PRELIMINARY WINERY WASTEWATER FEASIBILITY REPORT

For

DIAMOND CREEK VINEYARDS
1500 DIAMOND MOUNTAIN ROAD
CALISTOGA, CALIFORNIA 94515

APN 020-440-004 & 020-400-012



Prepared For:
Diamond Mountain Vineyard Company, Inc.
Attn: Nicole Carter
1500 Diamond Mountain Road
Calistoga, CA 94515

Project #4120020.0
May 27, 2025

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INTRODUCTION

Diamond Creek Vineyards (APN 020-440-004 & 020-400-012) is applying for a Use Permit to construct a new winery building and to create a new four (4) bedroom residence at the current winery building. The current winery is permitted to produce 10,000 gallons per year. The new winery proposes to increase production to 25,000 gallons, the number of visitors will be increasing from 47/week to 60/week, but will maintain a maximum of 10/day, and the number of marketing events will be reduced to two (2) per year. The number of employees will increase from six (6) full-time and two (2) part-time employees to eight (8) full time and two (2) part time employees. An existing three (3) bedroom residence exists at the site on parcel 020-400-012, and will remain. A lot line adjustment will be completed to facilitate the proposed winery location.

The topography on the parcel ranges from steep slopes to mostly level areas. The parcel is used for vineyards and the existing winery. Two (2) wells exist on the site with plans to install a third under separate permit to replace one of the aging wells. One (1) well serves as the domestic water supply, while the other well is used for vineyard irrigation. Appendix 1 contains a Site Location Map and a USGS Site Map showing the parcel topography, features, and boundary.

SITE EVALUATION

RSA$^+$ conducted a site evaluation on the parcel on July 21, 2022. Appendix 2 contains a copy of the Site Evaluation Report.

The site evaluation was conducted by Donal O'Briain of RSA$^+$ and observed by Avi Soma of Napa County Environmental Management.

EXISTING DOMESTIC & PROCESS WASTEWATER COMBINED SYSTEMS – WINERY PARCEL

County of Napa files show a combined domestic and process wastewater system expanded in May of 1980 to serve a restroom in the existing winery storage building as well as the winery process wastewater. This initial standard septic system consisted of a 1,500-gallon septic tank with 330 feet of leach line. The leach line associated with this system were abandoned in 1997.

Information from County of Napa Environmental Health Department files show the current tank layout is based on improvements to the system made in 1998 by P & R Septic Systems. The modification included installation of a 1,500-gallon septic tank to handle the process wastewater flows, and included the installation of new leach lines. The original 1,500-gallon septic tank continues to serve the domestic flows. The domestic flows from this tank were then directed to the new leach lines installed as part of the 1998 modification.

The current dispersal field for the system is composed of 3" leach lines installed in 18-inch-wide trenches with 24 inches of rock below the pipe. The dispersal field is textured as sandy clay loam. This structure yields an application rate of 0.33 gal/sf/day according to Table 1 of Napa County Conventional Systems Standards. Based on the P&R Septic As-Built from 1998 and a recent septic inspection completed by McCollum General Engineering on January 25, 2021; the system was installed with 495 linear feet of leach line. Using the same application rate as originally approved and in conjunction with the trench depth, these 495 linear feet can treat 825 gpd.

Dispersal Field Capacity:

$$Lineal\ Feet\ of\ Dispersal\ Line\ = \frac{Dispersal\ Field\ Capacity\ (GPD)}{Effective\ Infiltrative\ Surface(S.F./LF) x\ Hydraulic\ Loading\ Rate\left(\frac{\frac{Gal}{sf}}{day}\right)}$$

where,

$$495\ LF\ = \frac{Dispersal\ Field\ Capacity\ (GPD)}{(30"\ \text{deep trench}/12) x\ 2\ sidewalls\ x\ 0.33\left(\frac{\frac{Gal}{sf}}{day}\right)}$$

$$Dispersal\ Field\ Capacity\ (GPD) = \ 495\ LF\ x\ (5\ x\ 0.33)$$

$$Dispersal\ Field\ Capacity\ (GPD) = \ 825\ gal/day$$

Information on these systems from Napa County are contained in Appendix 3, and McCollum General Engineering's inspection report can be found in Appendix 4.

After coordination with Napa County, it has been determined that the existing dispersal field is within a blue line creek setback, and cannot be used for the new winery or residence.

EXISTING DOMESTIC WASTEWATER SYSTEM – RESIDENTIAL PARCEL

County of Napa files show a domestic wastewater system constructed in September of 1977 to serve a single-family residence at 1490 Diamond Mountain Road, Calistoga (APN 020-400-012). This initial standard septic system consisted of a 1,200-gallon septic tank with a forced septic line to distribute flows to three (3) lines with a total of 280 linear feet of leach line. The dispersal field was originally designed to handle three (3) bedrooms and per the 9-1-1977 Permit Application. This would equal treatment for 450 gpd (150 gpd/bdrm x 3 bdrms).

Information from County of Napa Environmental Health Department files show the current tank layout is based on improvements to the system made in 1996 by P & R Septic Systems. The modification included installation of a 500-gallon pump tank downstream of the original septic tank. This pump tank was installed to pump wastewater flows through the existing force septic line uphill to the dispersal field. The existing 1,200-gallon septic tank continues to serve the domestic flows.

The current dispersal field for the system was evaluated McCollum General Engineering on May 8, 2025. Mccollum report shows that the existing system consists of the 1,200-gallon septic tank, a 500-gallon pump tank which pumps flows uphill approximately 820 feet to two (2) infiltrator leach lines totaling 53 feet which are installed in a 24-inch-wide by 24-inch-deep trench.

Information on these systems from Napa County are contained in Appendix 3, and McCollum General Engineering's inspection report can be found in Appendix 4.

DOMESTIC WASTEWATER CHARACTERISTICS

The domestic wastewater system for the winery will need to accommodate the unit values in Table 1 below. The proposed number of visitors and employees are shown in Table 1 below. The projected flow is based on County of Napa Environmental Management guidelines. The following is a summary of the estimated flows from the winery.

TABLE 1

Use	Source	Number	Projected Flow (gpd)	Total Flow Typical Day (gpd)	Total Flow Event Day (gpd)
Winery	Full-Time Employees	8	15	120	120
	Part-Time Employees	2	15	30	30
	Visitors	10	3	30	
	Peak Event Guests	100	15	-	1500
Winery Subtotal				**180**	**1650**

The domestic wastewater flows for the proposed improvements are based on the winery subtotal in Table 1, and the bedroom counts for the proposed home, and the existing home. The proposed flows are shown in Table 2 below. The projected flow is based on County of Napa Environmental Management guidelines and anticipates that both residences will utilize low flow fixtures.

TABLE 2

Use	Source	Number	Projected Flow (gpd)	Total Flow (gpd)
Proposed Residence	Bedrooms	4	120	480
Existing Residence	Bedrooms	3	120	360
Residential Subtotal				**840**
Winery Sub Total				**180**
Total Combined Domestic Wastewater Flow				**1,020**

Domestic Wastewater system capacity will be based on the total shown in Table 2. Portable toilets would be used for events.

WINERY PROCESS WASTEWATER CHARACTERISTICS

According to the latest State Water Resources Control Board regulations – General Waste Discharge Requirements, winery process wastewater must be treated prior to surface discharge.

Based on our experience, winery wastewater characteristics are as follows:

TABLE 3

Characteristics	Units	Average
pH		3.5
BOD5	mg/l	6000
TSS	mg/l	500
Nitrogen	mg/l	20
Phosphorus	mg/l	10

WINERY PROCESS WASTEWATER GENERATION

Wine Production:

25,000 gallons of wine per year
2.38 gallons of wine per case
= 25,000 gal/year/2.38 cases/year
= 10,505 cases/year

Wastewater Production:

6 gallons of wastewater/gallon of wine
= 25,000 gal/year x 6-gal wastewater/gal
= 150,000 gal/year wastewater

Peak Daily Wastewater Flow:

Crush Period = 45 days
25,000 gallons x 2 / 45 days
= 1,111 gallons/day

Average Daily Flow:

25,000 gal/year x 6 gallons of wastewater/gallon of wine
= 150,000 gallons/year/365
= 411 gallons/day

Monthly Wastewater Flows:

TABLE 4

	% By Month	Waste/Month	
Sept	15%	22,500	Gal/Month
Oct	13%	19,500	Gal/Month
Nov	11%	16,500	Gal/Month
Dec	8%	12,000	Gal/Month
Jan	4%	6,000	Gal/Month
Feb	6%	9,000	Gal/Month
Mar	6%	9,000	Gal/Month
Apr	5%	7,500	Gal/Month
May	6%	9,000	Gal/Month
Jun	7%	10,500	Gal/Month
Jul	9%	13,500	Gal/Month
Aug	10%	15,000	Gal/Month
Totals	100%	150,000	Gal/Year

PROPOSED DOMESTIC WASTEWATER SYSTEM IMPROVEMENTS – WINERY PARCEL

The septic system inspection completed on January 25, 2021 by McCollum General Engineering found that while the septic system is functioning, the location of the existing 1,500-gallon domestic septic tank is currently installed in a man-made pond. This tank location will need to be modified. Due to the change of use of the existing winery building to a residence, revision to the waste stream will need to be completed to meet current code. Options for this tank and existing system improvements include:

Tank Revisions - Option 1: Water feature removal

Per McCollum's recent inspection, the septic tank is in working order, so this location could be preserved if the water feature is removed. This would include draining the pond and backfilling this area with soil over the existing septic tank location.

Tank Revisions - Option 2: Septic Tank Relocation

The septic tank noted in the water feature at the site would be abandoned per County of Napa Code and a new septic tank would be installed outside of the necessary pond setbacks. The connections to the existing tank would need to be relocated to this new tank location and the outflow from this tank would need to connect back to the existing septic lines prior to dispersal. A new potential tank location has been shown in Appendix 5 and on Use Permit Plan Sheet UP5.1.

Dispersal Revisions - Direct All Domestic Wastewater Flows to a New Engineered Treatment System and Sub-Surface Drip Field

An engineered septic system and sub-surface drip dispersal field will be designed for the proposed winery domestic flows, the proposed residence, and the existing residence on the adjacent winery parcel (APN 020-440-004).

Domestic wastewater from the proposed winery will flow into a new septic tank adjacent to the proposed winery building and will be pumped to the new treatment tanks and dispersal field. Flows from the proposed residence will be directed to the revised septic tank location discussed in Options 1 or 2 above before being pumped to the same new dispersal field shown on the Use Permit Plan Sheet UP5.1.

The subsurface drip field will be sized to meet Napa County Environmental Management guidelines. The distribution field will be placed where the most limiting soil type was sandy clay loam with a moderate subangular-blocky structure in the area of Test Pits 5 & 6 as shown on UP5.1. The allowable application rate for this soil type is 0.6 gallons/square foot/day for pretreated effluent. Peak daily domestic wastewater flows for all combined uses is 1,020 gallons/day.

$$Combined\ Dispersal\ Field\ Area\ (primary) = \frac{1{,}020\ gpd}{0.6\ gpd/sf} = 1{,}700\ square\ feet$$

In addition to the primary dispersal area of 1,700 square feet, a 200% reserve area is required for the winery and residences. The reserve area will be located in an area where the soil application rate is also 0.6 gallons/square foot/day in the area of Test Pits 3 & 4 as shown on UP5.1.

$$Combined\ Dispersal\ Field\ Area\ (reserve) = 200\% \times \frac{1{,}020\ gpd}{0.6\ gpd/sf} = 3{,}400\ square\ feet$$

The total combined area required for the primary and reserve fields for the winery and residential domestic wastewater is 5,100 square feet.

PROPOSED DOMESTIC WASTEWATER SYSTEM IMPROVEMENTS – RESIDENTIAL PARCEL

The septic system inspection completed on May 8, 2025 by McCollum General Engineering found that some repairs will be needed for the septic tank and may require expansion of the existing leach lines. It was found that the leach lines for the residential system are located within the footprint of the

proposed winery building as shown on UP5.1. These leach lines will need to be abandoned in accordance with Napa County Code and dispersal of the residential system will need to be relocated.

As described in the previous section, an engineered septic system and sub-surface drip dispersal field will be designed for all combined domestic wastewater flows.

Domestic wastewater from the existing residence will flow into a new or repaired septic tank, or will drain to a new injector pump at the residence. From the residence, wastewater will be pumped uphill to a new pump tank located adjacent to the proposed winery building. Following the pump tank, wastewater is ultimately pumped to the combined wastewater treatment system, and sub-surface drip field as shown on UP5.1.

PROPOSED PROCESS WASTEWATER TREATMENT AND DISPOSAL SYSTEM IMPROVEMENTS

The winery has an existing combined septic system. Diamond Creek Winery proposes to separately treat and disperse winery process wastewater onsite with a Biofiltro system or equivalent. Treatment will meet the requirements of the State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water with particular focus on Biological Oxygen Demand (BOD), Total Suspended Solids (TSS) and Total Nitrogen (TN). It is likely that treatment will meet previously required County of Napa requirements of 160mg/L for BOD and 80 mg/L for TSS.

According to Napa County Environmental Management Sewage Treatment System Design Guidelines, winery process wastewater must be treated prior to surface discharge. A treatment train including primary/pump tank, Biofiltro Control Module, and Biofiltro wiggle room are proposed. This treatment train may be modified for more desirable treatment processes prior to submitting construction plans. The following sections describe this process in more detail.

Pump Tank

The initial flows will drain to a 2,500-gallon tank which will provide two (2) days storage. This pump tank will serve to buffer peak flows and strengths from overwhelming the system and impairing treatment, as well as house the pump to convey flow to the Biofiltro treatment system.

Control Unit

The control unit will consist of a solid separator, an equalization tank, and a pH adjustment system. The influent into the control unit, will first flow through a solid separator before flowing into an equalization tank that will serve to buffer peak flows, monitor, and adjust pH to prevent surges from overwhelming the system and impairing treatment. Control unit design will be provided by Biofiltro.

Treatment System

The treatment system will be composed of one (1) Biofiltro Wiggle Room or equivalent. Each Wiggle Room contains media shavings, worms and a starter pack of microbes. The flow will be conveyed to the Wiggle Room via the initial pump/holding tank. After the first pass, the partially treated water will flow to sump to be pumped to the irrigation storage tanks. Biofiltro Information can be found in Appendix 6.

Holding Tank and Dispersal Field

To provide a preliminary estimate of the amount of storage tanks required, we have prepared a monthly irrigation water balance, as shown in Appendix 5. Monthly wastewater production is based

on a percentage of the total annual wastewater production. The amount of water allowed to be applied is estimated by the typical vine water demand. The irrigation will be applied to areas of vineyards outside of well setback requirements. An area of 3.36 acres of vineyard has been used to calculate the storage capacity required. Based on the monthly analysis, 23,959 gallons of storage is required. To buffer peak flows and allow for rainy periods of no irrigation, a 40,000-gallon tank will be installed to store treated process wastewater prior to it being used for irrigation.

During the summer months all of the treated wastewater will be used for irrigation. During the wet winter months, a limited discharge will be consistent with vineyard water demand, no discharge will occur within 24-hours of a forecasted rain event with a greater than 50% chance of precipitation or when the ground is saturated. These irrigation scheduling constraints necessitate installing a tank to store excess water that cannot be discharged during the periods of rain. All stored water will then be used for irrigation during dry periods.

OPERATION AND MAINTENANCE

The existing winery process and domestic wastewater system was inspected by McCollum General Engineering and it was found that the system is functioning as designed for the existing wastewater flows at this time.

The proposed wastewater systems will be fully automated to the maximum extent practicable so minimal input from winery staff will be required. Per Napa County guidelines, a Registered Civil Engineer, Registered Environmental Health Specialist, or Licensed Contractor will provide semi-annual monitoring and evaluation of the system. The contract with the responsible party will be provided prior to the final inspection for the installed system.

CONCLUSION

This report describes the existing wastewater systems and details the proposed improvements. By installing a new wastewater system for domestic flows, and a new process wastewater treatment system, the proposed winery can treat all proposed wastewater flows onsite.

The proposed domestic system improvements will be: to relocate the existing septic tank location or remove the water feature at this tank location to serve the proposed residence, to install a new septic tank near the winery to handle the proposed winery flows, to repair the existing residential septic tank or install a new septic tank or injector pump, and to create a new engineered septic system and sub-surface drip dispersal field to treat all combined domestic wastewater flows from both the winery and adjacent residential parcel.

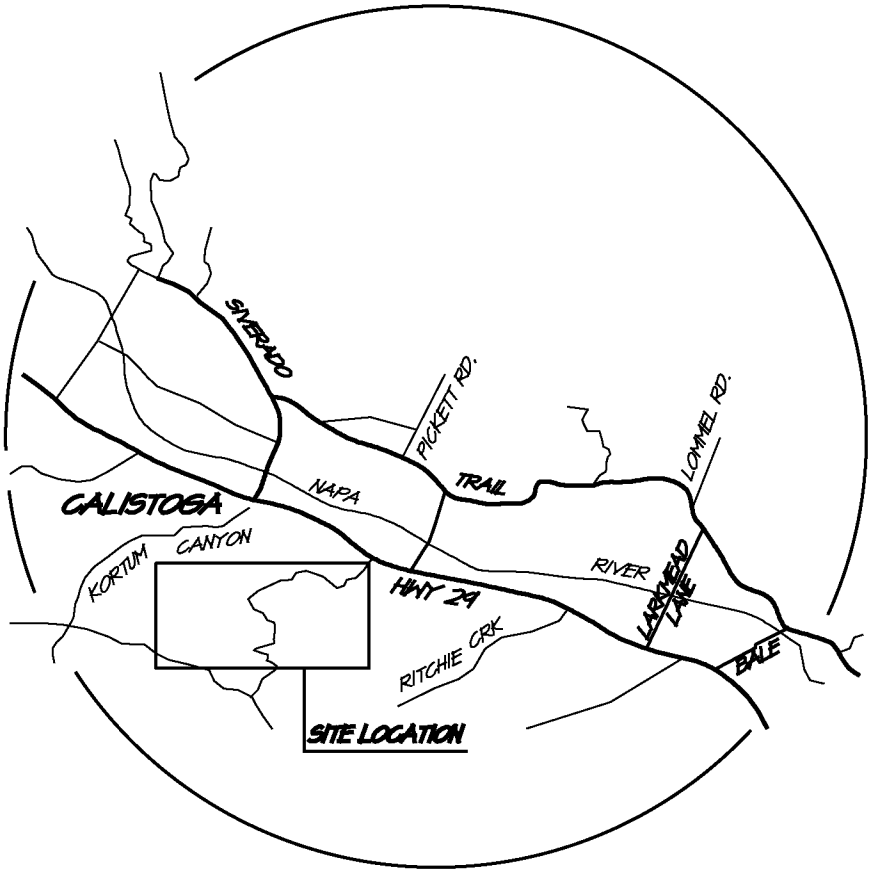
The proposed improvements associated with the winery wastewater will be to construct a new process wastewater system. These proposed improvements will meet Napa County guidelines and State Water Resources Control Board Requirements, and have sufficient capacity for the proposed winery program.

Appendix 1

Vicinity Map
USGS Quad Map

DIAMOND CREEK VINEYARDS
VICINITY MAP

CALISTOGA CALIFORNIA



LOCATION MAP

NOT TO SCALE

RSA+

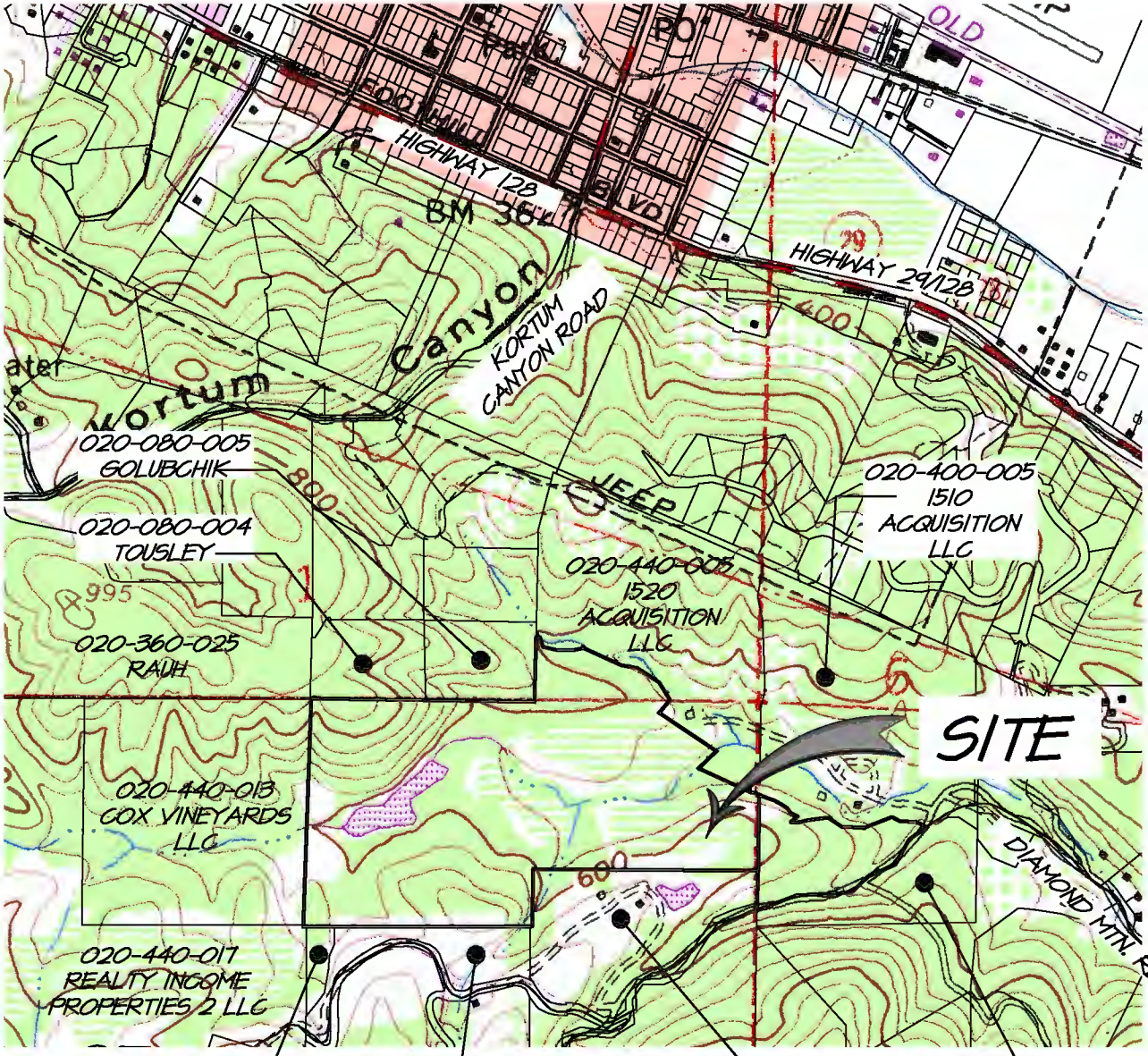
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE|707|252.3301
+ www.RSAcivil.com +

RSA+| CONSULTING CIVIL ENGINEERS + SURVEYORS + est. 1980

08/13/19 4119027.0

DIAMOND CREEK VINEYARDS
USGS MAP

CALISTOGA CALIFORNIA



1 USGS MAP

SCALE: 1" = 1,000'

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Appendix 2

Site Evaluation Report

Napa County Department of Environmental Management

SITE EVALUATION REPORT

Please attach an 8.5" x 11" plot map showing the locations of all test pits triangulated from permanent landmarks or known property corners. The map must be drawn to scale and include a North arrow, surrounding geographic and topographic features, direction and % slope, distance to drainages, water bodies, potential areas for flooding, unstable landforms, existing or proposed roads, structures, utilities, domestic water supplies, wells, ponds, existing wastewater treatment systems and facilities.

Permit #: E22-00494
APN: 020-440-004
(County Use Only) Reviewed by: Date:

PLEASE PRINT OR TYPE ALL INFORMATION

Property Owner Diamond Mountain Vineyard Company, Inc.	☐ New Construction ☐ Addition ☒ Remodel ☐ Relocation ☐ Other:
Property Owner Mailing Address 1500 Diamond Mountain Road	☒ Residential - # of Bedrooms: 7 Design Flow: 840 gpd
City State Zip Calistoga CA 94515	☒ Commercial – Type: Sanitary Waste: 150 gpd Process Waste: gpd
Site Address/Location	☐ Other: Sanitary Waste: gpd Process Waste: gpd

Evaluation Conducted By:

Company Name RSA*	Evaluator's Name Donal O'Briain	Signature (Civil Engineer, R.E.H.S., Geologist, Soil Scientist) Donal O'B
Mailing Address: 1515 Fourth Street		Telephone Number 707-252-3301
City State Zip Napa CA 94559		Date Evaluation Conducted July 21, 2022

Primary Area

Acceptable Soil Depth: 24 in. Test pit #'s: 1, 3, 4, 5, 6, 8

Soil Application Rate (gal. /sq. ft. /day): 0.6 gpd/sf

System Type(s) Recommended: Subsurface Drip w/ Pretreatment

Slope: 20 % Distance to nearest water source: > 100 ft

Hydrometer test performed? No ☒ Yes ☐ (attach results)

Bulk Density test performed? No ☒ Yes ☐ (attach results)

Percolation test performed? No ☒ Yes ☐ (attach results)

Groundwater Monitoring Performed? No ☒ Yes ☐ (attach results)

Expansion Area

Acceptable Soil Depth: 24 in Test pit #'s: 1, 3, 4, 5, 6, 8

Soil Application Rate (gal. /sq. ft. /day): 0.6 gpd/sf

System Type(s) Recommended: Subsurface drip w/pretreament

Slope: 20 % Distance to nearest water source: > 100 ft

Hydrometer test performed? No ☒ Yes ☐ (attach results)

Bulk Density test performed? No ☒ Yes ☐ (attach results)

Percolation test performed? No ☒ Yes ☐ (attach results)

Groundwater Monitoring Performed? No ☒ Yes ☐ (attach results)

Site constraints/Recommendations:

Suitable soil found in 6 pits to 24". Suitable for subsurface drip dispersal.

Test Pit # 1

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 36	-	30	SCL	MSB	SH	FRB	SP	CM	CM	-

Notes: Bottom of excavation was limiting condition. Pit suitable to 36".

Test Pit # 2

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 20	C	30	SCL	MSB	SH	FRB	SP	CM	CM	-
	20 – 36	-	30	SCL	MSB	SH	FRB	SP	CM	CM	CMD

Notes: Discolored brittle rock at 20" was limiting condition. Pit not suitable.

Test Pit # 3

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 30	C	30	SCL	MSB	SH	FRB	SP	CM	CM	-
	30 – 42	C	30	SCL	C	SH	FRB	SP	CM	CM	CMD

Notes: Brittle cemented rock below 30" was limiting condition. Pit suitable to 30".

Test Pit # 4

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 24	C	30	SCL	MSB	SH	FRB	SP	CM	CF	-
	24 – 35	-	30	SCL	MSB	SH	FRB	SP	CM	CF	CMD

Notes: Decomposing rock at 24" was limiting condition. Pit suitable to 24".

Test Pit # 5

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 24	C	<20	CL	MSB	SH	FRB	55	CM	CM	-
	24 – 36	A	<20	CL	C	H	FRB	SS	FF	FF	-
	36 – 40	-	<20	S	G	H	-	SP	FF	FF	CMD

Notes: Mottling at 36" was limiting condition. Pit suitable to 36".

Test Pit # 6

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 36	-	<20	CL	MSB	SH	FRB	SP	CM	CM	-

Notes: Limiting condition was bottom of excavation. Pit suitable to 36".

Test Pit # 7

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 36	-	40	SCL	MSB	SS	FRB	SS	CM	CM	-

Notes: Limiting condition was bottom of excavation. Pit suitable to 36".

Test Pit # 8

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 12	A	40	SCL	MSB	SS	FRB	SS	CM	CM	-
X	12 – 30		>50								

Notes: Excessive rock below 12" was limiting condition. Pit not suitable.

Test Pit # 9

X = Limiting Horizon	Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure (Grade / Shape)	Consistence			Pores (QTY / Size)	Roots (QTY / Size)	Mottling (QTY / Size/ Contrast)
						Side Wall	Ped	Wet			
	0 – 16	G	30	SCL	MSB	SS	FRB	SP	CM	CM	-
X	16 – 36	-	30	SCL	MSB	SS	FRB	SP	CM	CM	CMD

Notes: Mottling at 16" was limiting condition. Pit not suitable.

DIAMOND CREEK VINEYARDS
PIT MAP

NAPA COUNTY CALIFORNIA

020-360-025
RAUH

020-080-004
TOUSLEY

020-080-005
GOLUBCHIK

020-440-005
1520 ACQUISITION LLC

020-400-013
1510 ACQUISITION LLC

625
600
575
550

BLUE LINE CREEK

CONCRETE LINED POND

(E) SEPTIC DISPERSAL FIELD

(E) STRUCTURE

SEE SHEET 4 OF 4

(E) WELL

LAKE

SEE SHEET 2 OF 4

SEE SHEET 3 OF 4

020-440-013
COX VINEYARDS LLC

020-440-004
BROUNSTEIN

(E) WINERY

100' WELL SETBACK

020-400-012
BROUNSTEIN

(E) WELL

100' WELL SETBACK

020-450-020
WALLIS

650
675
700

020-440-017
REALTY INCOME PROPERTIES 2 LLC

020-450-018
DODSON/KOPPER

GRAPHIC SCALE
250' 0 250'
(IN FEET)
1 INCH = 250 FT

RSA+
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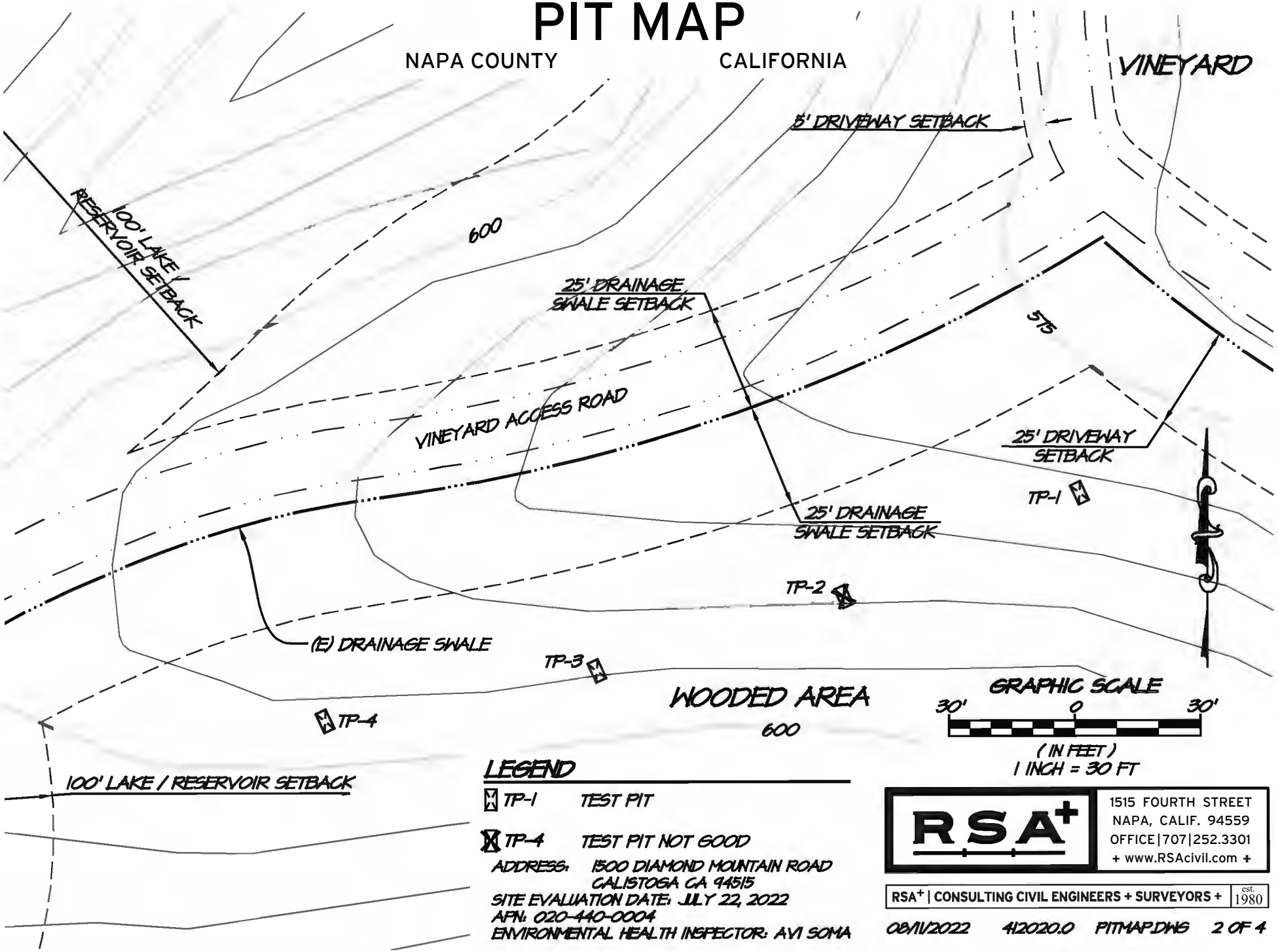
DIAMOND CREEK VINEYARDS
PIT MAP

NAPA COUNTY CALIFORNIA



GRAPHIC SCALE

30' 0 30'

(IN FEET)

1 INCH = 30 FT

LEGEND

TP-1 TEST PIT

TP-4 TEST PIT NOT GOOD

ADDRESS: 1500 DIAMOND MOUNTAIN ROAD
CALISTOGA CA 94515

SITE EVALUATION DATE: JULY 22, 2022

APN: 020-440-0004

ENVIRONMENTAL HEALTH INSPECTOR: AVI SOMA

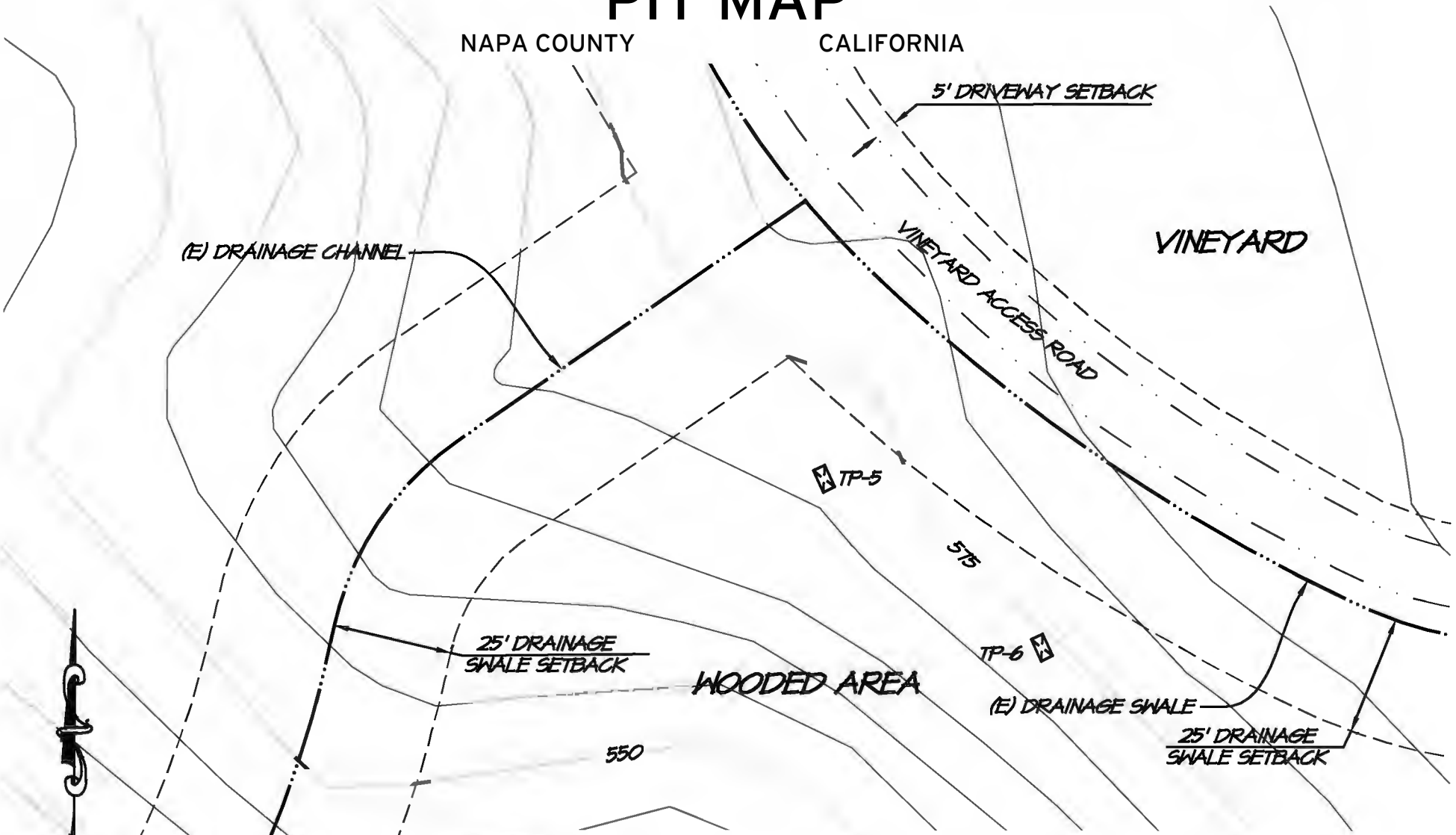
RSA+

1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE | 707 | 252.3301
+ www.RSAcivil.com +

RSA+ | CONSULTING CIVIL ENGINEERS + SURVEYORS + est. 1980

DIAMOND CREEK VINEYARDS
PIT MAP

NAPA COUNTY CALIFORNIA



GRAPHIC SCALE
30' 0 30'
(IN FEET)
1 INCH = 30 FT

LEGEND

TP-1 TEST PIT

TP-4 TEST PIT NOT GOOD

ADDRESS: 1500 DIAMOND MOUNTAIN ROAD CALISTOGA CA 94515

SITE EVALUATION DATE: JULY 22, 2022

APN: 020-440-0004

ENVIRONMENTAL HEALTH INSPECTOR: AVI SOMA

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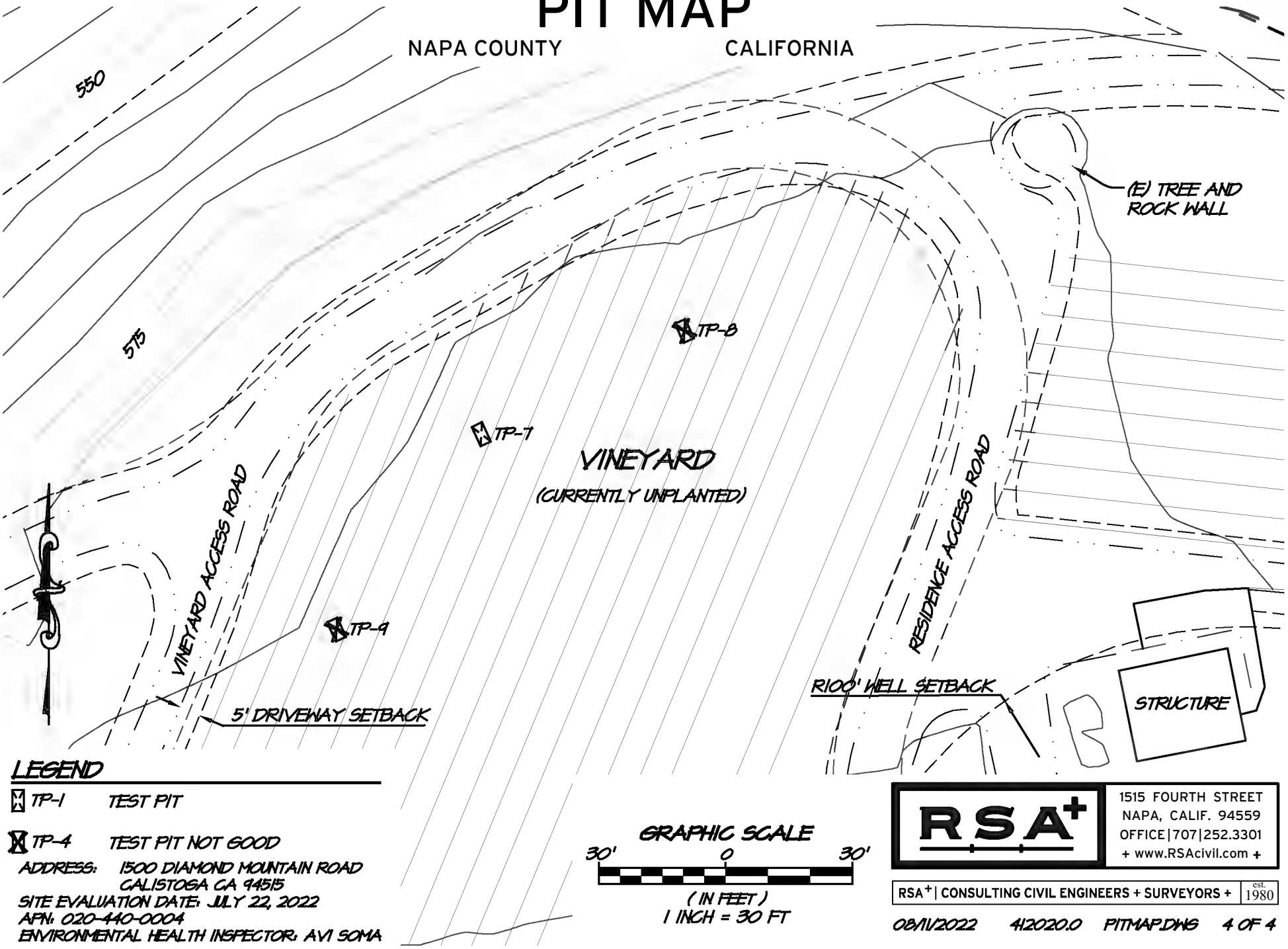
DIAMOND CREEK VINEYARDS
PIT MAP

NAPA COUNTY CALIFORNIA



LEGEND

TP-1 TEST PIT

TP-4 TEST PIT NOT GOOD

ADDRESS: 1500 DIAMOND MOUNTAIN ROAD
CALISTOGA CA 94515
SITE EVALUATION DATE: JULY 22, 2022
APN: 020-440-0004
ENVIRONMENTAL HEALTH INSPECTOR: AVI SOMA

GRAPHIC SCALE
30' 0 30'
(IN FEET)
1 INCH = 30 FT

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1515 FOURTH STREET
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Appendix 3

Existing Process and Wastewater System Design Documentation

10-28-97
FEE 110-
RECEIPT NO. 45942
BY DLP
CK. #5628

A.P.# 020-440-004
RECORD # 96-10128

NAPA COUNTY
DEPT. OF ENVIRONMENTAL MANAGEMENT
APPLICATION & PERMIT TO CONSTRUCT A WATER WELL

NAME Diamond Creek Vineyards (Owner) ADDRESS 1500 Diamond Mtn. Road Calistoga (Job Location)

PHONE # 255-7923

NAME HUCKFELDT WELL DRILLING (Well Driller) ADDRESS 2110 Penny Lane Napa

on-site

TYPE OF WORK
New Class I PERMIT X Test Hole Date Called In _____
New Class II PERMIT _____ U.S.G.S. Map Received _____
Well Reconstruction _____ Well Deepening _____ Horizontal Well _____
Well Destruction _____ High Hazard _____ Low Hazard _____ Hand Dug _____

PROPOSED USE
DOMESTIC _____ IRRIGATION X INDUSTRIAL _____ MUNICIPAL _____
TEST WELL _____ HOT WATER _____ (D.O.G. Clearance _____) OTHER _____

Sewage Disposal System (existing or proposed) Public _____ Individual X Private _____
Distance from well to any part of nearest sewage disposal system 200' feet.
Septic System Location Determined By: Owner, Maps & Driller
Plot plan of well location received yes County road setback _____ ft. from centerline.

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

****

TERMS OF PERMIT

1) Call at least 24 hours in advance to schedule an inspection.
2) Prior to receiving a Final Clearance on the well, a copy of the Department of Water Resources "Water Well Drillers Report" (DWR-188) must be returned to our Department.

Old Wells to be Destroyed:
Other Remarks: >100' to all existing septic - OK
no haz mat files

Don Huckfeldt
Signature of Applicant

Oct. 28, 1997
Date

****

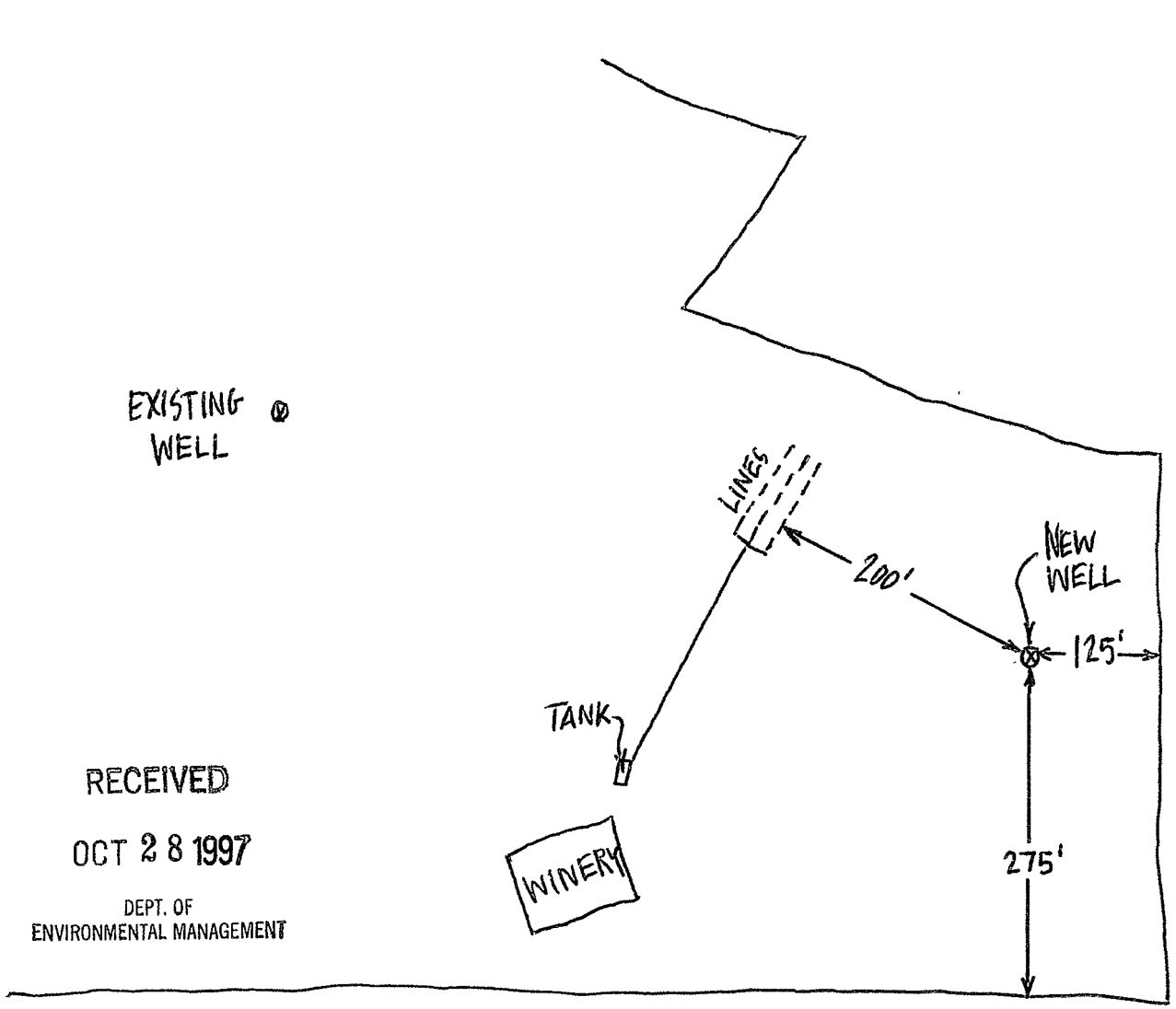
FOR OFFICE USE ONLY

	Date	By	Remarks
City Clearance			
Pub. Works Clearance			
Pre-Inspection			
Class II Approval			
Permit Issued	10/28/97	CMM	
Const. Insp.	11/6/97	gw	13" Bore, 8" Casing 50' Seal depth OK
Well Log Rec.			
Final Insp.			

White-Office Yellow-Owner Pink-Contractor
EHM Form Letter#6 / 12-14-88

HUCKFELDT
WELL DRILLING

DIAMOND CREEK VINEYARD
1500 DIAMOND MTN. RD.
CALISTOGA, CA 94515
AP # 020-440-004



RECEIVED
OCT 28 1997
DEPT. OF
ENVIRONMENTAL MANAGEMENT

2110 PENNY LANE • NAPA, CALIFORNIA 94559 • 707-255-7923 • FAX 252-4651

10000 gal Production / day
250 gal waste / day

SEWAGE DISPOSAL PERMIT

PERMIT # _____

County of Napa - Department of Public Health
Division Of Environmental Health
1123 First Street, Napa - Phone 253-4471

THIS PERMIT EXPIRES 1 YEAR FROM DATE OF ISSUE.

Al Brownstein 1500 Diamond Mtn Rd 9/4/80

Owner Self Address _____ Date 20-440-04

Contractor _____ Parcel No. _____

Change to 1200 gal Tank & 100' of Leach Line w 30" trenches. & 12" rock under Tile.

WORK APPLIED FOR

☐ Dwelling ☐ New Construction ☐ Repairs ☐ Alterations

☒ No. Bedrooms Bathroom in Wine Storage Building

☐ Commercial

☐ Other (explain) _____

☐

☐ Private Sewage Disposal System (explain) X X

☐ Special Design System

WATER SUPPLY: ☐ Public ADD 1500 GAL septic to existing lines ☐ Individual ☐ Building Department Form Received

Specifications (explain) _____

Same $ 40.00

Location T. Cone Permit Fee 8224

Form by _____ Paid _____ X Receipt No. _____

4-30-81 ~~Permit~~ Leach line location changed

See latest perc to be filed soon Signed _____

1500 gal. tank already in. Require 810 for domestic

INSPECTION RECORD

Date	Initial	Work Inspected
5/5/81	MP	

Final Inspection Date 5/5/81 As per plan SEE REVISED PLAN Initial MP

Soil compares with percolation record OK. surface slope(s) — %

Trenches - width 18" x depth 40" ± total length 130'

Gravel under tile 20"-24" over tile 2" distance between trenches 8'

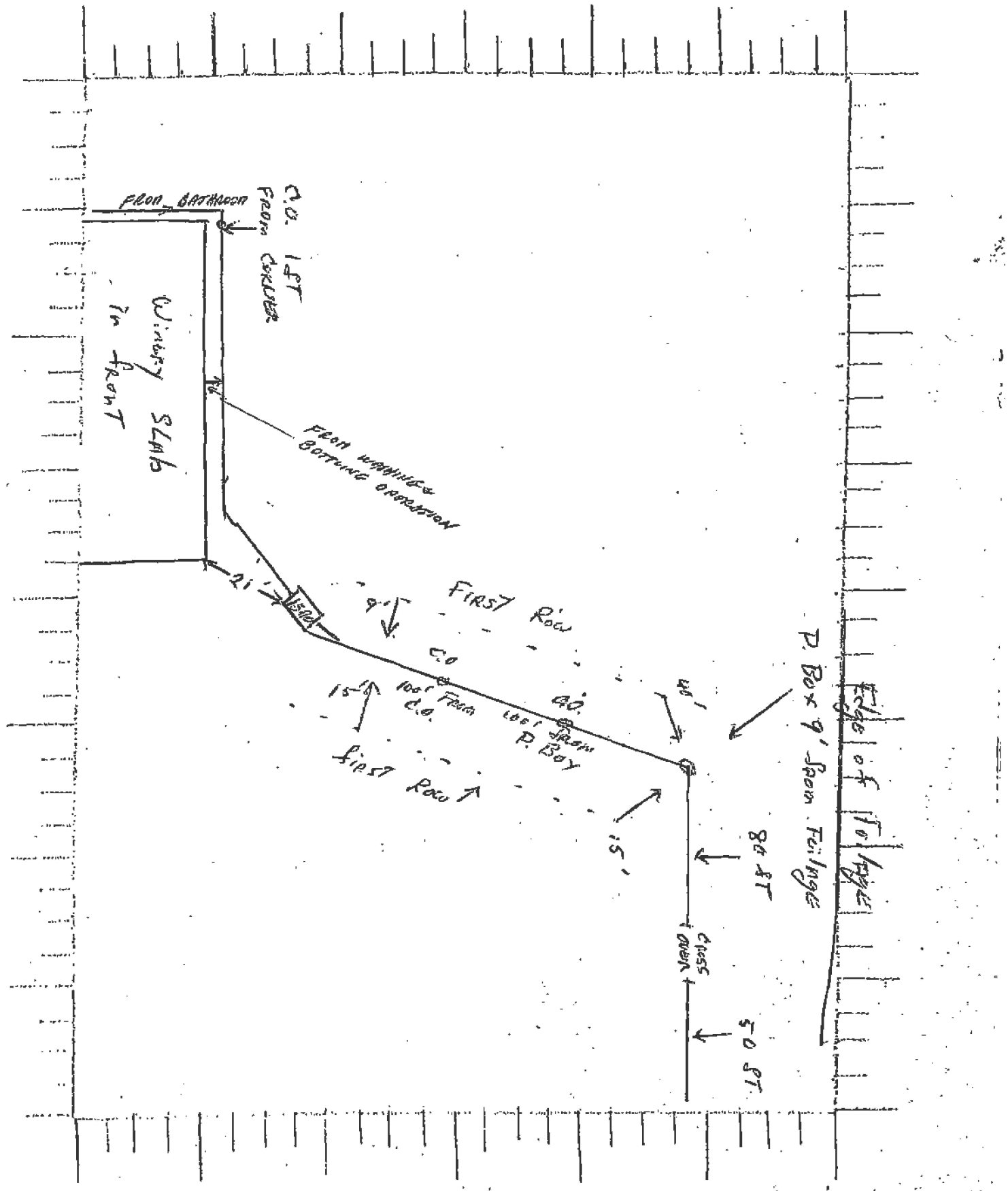
Top of tile to finish grade 12" Distance well from system 100'+

Remarks: NO CRUSHING DONE IN NEW BUILDING (B)

Date _____

NAPA COUNTY HEALTH DEPARTMENT

PLOT PLAN NAME Al Brownstein ADDRESS _____ A.P.# _____



Plans approved - Department of Public Health

DATE APPROVED: _____ APPROVED BY: _____

EH-57:5/76:5C

DATE 7-11-97
FEE $ 195.00 C/# 4551
RECEIPT NO. 45605
BY CG

A.P. # 20-440-04
RECORD # 92-1492
ISSUE DATE
EXPIRATION DATE

NAPA COUNTY DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
APPLICATION & PERMIT TO CONSTRUCT A SEWAGE SYSTEM

OWNER: Diamond Creek Vyds. CONTRACTOR: Eberlein Const.
SITE ADDRESS: 1500 Diamond Mtn Rd. ADDRESS:
MAILING ADDRESS: ADDRESS:
PHONE #: PHONE #:

TYPE OF PROJECT NEW SYSTEM (✓) REPLACE SYSTEM ( ) ADDITION ( ) RELOCATION ( ) DESTRUCTION ( ) TANK SEWER LINE ( ) REPAIR ( )
reason for replace/relocate/repair

PROPOSED USE

RESIDENTIAL:	EXISTING BEDROOMS	TOTAL POTENTIAL BEDROOMS
RESIDENCE ( )		
2nd DWELLING ( )		
GUESTHOUSE ( )		

NON-RESIDENTIAL: DOMESTIC / (INDUSTRIAL) (circle one)
PROJECT Winery + offices
FLOW (gpd) 360 gpd + 52.5 gpd (See letter 12/6/96 re use permit for sizing.)

BUILDING DEPARTMENT FORM RECEIVED ( ) (IF APPLICABLE)
CITY/SEWER DISTRICT CLEARANCE - APPROVED BY

WATER SUPPLY PUBLIC ( ) NAME OF AGENCY
INDIVIDUAL ( ) WELL ( ) SPRING ( ) OTHER
DISTANCE OF CLOSEST WATER SOURCE TO ANY PART OF THE SEWAGE DISPOSAL SYSTEM
INDIVIDUAL WATER SUPPLY PERMIT ISSUED YES ( ) NO ( )

SPECIFICATIONS SEPTIC TANK: EXISTING SIZE (GAL) (2) X 1500 (See Eberlein Const.) PROPOSED SIZE (GAL)
DRAINLINE: TOTAL LENGTH 310 LF TRENCH DEPTH 36" 42" TRENCH WIDTH ~~18"~~ 19"
ROCK UNDER PIPE ~~18"~~ 24" DEPTH COVER MATERIAL OVER ROCK- BACKFILL 12" FILL
SEWER LINE: TYPE ABS/PVC Sch. 40 APPROX. LENGTH
SUMP PUMP: SIZE GAL. (audible and visual alarms required on all pump systems)
SPECIAL DESIGN PLANS: DATE APPROVED DESIGNER
PRIVATE SEWAGE DISPOSAL SYSTEM PLANS: DATE APPROVED DESIGNER

Maintain 100' setback to creek. Stay minimum 4' to mole. #2 (site eval. from 6/19/97) n/a in area of LIVE MOLE 6/10/98
6/10/98 PERMIT SPECS CHANGED THIS DATE - DUE TO MOLE HOLE TRENCH REQUIRED. MR. BRONSTEIN ADVISED. NAT

ISSUING ENVIRONMENTAL HEALTH SPECIALIST: Jane Mackey

WORKER'S COMPENSATION COVERAGE: (CHECK ONE OF THE FOLLOWING)
( ) A certificate of current Worker's Compensation Insurance is 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 without complying with the Worker's Compensation laws of California

TERMS OF PERMIT: APPLICANT AGREES THAT:
1) EH SPECIALIST WILL BE NOTIFIED A MINIMUM OF 24 HOURS PRIOR TO REQUIRING INSPECTION(S)
2) EH SPECIALIST'S INSPECTION WILL BE OBTAINED PRIOR TO COVERING THE SYSTEM
3) THE PERMIT AND A COPY OF THE APPROVED SPECIAL DESIGN SEWAGE DISPOSAL SYSTEM DESIGN (IF APPLICABLE) SHALL BE AVAILABLE AT THE PARCEL SITE AT ALL TIMES
4) ANY DEVIATION FROM PERMIT SPECIFICATIONS WITHOUT PRIOR APPROVAL FROM THIS OFFICE WILL BE CAUSE FOR STOPPING WORK UNTIL THE CHANGES ARE FULLY JUSTIFIED AND APPROVED
5) PRIOR TO AUTHORIZING OCCUPANCY OF ANY BUILDING WITH A SPECIAL DESIGN SEWAGE SYSTEM, A SIGNED STATEMENT BY THE DESIGNER CERTIFYING THE SYSTEM WAS INSTALLED IN COMPLIANCE WITH THE APPROVED PLANS MUST BE SUBMITTED TO THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

I, THE UNDERSIGNED, AGREE TO COMPLY WITH ALL CONDITIONS OF THIS PERMIT AND ALL OTHER APPLICABLE CODE REQUIREMENTS. FURTHERMORE, I UNDERSTAND THAT THE OFFICE OF ENVIRONMENTAL MANAGEMENT IN NO WAY GUARANTEES INDEFINITE TROUBLE-FREE OPERATION OF THIS SYSTEM, AND THAT FUTURE REPAIR MAY BE NECESSARY.

OWNER OR AUTHORIZED AGENT: Jay Dougherty

INSPECTION SCHEDULE

WORK PERFORMED BY (CONTRACTOR) P+L

SEWER LINE: MATERIAL AND SIZE 3" PVC Sch 40 FALL plenty also 4" cast iron (plenty) needs clearout 9-30-98 (PC)
FINAL DEPTH _____ DISTANCE TO ANY WATER SOURCE _____
COMMENTS _____
INSPECTOR CMS DATE 6/23/98

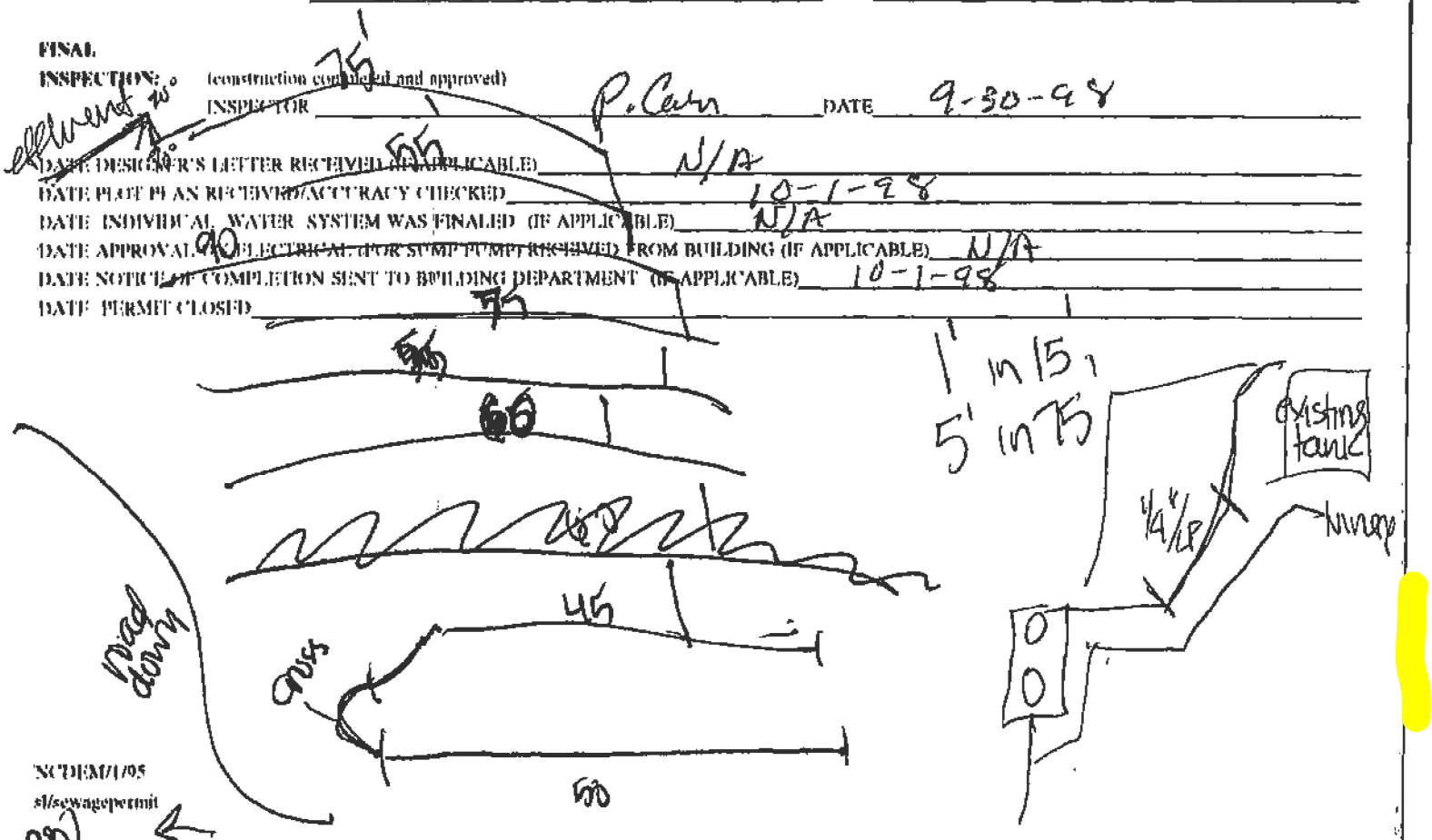
SEPTIC TANK: MANUFACTURER Selvage TYPE Concrete SIZE 1500
DISTANCE TO ANY WATER SOURCE _____
COMMENTS _____
INSPECTOR CMS DATE _____

LEACH LINES: TRENCH WIDTH 18" TRENCH DEPTH 36" TOTAL LENGTH 495'
NUMBER OF LINES 8 ROCK UNDER LEACH LINE 24" DISTANCE BETWEEN TRENCHES 8'
DEPTH OF COVER MATERIAL OVER ROCK 6"+6" fill DISTANCE TO ANY WATER SOURCE >7100'
COMMENTS ends of last two lines - 42" w/ 12" cover
INSPECTOR CMS DATE 6/16/98

SUMP PUMP: MANUFACTURER _____ TYPE _____ SIZE _____
PUMP CHECKED _____ ALARM CHECKED _____
COMMENTS _____
INSPECTOR _____ DATE _____

ACCESSORY FACILITIES: (DIVERSION DRAINS, D-BOXES, ETC.) effluent line w/ 600LF ties onto new system
COMMENTS _____
INSPECTOR _____ DATE _____

FINAL INSPECTION: (construction completed and approved)
INSPECTOR P. Carr DATE 9-30-98
DATE DESIGNER'S LETTER RECEIVED (IF APPLICABLE) N/A
DATE PLOT PLAN RECEIVED/ACCURACY CHECKED 10-1-98
DATE INDIVIDUAL WATER SYSTEM WAS FINALED (IF APPLICABLE) N/A
DATE APPROVAL OF ELECTRICAL (FOR SUMP PUMP) RECEIVED FROM BUILDING (IF APPLICABLE) N/A
DATE NOTICE OF COMPLETION SENT TO BUILDING DEPARTMENT (IF APPLICABLE) 10-1-98
DATE PERMIT CLOSED _____



NCDEM/1/95
sl/sewagepermit
pso

P & R Septic Systems
P.O. BOX 6776 • NAPA, CA 94581
(707) 252-6866
LIC. #482218

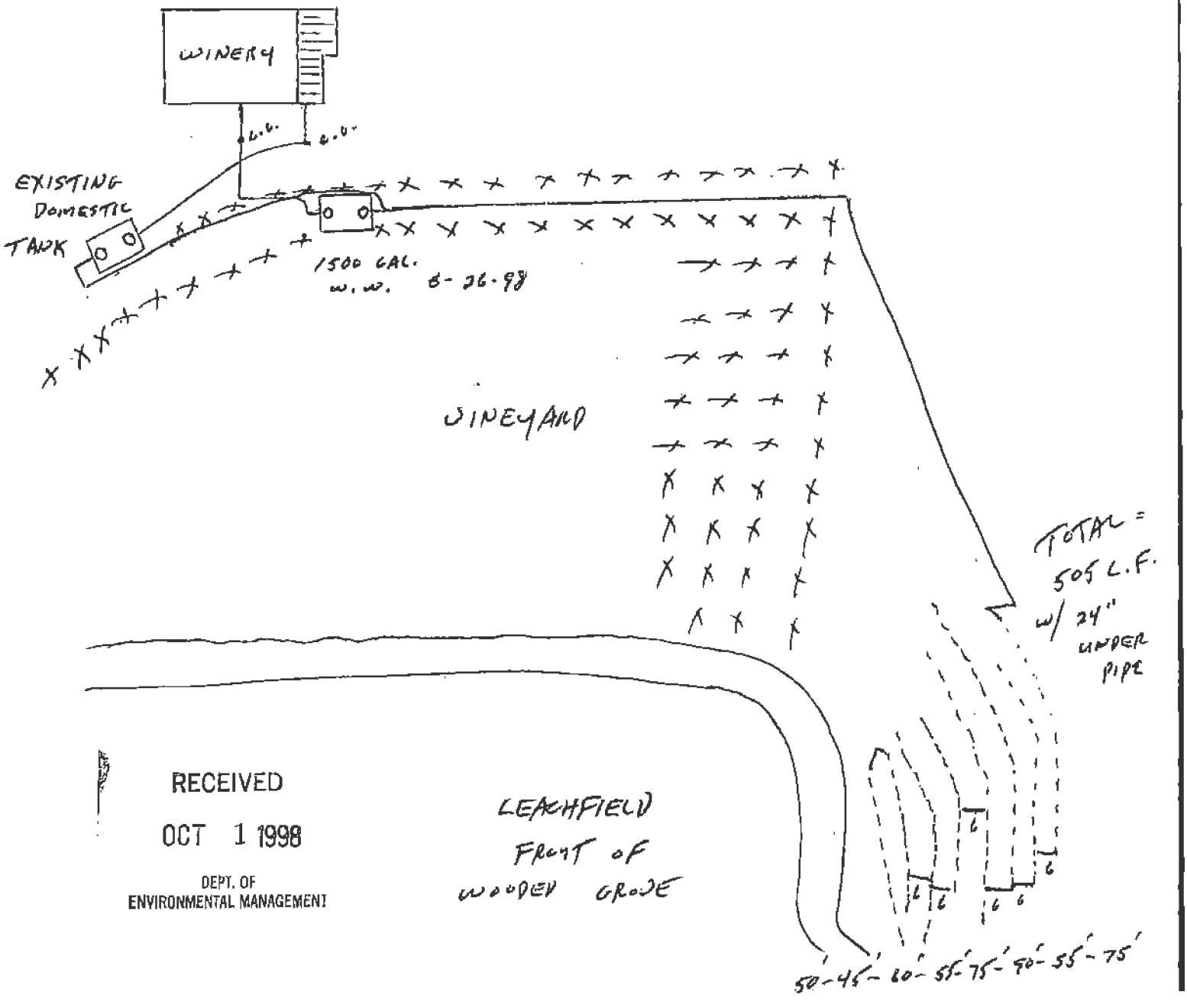
SEPTIC SYSTEM PLOT PLAN

DIAMOND CREEK VINEYARDS

1500 DIAMOND MOUNTAIN RD. - CALISTOGA

AP #

JUNE 26, 1998



RECEIVED
OCT 1 1998
DEPT. OF
ENVIRONMENTAL MANAGEMENT

NAPA COUNTY

DIVISION OF
ENVIRONMENTAL HEALTH

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

1195 THIRD STREET, ROOM 101 • NAPA, CALIFORNIA 94559-3082
AREA CODE 707/253-4471 • FAX 707/253-4545

December 6, 1996

Albert Brounstein
1500 Diamond Mountain Road
Calistoga, California 94515

Subject: Use Permit Application 96387-MOD

Dear Mr. Brounstein,

As you may recall, I sat in on your pre-application meeting with Mr. Kevin Eberle of the Planning Department on September 12, 1996 and further discussed the subject project with you on September 16, 1996. As a part of these meetings and conversations, we discussed the requirements our department would have for your use permit modification.

It was required that a separate septic tank for domestic and winery waste would provided and that additional leach line would be needed to accommodate the crush portion of the winery facility. You had indicated that you may want to relocate the entire septic system to a new location. If this is still the way you wish to go, we will need to do a site evaluation in the new area to determine the soil percolation rate and depth. If you wish to keep the system in the same area and just add on to it, we will need to see a core hole in the area of the existing system to confirm the soil percolation rate and depth. Keep in mind however, if the soil in the new area is not acceptable, then the system will have to remain where it is.

In either case, this can be done after the use permit is approved. We will require that you secure your sewage permit prior to issuance of the building permit. As discussed, the amount of waste water we calculated for a 3000 case winery and a 30 day +/- crush period, was approximately 360 gallons per day and for the 3.5 employees to be approximately 52.5 gallons per day. The septic system will be sized for these waste water flows.

Please contact me if you have any questions regarding the above.

Sincerely,

Christine M. Secheli

CHRISTINE M. SECHELI
Registered Environmental Health Specialist

sewage/brounstein12.6

THIS PERMIT EXPIRES 1 YEAR FROM DATE OF ISSUE.

SEWAGE DISPOSAL PERMIT

County of Napa - Department of Public Health
Division Of Environmental Health
1123 First Street, Napa - Phone 253-4471

PERMIT # _____

Owner Albert Brownstein Address 1500 Diamond Mtn Rd Calistoga Date 1 Sept 77

Contractor Blakley const Parcel No. 20-400-12

WORK APPLIED FOR

☒ Dwelling ☒ New Construction ☐ Repairs ☐ Alterations

3 ☒ No. Bedrooms
☒ Commercial
☐ Other (explain) wine storage facility
☐
☐ Private Sewage Disposal System (explain)
☐ Special Design System

WATER SUPPLY: ☐ Public ☒ Individual ☒ Building Department Form Received

Specifications (explain) install 1200 gal septic tank with 280' of drain line 18" of rock under pipe plus 20' of drain line for wine storage facility

Location same Permit Fee 50.00

Form by JBM Paid _____ Receipt No. 4287

Signed _____

EH-3

INSPECTION RECORD

Date	Initial	Work Inspected
[illegible]	JBM	Tank & lines OK, sump not in yet

Final Inspection Date _____ As per plan yes Initial _____

Soil compares with percolation record yes surface slope(s) 3% %

Trenches - width 18" x depth 36" total length 280

Gravel under tile 18' over tile 3' distance between trenches _____

Top of tile to finish grade _____ Distance well from system 100'

Remarks: _____

DIVISION OF ENVIRONMENTAL HEALTH
Department of Public Health
1123 First Street - 255-5966
Napa, CA 94558

DATE 5 oct 77

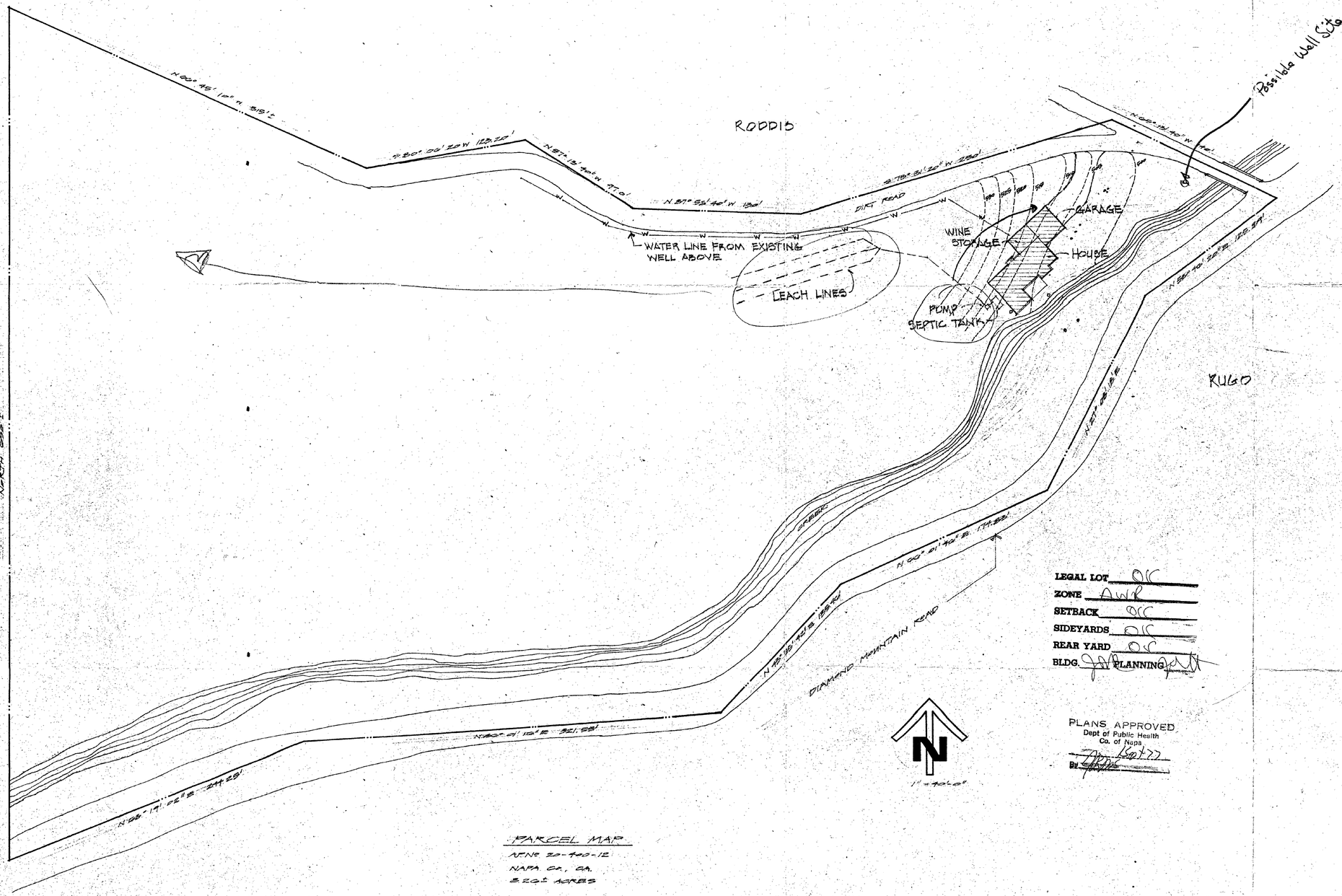
TO AP #6 20-400-12 FROM BMC

SUBJECT

FOR: ☐ Initial ☐ Signature ☐ Approval ☐ Comments ☐ Discussion ☐ Information

PLEASE: ☐ File ☐ Return ☐ Draft Reply ☐ Route To

MESSAGE: meet with Dick Blankley to confirm the septic tank had to be 25' from creek & that was what plot plan showed. & owner was incorrect in saying that I approved otherwise



PARCEL MAP
APN# 20-400-12
NAPA CO., CA.
8.20± ACRES

LEGAL LOT OK
ZONE AWR
SETBACK OK
SIDEYARDS OK
REAR YARD OK
BLDG. PLANNING

PLANS APPROVED
Dept of Public Health
Co. of Napa
By _____ Date 3/9/77

RECEIVED
MAR 9 1977
Napa County Conservation, Development & Planning Commission

REVISIONS	BY

L.W. NIEMI & ASSOCIATES
ARCHITECTS AIA
1115 ADAMS ST. SAINT HELENA CA. 94574 707/963-5300

BROUNSTEIN PLOT PLAN

DIAMOND MOUNTAIN RD., NAPA CO.

DATE	8 MARCH '77
SCALE	1" = 40'
DRAWN	
JOB	
SHEET	1
OF	SHEETS

DATAPRINT CORP. 800 LITTLEFIELD AVE. SO. SAN FRANCISCO CA. 94080
DATAPRINT STOCKDRAFTING FORM NO. 101-84

DATE 10/30/96
FEE $195.00
RECEIPT NO. 43362
BY PT

A.P. # 20-400-12
RECORD # 6625
ISSUE DATE
EXPIRATION DATE

NAPA COUNTY DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
APPLICATION & PERMIT TO CONSTRUCT A SEWAGE SYSTEM

OWNER: Diamond Creek Vyds CONTRACTOR: P+R Septic
SITE ADDRESS: 1500 Diamond Mt. Rd. ADDRESS:
MAILING ADDRESS:
PHONE #: PHONE #:

TYPE OF PROJECT NEW SYSTEM ( ) REPLACE SYSTEM ( ) ADDITION ( ) RELOCATION ( ) DESTRUCTION ( ) SEWER LINE ( ) REPAIR (✓) TANK
reason for replace/relocate/repair old sump malfunctioning - to be replaced

PROPOSED USE

	EXISTING BEDROOMS	TOTAL POTENTIAL BEDROOMS
RESIDENTIAL:		
RESIDENCE ( )		
2nd DWELLING ( )		
GUESTHOUSE ( )		

NON-RESIDENTIAL: DOMESTIC / INDUSTRIAL (circle one)
PROJECT
FLOW (gpd)

BUILDING DEPARTMENT FORM RECEIVED ( ) (IF APPLICABLE)
CITY/SEWER DISTRICT CLEARANCE - APPROVED BY
Serves office and house.

WATER SUPPLY **PUBLIC** ( ) NAME OF AGENCY
INDIVIDUAL ( ) WELL ( ) SPRING ( ) OTHER
DISTANCE OF CLOSEST WATER SOURCE TO ANY PART OF THE SEWAGE DISPOSAL SYSTEM
INDIVIDUAL WATER SUPPLY PERMIT ISSUED YES ( ) NO ( )

SPECIFICATIONS **SEPTIC TANK:** EXISTING SIZE (GAL) exist 1200 PROPOSED SIZE (GAL)
DRAINLINE: TOTAL LENGTH Exist TRENCH DEPTH TRENCH WIDTH
ROCK UNDER PIPE DEPTH COVER MATERIAL OVER ROCK- BACKFILL FILL
SEWER LINE: TYPE Exist APPROX. LENGTH
SUMP PUMP: SIZE 500 gal GAL (audible and visual alarms required on all pump systems)
SPECIAL DESIGN PLANS: DATE APPROVED DESIGNER
PRIVATE SEWAGE DISPOSAL SYSTEM PLANS: DATE APPROVED DESIGNER

Contractor to install new 500 gal sump and new pump with audible and visual alarm. Contractor to provide spec sheet for pump + alarm system. ISSUING ENVIRONMENTAL HEALTH SPECIALIST: Joanna Michael

WORKER'S COMPENSATION COVERAGE: (CHECK ONE OF THE FOLLOWING)
(X) A certificate of current Worker's Compensation Insurance is 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 without complying with the Worker's Compensation laws of California

TERMS OF PERMIT: APPLICANT AGREES THAT:
1) EH SPECIALIST WILL BE NOTIFIED A MINIMUM OF 24 HOURS PRIOR TO REQUIRING INSPECTION(S)
2) EH SPECIALIST'S INSPECTION WILL BE OBTAINED PRIOR TO COVERING THE SYSTEM
3) THE PERMIT AND A COPY OF THE APPROVED SPECIAL DESIGN SEWAGE DISPOSAL SYSTEM DESIGN (IF APPLICABLE) SHALL BE AVAILABLE AT THE PARCEL SITE AT ALL TIMES
4) ANY DEVIATION FROM PERMIT SPECIFICATIONS WITHOUT PRIOR APPROVAL FROM THIS OFFICE WILL BE CAUSE FOR STOPPING WORK UNTIL THE CHANGES ARE FULLY JUSTIFIED AND APPROVED
5) PRIOR TO AUTHORIZING OCCUPANCY OF ANY BUILDING WITH A SPECIAL DESIGN SEWAGE SYSTEM, A SIGNED STATEMENT BY THE DESIGNER CERTIFYING THE SYSTEM WAS INSTALLED IN COMPLIANCE WITH THE APPROVED PLANS MUST BE SUBMITTED TO THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

I, THE UNDERSIGNED, AGREE TO COMPLY WITH ALL CONDITIONS OF THIS PERMIT AND ALL OTHER APPLICABLE CODE REQUIREMENTS. FURTHERMORE, I UNDERSTAND THAT THE OFFICE OF ENVIRONMENTAL MANAGEMENT IN NO WAY GUARANTEES INDEFINITE TROUBLE-FREE OPERATION OF THIS SYSTEM, AND THAT FUTURE REPAIR MAY BE NECESSARY.

OWNER OR AUTHORIZED AGENT: Mary J Miller

INSPECTION SCHEDULE

WORK PERFORMED BY (CONTRACTOR) _____

SEWER LINE: MATERIAL AND SIZE_____ FALL_____
FINAL DEPTH_____ DISTANCE TO ANY WATER SOURCE_____
COMMENTS_____
INSPECTOR_____ DATE_____

SEPTIC TANK: MANUFACTURER_____ TYPE_____ SIZE_____
DISTANCE TO ANY WATER SOURCE_____
COMMENTS_____
INSPECTOR_____ DATE_____

LEACH LINES: TRENCH WIDTH_____ TRENCH DEPTH_____ TOTAL LENGTH_____
NUMBER OF LINES_____ ROCK UNDER LEACH LINE_____ DISTANCE BETWEEN TRENCHES_____
DEPTH OF COVER MATERIAL OVER ROCK_____ DISTANCE TO ANY WATER SOURCE_____
COMMENTS_____
_____
_____
INSPECTOR_____ DATE_____

SUMP PUMP: MANUFACTURER Selbug TYPE Concrete SIZE 500 gal
PUMP CHECKED_____ ALARM CHECKED_____
COMMENTS Still need to see pump + audio/visual alarm JM 11/96
INSPECTOR_____ DATE_____

ACCESSORY FACILITIES: (DIVERSION DRAINS, D-BOXES, ETC.)_____
_____
_____
COMMENTS_____
INSPECTOR_____ DATE_____

FINAL INSPECTION: (construction completed and approved)
INSPECTOR _____ DATE_____

DATE DESIGNER'S LETTER RECEIVED (IF APPLICABLE)_____
DATE PLOT PLAN RECEIVED/ACCURACY CHECKED_____
DATE INDIVIDUAL WATER SYSTEM WAS FINALED (IF APPLICABLE)_____
DATE APPROVAL ON ELECTRICAL (FOR SUMP PUMP) RECEIVED FROM BUILDING (IF APPLICABLE)_____
DATE NOTICE OF COMPLETION SENT TO BUILDING DEPARTMENT (IF APPLICABLE)_____
DATE PERMIT CLOSED_____

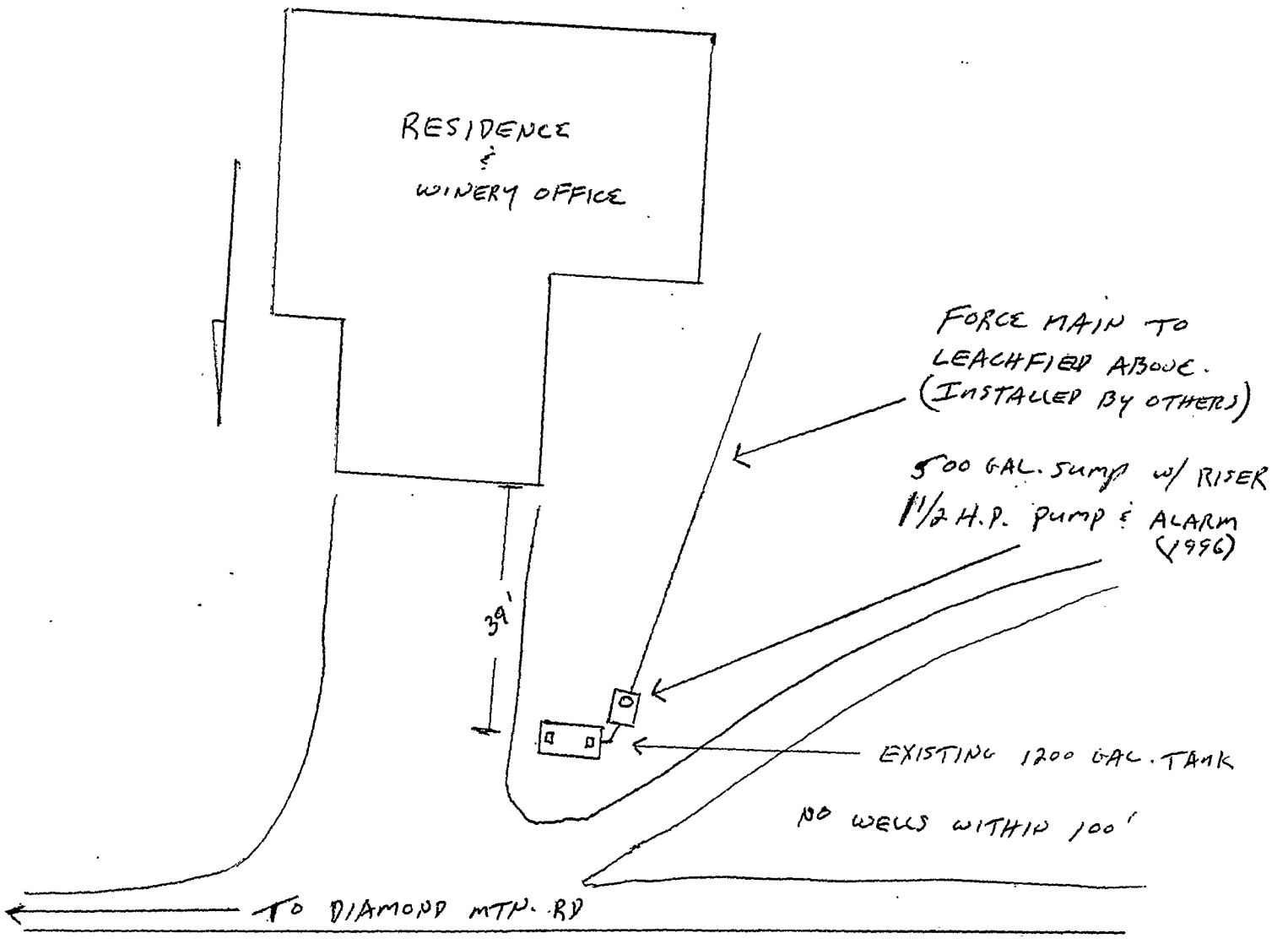
P & R Septic Systems
P.O. BOX 6776 • NAPA, CA 94581
(707) 252-6866
LIC. #482218

SEPTIC SYSTEM REPAIR PLOT PLAN AS BUILT (SUMP)

DIAMOND CREEK VINEYARDS
1500 DIAMOND MTN. RD.
AP # 20-400-12

NOV. 21, 1996

RECEIVED
DEC - 3 1996
DEPT. OF
ENVIRONMENTAL MANAGEMENT



1500 DIAMOND MTN RD. DIAMOND CREEK VINEYARDS RESIDENCE/OFFICE

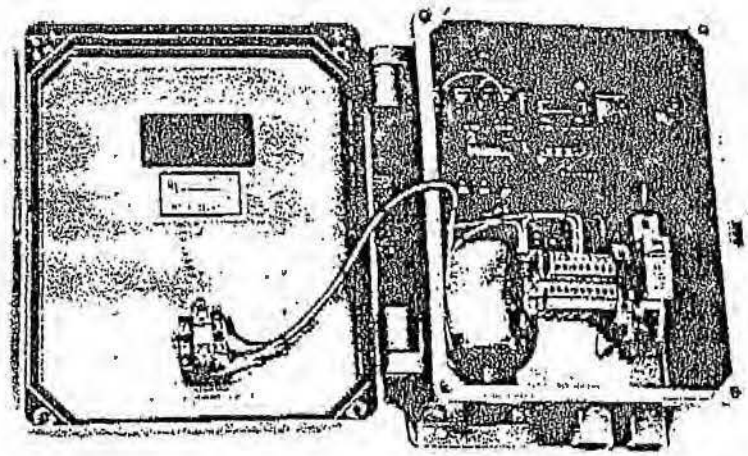
ORENCO SYSTEMS® SIMPLEX CONTROL PANEL

ORENCO SYSTEMS® Simplex Control Panels offer quality components for reliable automatic pump operation. Standard functions include circuit breaker, manual, off and automatic motor control operation, plus an audio/visual high-water alarm circuit with audio silence and automatic reset upon correction of the high-water condition.

A selection of optional features offers flexibility for a variety of pumping applications.

ORENCO SYSTEMS® control panels are specifically engineered for pressure sewer (STEP) systems, for controlling pumping into conventional gravity collection systems and for on-site systems such as intermittent sand filters, recirculating gravel filters, low pressure drainfields, as well as for simple uphill pumping to standard drainfields.

ORENCO SYSTEMS® control panels are especially designed for use with mercury float switches but are compatible with any standard dry-contact switching method.



STANDARD FEATURES:

- **Listing:**
  Underwriters Laboratories.
- **Rating:**
  Model S-1 rated at 115 VAC, 1 Hp, 16 A, Single Phase, 60 Hz.
  Model S-2 rated at 230 VAC, 3 Hp, 16 A, Single Phase, 60 Hz.
- **Motor-Start Contactor:**
  Rated for 24 FLA, Single Phase, 60 Hz.
- **Current Limiting Circuit Breaker:**
  20 amp, OFF/ON switch, DIN rail mounting with thermal magnetic tripping characteristics. (Single Pole / 115 V; Double Pole / 220 V)
- **Toggle Switch:**
  A SPDT HOA switch with a 20 amp motor rating.
- **Fuse Disconnect:**
  5 amp (10,000 AIC) fuse with DIN rail mount.
- **Audible Alarm:**
  Panel mount with a minimum of 80 db sound pressure at 24 inches, warble tone sound.
- **Visual Alarm:**
  NEMA 4-rated, 7/8-inch diameter, red lens, oil-tight with push-to-silence feature.
- **Audio-Alarm Silence Relay:**
  115 VAC, automatic reset, with DIN rail mount socket base.
- **Alarm Circuit:**
  Wired separately from the pump circuit, so that if the pump's internal overload switch or current-limiting circuit breaker is tripped the alarm system remains functional.
- **Enclosure:**
  NEMA 4X-rated, fiberglass with hinged cover. Noncorroding. Dimensions: 10" High X 8" Wide X 5-1/8" Deep. External mounting ears.
- **Padlockable Latch:**
  Constructed of noncorroding stainless steel.



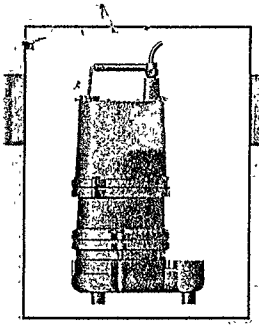
OPTIONAL FEATURES:

- **Elapsed Time Meter:**
  115 VAC, 7-digit, nonresettable.
- **Counter:**
  115 VAC, 6-digit, nonresettable, horizontal base mount.
- **Programmable Timer:**
  5 amp, 110 VAC, DPDT relay output, repeatable cycle from 10 sec. to 10 hours with four time ranges. Separate variable controls for ON and OFF time.
- **Intrinsically Safe Control Relay:**
  115 VAC, 0 to 10,000 ohm sensitivity range. The secondary circuit limits the current to 2.3 mA at 11 VAC.

Other custom features can be provided.

RENCO SYSTEMS, INC. 2826 Colonial Road Roseburg, OR 97470 503/673-0165

Diamond Creek Sidewalks 20-400-12



ENGINEERING DETAILS - SKHD150

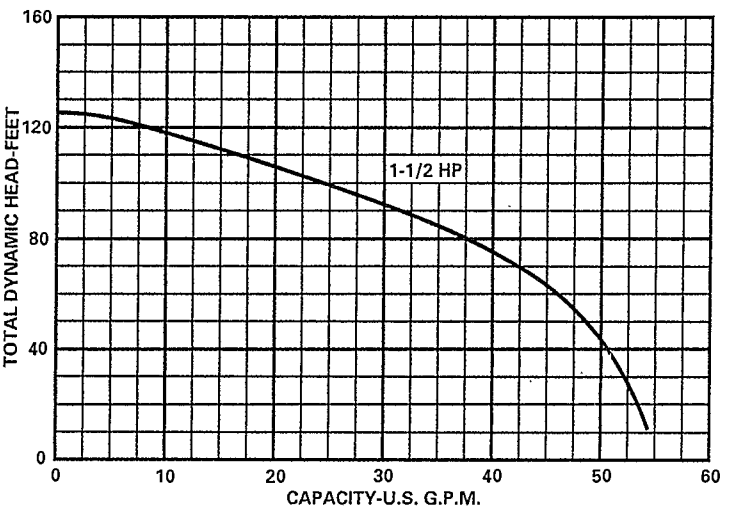
Pump Characteristics

Pump/Motor Unit	Submersible				
Manual Models	M2	M6	M3	M4	M5
Horsepower	1-1/2				
Full Load Amps	12.0	6.1	5.7	2.9	2.7
Motor Type	Capacitor Start	Three-Phase			
R.P.M.	3450				
Phase Ø	1	3			
Voltage	230	200	230	460	575
Hertz	60				
Operation	Intermittent				
Temperature	140°F Ambient				
NEMA Design	B				
Insulation	Class B				
Discharge Size	1-1/2" NPT				
Solids Handling	3/4"				
Unit Weight	75 lbs.				
Power Cord	16/3, STWA, 1o, 230V = 20' std. 16/4, STWA, 1o, 230V = 20' std. (S.F.) 18/5, STWA, 3o, 200V, 230V, 460V, or 575V = 20' std. (S.F.)				

Materials of Construction

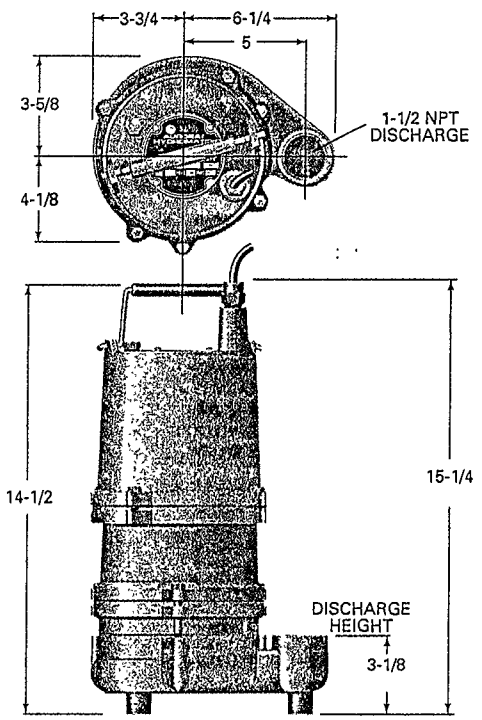
Handle	Steel
Lubricating Oil	Dielectric Oil
Motor Housing	Cast Iron
Pump Casing	Cast Iron
Shaft	Stainless Steel
Mechanical Shaft Seal	Seal Faces: Carbon/Ceramic Seal Body: Brass Spring: Stainless Steel Bellows: Buna-N
Impeller	Thermoplastic
Upper Bearing	Single Row Ball Bearing
Lower Bearing	Single Row Ball Bearing
Fasteners	Stainless Steel

Performance Data



Total Head (feet)		40	60	80	100	120	125
GPM	1-1/2 HP	51	45	36	24	9	0

Dimensional Data



1. All dimensions in inches
2. Component dimensions may vary ± 1/8 inch
3. Not for construction purpose unless certified
4. Dimensions and weights are approximate
5. We reserve the right to make revisions to our products and their specifications without notice

AURORA/HYDROMATIC Pumps, Inc.
1840 Baney Road, Ashland, Ohio 44805
(419) 289-3042

25M 1-90-KCC PRINTED IN USA

Appendix 4

McCollum General Engineering Septic Inspection Report

McCollum

General Engineering Contractor

P.O. Box 2223

Yountville, CA 94599

Phone: 707.252.6220

Fax: 707.224.1753

MGECONSTRUCTION@YAHOO.COM

Lester Hardy

RE: 1500 Diamond Mountain Road.

As instructed by Lester Hardy, McCollum General Engineering (M.G.E.) conducted an investigation of the existing septic system located at 1500 Diamond Mountain Road, St. Helena CA. The following information was collected during a one-day investigation (01/25/2021).

1. The septic tank was located, opened, pumped and visually inspected. Septic tank is a pre fab concrete with concrete access risers and metal lids. The inlet T, outlet T are in place. The baffle wall is in place. The tank is located in a manmade concrete floor pond. There is a clean out at the outlet tight line. The outlet tight line gravity flows into the process waste tank. The process waste tank is also directly tied into the winery.

Tank location.



Access riser and metal lid.



Inlet T.



2. Leach lines were probed, rodded and potholed for location and depth. The outlet tight line from the process waste tank flows directly into a serial distribution leach field. The leach field is combined sanitary sewer and process waste. There are eight lines in the field. The leach lines are 3" Hancore PVC. There are five hundred five lineal feet of leach line in the field. The pipe line is clear of obstructions and debris. The ¾ gravel rock section below the Hancore leach line is clean and no debris are present at this time. There is approximately eighteen inches of soil cover over the leach lines.

Rock section clean.



Hancore leach line.



Leach line free of debris



MGE replaced all access lids at the septic tank and secured. Potholes were backfilled and covered in the leach field area.

In summary the existing septic system is operating correctly. Water enters the septic tank from the inlet T, settles solids, passes through the baffle wall and exits the tank through the outlet T. Water flows from the tank outlet into a serial distribution leach field. The leach field is located below the vineyard.

Septic systems will process water differently depending on household water usage, cleaning chemicals, number of residents and daily flows. (Please see attachment for proper septic system operation and maintenance.)

Municode setbacks for septic system construction–

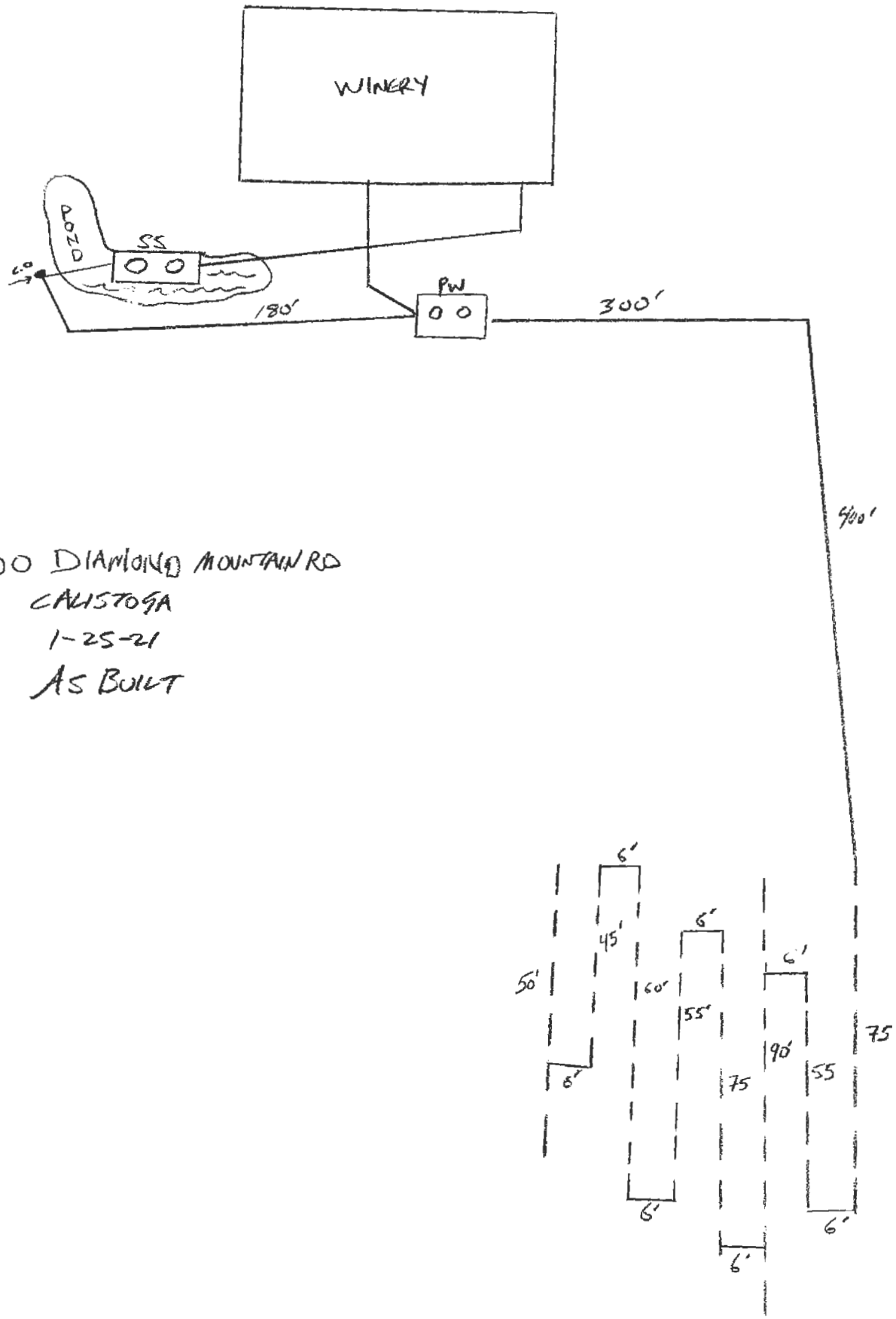
http://library.municode.com/index.aspx?clientId=16513&stateId=5&stateName=California

Please call if you have any questions.

Sincerely,
Gary L. McCollum
COWA/NAWT Certified Onsite
Waste Water Inspector/Installer

Company Disclaimer

Based on what we were able to observe and our experience with onsite wastewater technology, we submit this Onsite Wastewater Treatment System Inspection Report based on the present condition of the onsite wastewater treatment system. McCollum General Engineering has not been retained to warrant, guarantee, or certify the proper functioning of the system for any period of time in the future. Because of the numerous factors (usage, soil characteristics, previous failures, etc.) which may effect the proper operation of a wastewater treatment system, this report shall not be construed as a warranty by our company that the system will function properly for any particular owner or buyer. McCollum General Engineering DISCLAIMS ANY WARRANTY, either expressed or implied, arising from the inspection of the wastewater treatment system or this report. We are also not ascertaining the impact the system is having on the environment.



1500 DIAMOND MOUNTAIN RD
CALISTOGA
1-25-21
AS BUILT

EXISTING INDIVIDUAL SEPTIC SYSTEM INSPECTION REPORT FORM FOR NAPA COUNTY

PROPERTY OWNER *Hardy* DATE: *1/25/2021*
ADDRESS: *1500 Diamond Mountain Road, Calistoga, CA* A.P.N. *020-440-004*

PRIMARY TREATMENT SEPTIC TANK
Distance from closest well:
This parcel *100+'* Adjacent parcel *100+'*
Distance from foundation: *28'*
Distance from property line: *100+'*
Material-tank *Concrete* Lid *Concrete*
Number of compartments: *Two*
Total Capacity: *1500gal.*

Date tank was last pumped: *1/25/2021*
Pumped by: Dependable
Pre-fab tank or poured in place (describe):
Pre fab Concrete
Inside Length 9' Width 4.5' Depth 5'

SECONDARY TREATMENT-DISPOSAL FIELD (if other than leach field, describe below)
Distance from closest well:
this parcel *100+'* Adjacent parcel *100+'*
Distance from foundation: *100'*
Distance to property line: *100+'*
Number of lines: *8*

Total length on leach line: *505'*
Total effective sidewall: *1010'*
Amount of filter Material: *18"* Type of pipe: *3" Hancore*
Below pipe: *12"* Type of filter material: *3/4" rock*
Above pipe: 6" Depth of cover over pipe: *18"*
Trench Width: 18" Depth: 39"

GENERAL INFORMATION
Is the house/structure presently occupied? *Yes* How many bedrooms? N/A
If commercial use, how many employees (FT / PT) *N/A* How many units served by this system? *ONE*
Any other septic systems of the property? *No*. If yes, how many? 0

CONDITION OF SYSTEM
Make a statement of the condition of the septic tank and interior surfaces, including baffles and fittings. How was this determined? *Septic tank was located, pumped and visually checked. Inlet T and outlet T are in place. The Baffle wall is in place. Tank has no risers or filter.* Note: If tank is over five years old, it must be inspected (pumping is required to allow inspection).

Make a statement on the condition of the sump/pump (if applicable), including size, alarm, structure, etc. *N/A*

Make a statement on the condition of the distribution box, leaching line, etc. How was the length and location of the disposal field determined? *Leach lines were probed, rodded and potholed for location and depth. Leach line are three inch Hancore. There are eight lines in the field. The field is operating as designed.* Note: Information on disposal field must be determined by physically locating each line by exposing the ends. All distribution boxes must be uncovered and inspected.

(Licensed Contractor)

McCollum

General Engineering Contractor

P.O. Box 2223
Yountville, CA 94599
Phone: 707.252.6220
Fax: 707.224.1753
MGECONSTRUCTION@YAHOO.COM

Bruce Fenton
RSA Civil
Engineering

RE: 1490 Diamond Mt Rd

As instructed by Bruce Fenton RSA Civil Engineering, McCollum General Engineering (M.G.E.) conducted an investigation of the existing septic system located at 1490 Diamond Mt Rd, Calistoga CA. The following information was collected during a one day investigation (5/08/2025).

1. The septic tank was located, opened, pumped and visually inspected. The septic tank is located by the front entrance gate. The tank has concrete access lids. The inlet T is in place and baffle wall is in place. There is concrete erosion at the outlet side of the tank and root intrusion. The inlet of the tank has major root intrusion. There is soil debris in the inlet side tank bottom. The tank is concrete with a 1200 gallon capacity. The tank was below flow line upon arrival.

2. There is a 500 gallon pump tank tied to the septic tank. The pump tank is concrete with a concrete access lid. The pumps and floats were manually operated by the control panel. The pump tank is in acceptable condition. The two inch PVC SCH40 pump line is approximately eight hundred and twenty feet long. The pump line pumps directly to two leach lines.

2. Leach lines were probed and potholed for location and depth. There is no distribution box. The outlet pump line pumps to two infiltrator leach lines. The leach lines total sixty nine feet. There is no fabric over the leach lines. The leach lines have soil debris present. The leach field is located between the oak trees and driveway at the north east side of the property.

MGE replaced access lids at the septic tank and secured. All potholes in the leach field were backfilled.

Repairs recommended:

Option one:

1. Demo exsiting septic tank.
2. Install new fiberglass 1500 gallon septic tank.
3. Install PVC access risers on septic tank and pump tank.
4. Install Zabel filter at septic tank outlet.
5. Install 300' of infiltrator chambers in leach field. (If possible,possibly move field)
6. County permit and fees.

Budget $45,600.00 to be performed on a time and material basis*

**Subject to change after County review*

Option two:

1. Site evaluation.
2. Design Engineered system

Septic systems will process water differently depending on household water usage, cleaning chemicals, number of residents and daily flows. (Please see attachment for proper septic system operation and maintenance.)

Municode setbacks for septic system construction–

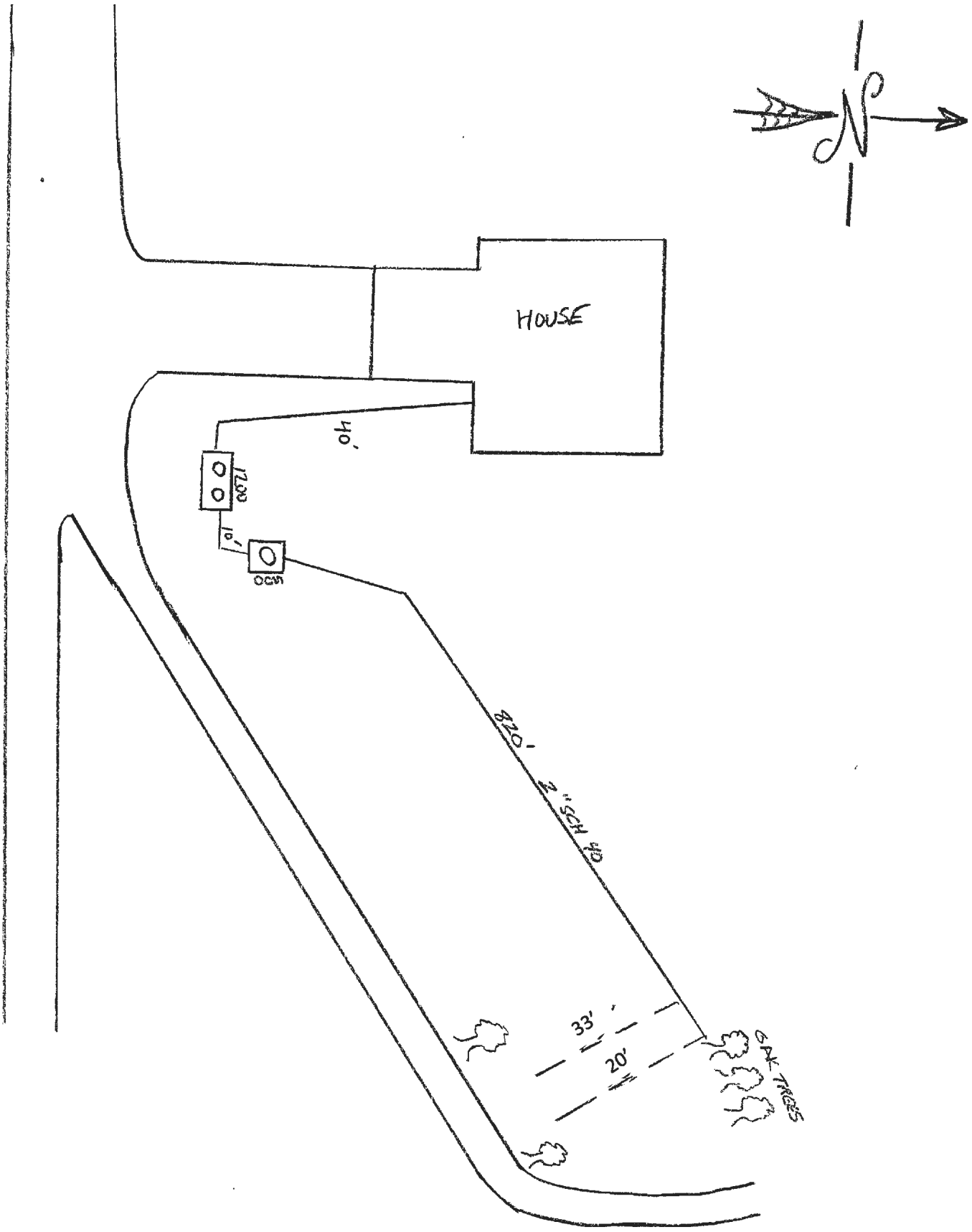
http://library.municode.com/index.aspx?clientId=16513&stateId=5&stateName=California

Please call if you have any questions.

Sincerely,
Gary L. McCollum
COWA/NAWT Certified Onsite
Waste Water Inspector/Installer

Company Disclaimer

Based on what we were able to observe and our experience with onsite wastewater technology, we submit this Onsite Wastewater Treatment System Inspection Report based on the present condition of the onsite wastewater treatment system. McCollum General Engineering has not been retained to warrant, guarantee, or certify the proper functioning of the system for any period of time in the future. Because of the numerous factors (usage, soil characteristics, previous failures, etc.) which may effect the proper operation of a wastewater treatment system, this report shall not be construed as a warranty by our company that the system will function properly for any particular owner or buyer. McCollum General Engineering DISCLAIMS ANY WARRANTY, either expressed or implied, arising from the inspection of the wastewater treatment system or this report. We are also not ascertaining the impact the system is having on the environment.



1490 Diamond Mt Rd

AS BUILT

05-08-25

020-440-004

EXISTING INDIVIDUAL SEPTIC SYSTEM INSPECTION REPORT FORM FOR NAPA COUNTY

PROPERTY OWNER: *N/A* DATE: *5/08/2025*
ADDRESS: *1490 Diamond Mt Rd, Calistoga CA* A.P.N. 020-440-004

PRIMARY TREATMENT SEPTIC TANK
Distance from closest well:
This parcel *100+'* Adjacent parcel *100+'*
Distance from foundation: *40'*
Distance from property line: *60'*
Material-tank *Concrete* Lid *concrete*
Number of compartments: *Two*
Total Capacity: *1200 gal.*

Date tank was last pumped: *5-08-25*
Pumped by: Dependable
Pre-fab tank or poured in place (describe):
Pre fab concrete
Inside Length 8' Width 5' Depth 5'

SECONDARY TREATMENT-DISPOSAL FIELD (if other than leach field, describe below)
Distance from closest well:
This parcel *100+'* Adjacent parcel *100+'*
Distance from foundation: 1*00'*
Distance to property line: *80'*
Number of lines: *2*

Total length on leach line: 53*'*
Total effective sidewall: 106*'*
Amount of filter Material:*N/A* Type of pipe*:Infiltrator*
Below pipe: *N/A* Type of filter material: *N/A*
Above pipe: N/A Depth of cover over pipe: 12*"*
Trench Width: 24" Depth: 24"

GENERAL INFORMATION
Is the house/structure presently occupied? *yes* How many bedrooms? 3
If commercial use, how many employees (FT / PT)? *0*
How many units served by this system? One
Any other septic systems of the property? *No*. If yes, how many? 0

CONDITION OF SYSTEM
Make a statement of the condition of the septic tank and interior surfaces, including baffles and fittings. How was this determined? *Septic tank was located, pumped and visually checked .The inlet, outlet T and baffle wall are in place. There is root intrusion at the inlet T. There is concrete erosion present in the interior of the tank.*
Note: If tank is over five years old, it must be inspected (pumping is required to allow inspection).

Make a statement on the condition of the sump/pump (if applicable), including size, alarm, structure, etc. *Pump tank was located and visually inspected. The pumps and floats were manually operated through the control panel.*

Make a statement on the condition of the distribution box, leaching line, etc. How was the length and location of the disposal field determined? *Leach lines were probed and potholed for location and depth. There were two leach lines discovered in the field. Leach line are Infiltrator chamber. The leach lines have soil debris present. There is no fabric over the chambers.*Note: Information on disposal field must be determined by physically locating each line by exposing the ends. All distribution boxes must be uncovered and inspected.

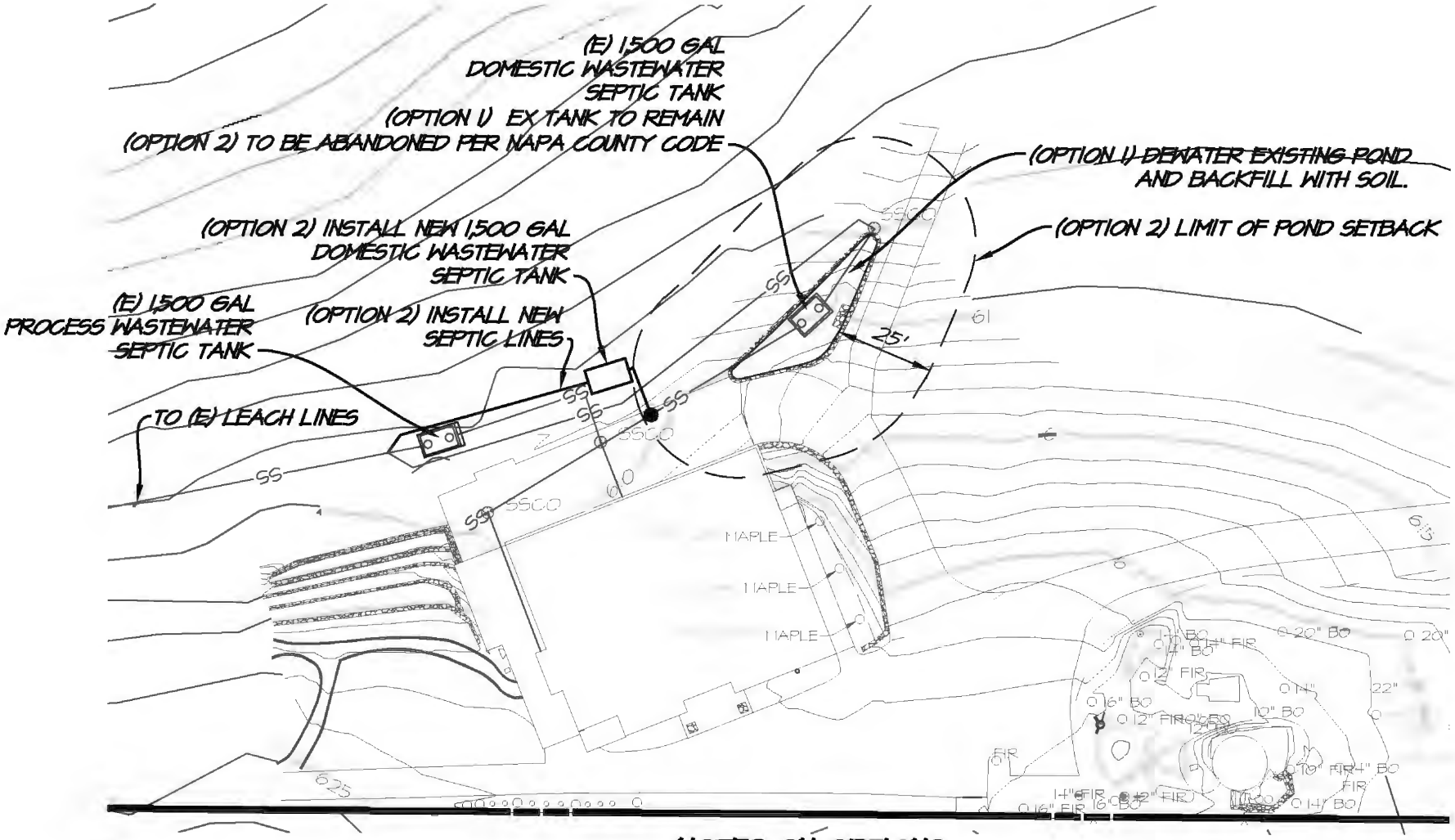
_____
(Licensed Contractor)

Appendix 5

Domestic Septic Tank Options Exhibit

DIAMOND CREEK VINEYARDS
DOMESTIC SEPTIC TANK OPTIONS

NAPA COUNTY CALIFORNIA



NOTES ON OPTIONS

OPTION 1
EXISTING TANK TO REMAIN. POND TO BE DEWATERED AND BACKFILLED WITH SOIL

OPTION 2
EXISTING TANK TO BE ABANDONED PER NAPA COUNTY CODE. NEW TANK TO BE INSTALLED OUTSIDE OF POND SETBACK AND NEW SEPTIC LINES INSTALLED.

GRAPHIC SCALE

40 0 40 80

(IN FEET)
1 inch = 40 FT

RSA+
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE|707|252.3301
+ www.RSAcivil.com +

RSA+ | CONSULTING CIVIL ENGINEERS + SURVEYORS + est. 1980

03/19/2021 #4120020.0 Exh-Septic Tank Options

Appendix 6

Vineyard Area to Receive Treated Process Wastewater Irrigation

DIAMOND CREEK VINEYARDS
PROCESS WASTEWATER IRRIGATION EXHIBIT
NAPA COUNTY CALIFORNIA



GRAPHIC SCALE
80' 0 80'
(IN FEET)
1 INCH = 80 FT

LEGEND

VINEYARD AREA TO BE IRRIGATED BY TREATED PROCESS WASTEWATER = ±3.36 ACRES

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NAPA, CALIF. 94559
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+ www.RSAcivil.com +
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May 15, 2025 4120020.0

R:\2020\4120020.0_Diamond_Creek_Vineyards\DESIGN\Drawings\Exhibits\Exh - PWW Vine Irr.dwg 05/15/2025

Reclaimed Process Wastewater
Water Balance for Irrigation and Storage

Project Description		Annual Process Waste Flow Volume		
Project Number:	4120020.0	Wine Production:	25,000	gal/year
Project Name:	Diamond Creek Vineyards			
Prepared By:	AM/BTF	Annual Process Waste per Gallon Wine:	6	gal/year
Date:	January 30th, 2025	Total Annual Process Waste Generated:	150,000	gal/year

Vineyard Irrigation Parameters		Landscape Irrigation Parameters		
Acres of irrigated vineyard:	3.36 acres	Crop type / name:	Cover Crop	
Row spacing:	7.0 feet	Total irrigated acres of crop:	0.00 acres	
Vine spacing:	8.0 feet			
Total number of vines:	2,614 vines			
Water use per vine per month (peak):	26 gal			
Total peak monthly irrigation demand:	67,954 gal			

Monthly Process Wastewater Generation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly process wastewater generated as % of annual total:	4%	6%	6%	5%	6%	7%	9%	10%	15%	13%	11%	8%
Monthly process wastewater generated [gallons]:	6,000	9,000	9,000	7,500	9,000	10,500	13,500	15,000	22,500	19,500	16,500	12,000

Monthly Vineyard Irrigation Water Use

(Based on per-vine water use)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beginning of month reclaimed water in storage [gallons] (This number brought forward from end of previous month)	14,909	16,832	21,755	23,959	0	0	0	0	0	0	0	9,705
Vineyard irrigation as % of peak month irrigation demand:	6%	6%	10%	100%	100%	100%	100%	100%	100%	100%	10%	10%
Irrigation per month per vine (gallons):	1.6	1.6	2.6	26.0	26.0	26.0	26.0	26.0	26.0	26.0	2.6	2.6
Total vineyard irrigation demand [gallons]:	4,077	4,077	6,795	67,954	67,954	67,954	67,954	67,954	67,954	67,954	6,795	6,795
Will vineyard be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater generated this month, reclaimed for vineyard irrigation [gallons]	4,077	4,077	6,795	7,500	9,000	10,500	13,500	15,000	22,500	19,500	6,795	6,795
Remaining vineyard irrigation demand after using this month's process water [gallons]	0	0	0	60,454	58,954	57,454	54,454	52,954	45,454	48,454	0	0
Drawdown from storage for remaining vineyard irrigation [gallons]	0	0	0	23,959	0	0	0	0	0	0	0	0
Well water required to satisfy remaining vineyard irrigation demand	0	0	0	36,494	58,954	57,454	54,454	52,954	45,454	48,454	0	0
Net storage after vineyard irrigation drawdown [gallons]	14,909	16,832	21,755	0	0	0	0	0	0	0	0	9,705
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation[gallons]	1,923	4,923	2,205	0	0	0	0	0	0	0	9,705	5,205

Water balance continues on next page for cover crop irrigation.

Monthly Landscape Irrigation Water Use

(Based on evapotranspiration crop demand and irrigated area)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation[gallons] *(From sheet 1)*	1,923	4,923	2,205	0	0	0	0	0	0	0	9,705	5,205
Reference ET (ETo) (in/month) (see note 1)	1.32	1.8	3.32	4.78	6.11	6.84	7.07	6.3	4.9	3.45	1.74	1.29
Crop Coefficient (k_c) (see note 2)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Crop water demand per acre [inches]	0.79	1.08	1.99	2.87	3.67	4.10	4.24	3.78	2.94	2.07	1.04	0.77
Crop water demand per acre [gallons]	21,505	29,325	54,088	77,873	99,541	111,433	115,180	102,636	79,828	56,205	28,347	21,016
Total crop water demand for irrigated area [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Will landscape be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater remaining after vineyard irrigation, reclaimed for landscape irrigation [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Landscape irrigation water required from storage or other source [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Drawdown from storage for landscape irrigation [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Process wastewater generated this month, unused for irrigation, to be reclaimed and stored [gallons]	1,923	4,923	2,205	0	0	0	0	0	0	0	9,705	5,205
Net end-of-month reclaimed water storage after all irrigation [gallons]	16,832	21,755	23,959	0	0	0	0	0	0	0	9,705	14,909

End of Water Balance

Peak Monthly Storage = 23,959 gallons

Total PWW used for irrigation
126,039 gal
=0.39 ac-ft
+
23,959 gal
=0.07 ac-ft

Notes:

1. Reference ETo from California Irrigation Management Information System
2. Crop Coefficient from Table 1 of "Estimating Irrigation Water Needs of Landscape Plantings in California", University of California Cooperative Extension, August 2000.

Appendix 7

BioFiltro Information

BIOFILTRO
worm powered wastewater solutions

Take Control of Your Wastewater



Our **Control Unit** is the brain and headworks of our modular systems. We pack all the components specific to your needs into this unit and deliver a system that is operable not only within hours of delivery, but also from your cellphone, tablet, or computer.

Housed in a 10'L x 8' W x 8' H shipping container, the standard unit includes an equalization tank, flow meter, sensors and probes, recirculation, pump station, and PLC. Optional features includes solid separator(s), pH adjustment system, and climate control equipment. One control unit can support up to 4,000 GPD, larger volumes may require additional/larger equalization tank(s). The unit can run off of generators and/or solar panels to service areas that are off of the grid. Exterior paint and branding can also be customized.

INSTALLATION REQUIREMENTS	
Operating Weight	6,000 lbs
Electrical Supply	240V Three Phase
Earthwork	90% Compaction 4" Gravel Pad 0% Slope
Amp Draw	50

Reclaimed Process Wastewater
Water Balance for Irrigation and Storage

Project Description		Annual Process Waste Flow Volume		
Project Number:	4120020.0	Wine Production:	25,000	gal/year
Project Name:	Diamond Creek Vineyards			
Prepared By:	AM/BTF	Annual Process Waste per Gallon Wine:	6	gal/year
Date:	January 30th, 2025	Total Annual Process Waste Generated:	150,000	gal/year

Vineyard Irrigation Parameters		Landscape Irrigation Parameters		
Acres of irrigated vineyard:	3.36 acres	Crop type / name:	Cover Crop	
Row spacing:	7.0 feet	Total irrigated acres of crop:	0.00 acres	
Vine spacing:	8.0 feet			
Total number of vines:	2,614 vines			
Water use per vine per month (peak):	26 gal			
Total peak monthly irrigation demand:	67,954 gal			

Monthly Process Wastewater Generation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly process wastewater generated as % of annual total:	4%	6%	6%	5%	6%	7%	9%	10%	15%	13%	11%	8%
Monthly process wastewater generated [gallons]:	6,000	9,000	9,000	7,500	9,000	10,500	13,500	15,000	22,500	19,500	16,500	12,000

Monthly Vineyard Irrigation Water Use

(Based on per-vine water use)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beginning of month reclaimed water in storage [gallons] (This number brought forward from end of previous month)	14,909	16,832	21,755	23,959	0	0	0	0	0	0	0	9,705
Vineyard irrigation as % of peak month irrigation demand:	6%	6%	10%	100%	100%	100%	100%	100%	100%	100%	10%	10%
Irrigation per month per vine (gallons):	1.6	1.6	2.6	26.0	26.0	26.0	26.0	26.0	26.0	26.0	2.6	2.6
Total vineyard irrigation demand [gallons]:	4,077	4,077	6,795	67,954	67,954	67,954	67,954	67,954	67,954	67,954	6,795	6,795
Will vineyard be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater generated this month, reclaimed for vineyard irrigation [gallons]	4,077	4,077	6,795	7,500	9,000	10,500	13,500	15,000	22,500	19,500	6,795	6,795
Remaining vineyard irrigation demand after using this month's process water [gallons]	0	0	0	60,454	58,954	57,454	54,454	52,954	45,454	48,454	0	0
Drawdown from storage for remaining vineyard irrigation [gallons]	0	0	0	23,959	0	0	0	0	0	0	0	0
Well water required to satisfy remaining vineyard irrigation demand	0	0	0	36,494	58,954	57,454	54,454	52,954	45,454	48,454	0	0
Net storage after vineyard irrigation drawdown [gallons]	14,909	16,832	21,755	0	0	0	0	0	0	0	0	9,705
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation[gallons]	1,923	4,923	2,205	0	0	0	0	0	0	0	9,705	5,205

Water balance continues on next page for cover crop irrigation.

Monthly Landscape Irrigation Water Use

(Based on evapotranspiration crop demand and irrigated area)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation[gallons] *(From sheet 1)*	1,923	4,923	2,205	0	0	0	0	0	0	0	9,705	5,205
Reference ET (ETo) (in/month) (see note 1)	1.32	1.8	3.32	4.78	6.11	6.84	7.07	6.3	4.9	3.45	1.74	1.29
Crop Coefficient (k_c) (see note 2)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Crop water demand per acre [inches]	0.79	1.08	1.99	2.87	3.67	4.10	4.24	3.78	2.94	2.07	1.04	0.77
Crop water demand per acre [gallons]	21,505	29,325	54,088	77,873	99,541	111,433	115,180	102,636	79,828	56,205	28,347	21,016
Total crop water demand for irrigated area [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Will landscape be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater remaining after vineyard irrigation, reclaimed for landscape irrigation [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Landscape irrigation water required from storage or other source [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Drawdown from storage for landscape irrigation [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Process wastewater generated this month, unused for irrigation, to be reclaimed and stored [gallons]	1,923	4,923	2,205	0	0	0	0	0	0	0	9,705	5,205
Net end-of-month reclaimed water storage after all irrigation [gallons]	16,832	21,755	23,959	0	0	0	0	0	0	0	9,705	14,909

End of Water Balance

Peak Monthly Storage = 23,959 gallons

Notes:

1. Reference ETo from California Irrigation Management Information System
2. Crop Coefficient from Table 1 of "Estimating Irrigation Water Needs of Landscape Plantings in California", University of California Cooperative Extension, August 2000.

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Ideal for sanitary, food & beverage, and livestock wastewater

Our **Can of Worms** is a compact stand alone wastewater package system housed in a 20' shipping container. With a maximum treatment capacity up to 1,000 gallons per day, this system is ideal for rural sanitary needs, boutique processors, and/or for research.

The Can of Worms comes with its own solid separator, equalization tank, lift station, PLC, monitoring camera. If necessary, the system can be upgraded to include a pH adjustment system, climate control equipment, and/or tertiary disinfection.

Our units are designed and built in California and take 4 - 6 weeks to deliver. They are available to purchase or can be financed through our Wastewater as a Service model.

Treatment Process	Continuous Batch
Treatment Time	4 Hours
Operating Weight	12,000 lbs
Operating Dimensions	20' L x 8' W x 8' H
Sitework	90% Compaction, 4" Gravel Pad; 2-3% Slope





Removal Efficiencies	
BOD5	85 - 99%
TSS	85 - 99%
TKN	60 - 95%
Ammonia	65 - 85%
Phosphorus	35 - 70%

TREATMENT CAPACITY	
Influent BOD5 mg/L	Gallons Per Day
0 - ≤ 500	≤ 1,500
500 - ≤ 1,000	≤ 1,125
1,000 - ≤ 6,000	≤ 450
6,000	≤ 225

Take Control of Your Wastewater



- Energy Efficient
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- Remotely Monitored
- Beneficial Byproducts
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Our systems come equipped with Nightcrawler, our very own monitoring software. Accessible from tablets, cell phones, and desktops, Nightcrawler enables users to execute basic operational and troubleshooting functions while logging water usage and influent and effluent water quality data. Customers can also leverage this software to reduce their water usage and increase their sustainability metrics.

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B	Two Pumps
C	Venturi Mazzei & Injectors
D	pH, ORP, and Temperature Probes
E	Programmable Logic Controller (PLC)
F	Camera
G	Overhead light and ventilation fan
I	Flow Meter

Part	OPTIONAL EQUIPMENT
J	Solid Separator
K	pH Adjustment System
	Climate Control Equipment
	Insulated Walls
	Power Generator
	Solar Panels

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