PLAN

PREPARED UNDER THE
DIRECTION OF:



DRAWN BY: SMI
CHECKED BY: MRM
DATE: MAY 18, 2023
REVISIONS: BY:

JOB NUMBER: 22-112
FILE: 22-112CONC_OSP.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER:

Profile view of Golden Gate Drive showing existing ground (OG) and centerline (CL) elevations, slopes, and stationing. The profile shows a downward slope from station 6+50 to 1+00. Key features include a paved driveway conforming to slope standards, and slopes along the centerline at 50' intervals.

| Station | OG Elevation (ft) | CL Elevation (ft) | Slope (%) |
|---------|-------------------|-------------------|-----------|
| 6+50 | 62.1 | 62.1 | 9.0% |
| 6+00 | 59.9 | 60.0 | 7.8% |
| 5+50 | 58.0 | 57.5 | 7.4% |
| 5+00 | 56.3 | 55.5 | 6.8% |
| 4+50 | 54.3 | 53.7 | 8.8% |
| 4+00 | 49.1 | 48.9 | 9.7% |
| 3+50 | 46.9 | 44.4 | 8.9% |
| 3+00 | 42.0 | 39.6 | 7.9% |
| 2+50 | 37.4 | 35.3 | 7.9% |
| 2+00 | 31.4 | 29.4 | 7.7% |
| 1+50 | 27.7 | 25.5 | |
| 1+00 | 23.8 | 23.8 | |

Notes:

- (E) PAVED DRIVEWAY CONFORMS TO SLOPE STANDARDS THROUGHOUT.
- (E) SLOPES ALONG CENTERLINE = 50' INTERVALS (TYP)
- GOLDEN GATE DRIVE

APPLIED
CIVIL ENGINEERING
INCORPORATED

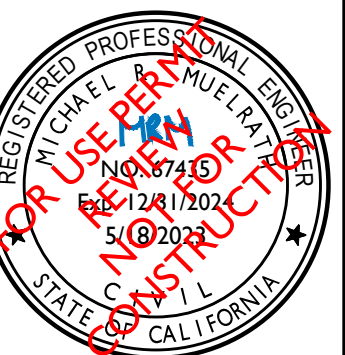
2160 Jefferson Street, Suite 230
Napa, CA 94559
(707) 320-4968 | www.appliedcivil.com

STEWART RANCH

◆

MICRO-WINERY USE PERMIT CONCEPTUAL SITE PLANS
DRIVEWAY PLAN & PROFILE STA 1+00 TO STA 6+50

PREPARED UNDER THE
DIRECTION OF:



RAWN BY:
SMI

HECKED BY:
MRM

DATE: MAY 18, 2023

| | |
|------------|-----|
| REVISIONS: | BY: |
|------------|-----|

OB NUMBER:
22-112

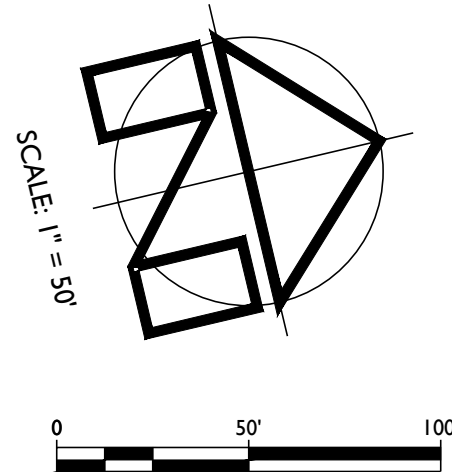
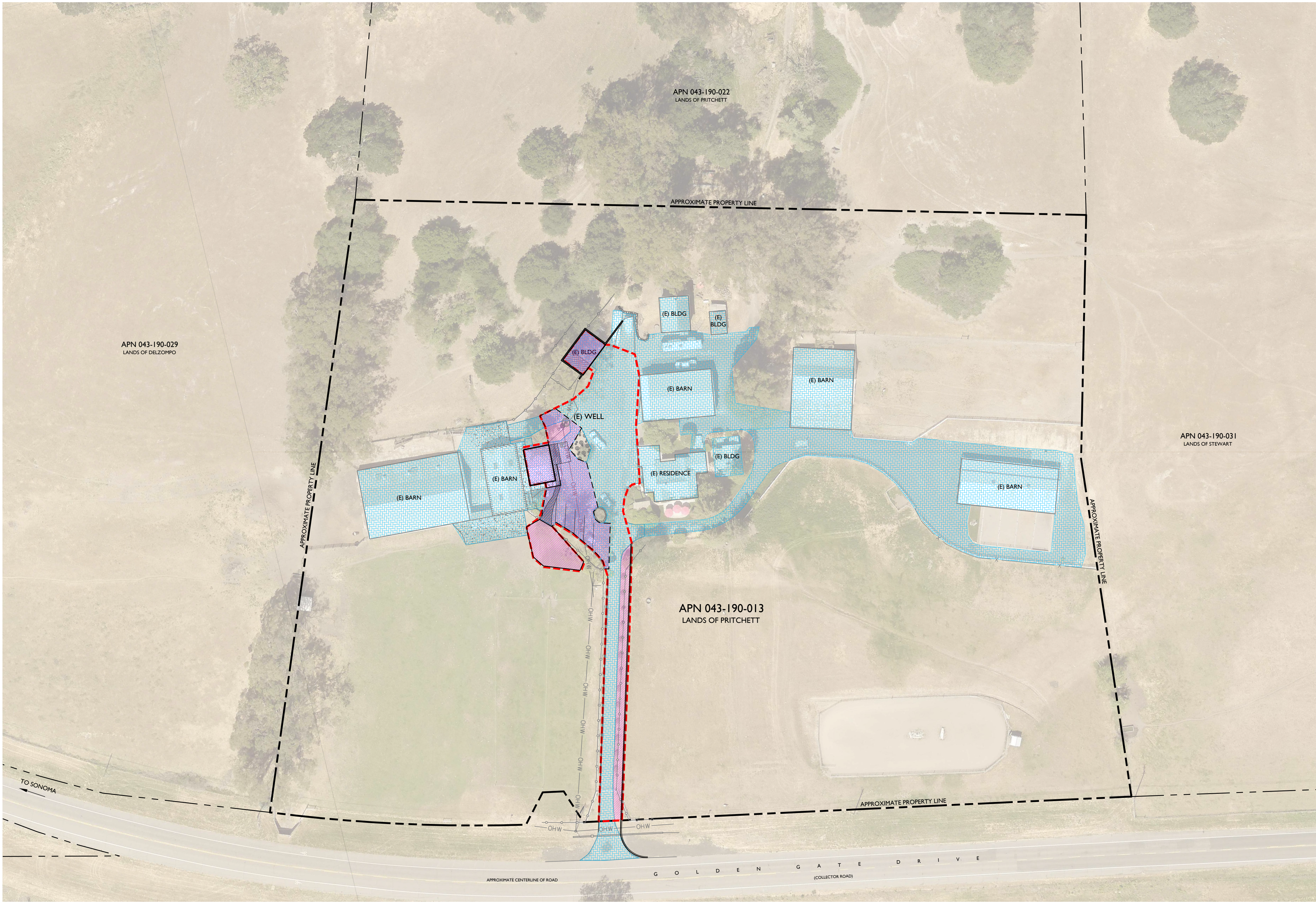
LE:
I12CONC DRWY P&P.DWC

ORIGINAL SIZE:
24" X 36"

SHEET NUMBER:

C3

OF



IMPERVIOUS SURFACE EXHIBIT
SCALE: 1" = 50'

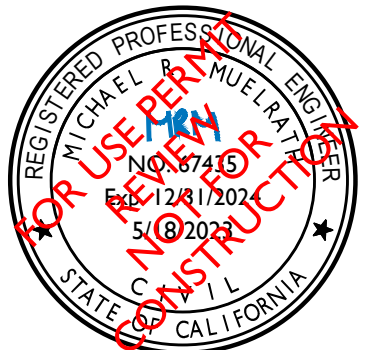
| IMPERVIOUS SURFACE SUMMARY | | | | |
|----------------------------|--------------------------|------------------|---------------------------------------|------------------------------------------|
| | PRE-PROJECT AREA (SF) | NEW AREA (SF) | RECONSTRUCTED AREA (SF) A** B** | TOTAL NEW AND RECONSTRUCTED AREA (SF) |
| IMPERVIOUS AREAS | 71,660 ± | 4,233 ± | 6,230 ± 0 | 10,463 ± |

**RECONSTRUCTED AREAS (A) ARE EXISTING IMPERVIOUS SURFACES THAT ARE BEING REPLACED WITH NEW IMPERVIOUS SURFACES.
***RECONSTRUCTED AREAS (B) ARE EXISTING IMPERVIOUS SURFACES THAT ARE BEING COMPLETELY REMOVED AND ARE NOT BEING REPLACED WITH NEW IMPERVIOUS SURFACES.

22,205 ± SF WINERY COVERAGE AREA

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MICRO-WINERY USE PERMIT CONCEPTUAL SITE PLANS
IMPERVIOUS SURFACE EXHIBIT

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