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Wastewater Feasibility Study



WINERY WASTEWATER FEASIBILITY REPORT

PALOMA VINEYARDS
4013 SPRING MOUNTAIN ROAD
ST. HELENA, CALIFORNIA 94574

APN 022-150-008

Prepared for:
Paloma Vineyard
4013 Spring Mountain Road
St. Helena, CA 94574



Project# 4119046.0
November 25, 2024

1515 Fourth Street, Napa, CA 94559

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EXECUTIVE SUMMARY

Paloma Vineyards is applying to the County of Napa for a modification to a Use Permit for an existing winery. This modification is to allow for an increase in daily visitation and construction of a new tasting room.

Paloma Vineyards is proposing to continue to direct all existing domestic wastewater flows to their respective wastewater systems onsite. The project proposes to send the additional domestic flows from the increased visitation to the existing main residence system. This report demonstrates that the existing main residence system has sufficient capacity to treat the increased domestic wastewater flows.

Although the project is not proposing any increase in production, options for the process wastewater system are evaluated in this report. The on-site process wastewater system will either be upgraded to meet the new Winery General Order, or, a Hold and Haul system will be implemented. If an on-site system is proposed, a package treatment system will be selected that will meet all applicable State and County requirements. Treated process wastewater would be used for vineyard irrigation. The option for a Hold and Haul system is also shown to be feasible.

INTRODUCTION

Paloma Vineyards is applying to the County of Napa for a modification to a Use Permit for an existing winery. This modification is to allow for an increase in daily visitation, and construction of a new tasting room. The existing permit allows production of 10,000 gallons per year and no change is proposed to the production, number of employees, or marketing events.

The project proposes to increase visitation from twenty-four (24) guests per day on the busiest day to twenty-two (22) visitors per day Sunday through Friday with a maximum of forty-four (44) visitors/day on Saturday. The number of employees will remain two (2) full-time and one (1) part-time. Marketing events will remain at one fifty (50) person event and two twenty-five (25) person events.

The property is a 17.1 ± acre parcel located at 4013 Spring Mountain Road, St. Helena (APN 022-150-008). Access to the property is via an existing driveway connection to Spring Mountain Road.

The owner has informed RSA⁺ that there are two (2) wells on the property. Only one (1) well on the west side of the property is in use and it supplies domestic, process, and irrigation water for the winery, tasting and reception area, residences, and vineyards.

EXISTING PROCESS AND DOMESTIC WASTEWATER SYSTEMS

There are three (3) existing standard septic systems on the site that serve the residential and winery uses for the site.

The owner's residence septic field is located southeast of the residence and was constructed under permit E05-0632. The 1200-gallon septic tank is located on the west side of the residence entry driveway, then drains to the opposite side of the driveway to 150 linear feet of leachline in the dispersal field. This system will continue to serve the residence and will remain with no alterations to the system.



The winery wastewater system is located next to the southeast side of the winery building and next to the existing agricultural equipment shed. This system disposes of process and domestic wastewater from the winery building. The crush pad is connected to the Process Wastewater System with a diversion valve. The winery septic system is a combined system consisting of a 1,200-gallon tank for domestic flows and a 1,500-gallon tank for process flows. These tanks are located adjacent to the winery and agricultural equipment shed. From the tanks, the combined flows drain to 500 feet of leach line. This system will be modified under separate permit in the future to comply with the latest State Waterboard Winery Ordinance.

The main residence septic system has historically served what was previously the 1-bedroom residence. This building will remain a residence and a new tasting room is proposed for future tastings. The proposed tasting room would be connected to this existing domestic system. Given the information from the Napa County records Environmental SD 1990 and SD 1992, a system capacity of 450 gallons per day was established for 600LF of leech line. A septic inspection was conducted on this system in February of 2020 which showed that this septic system consists of a cleanout, a 1200-gallon septic tank, a transmission line, and 445 feet of leach line east of the existing residence. Based on the current provided line lengths, the system capacity is shown below:

Existing Dispersal Field Capacity:

$$\begin{aligned} &= 450 \text{ gallons per day} / 600 \text{ lf of leach line} \\ &= 0.75 \text{ gal per day/ft leach line} \end{aligned}$$

Current Dispersal Field Capacity:

$$\begin{aligned} &= 0.75 \text{ gal/day} \times 445 \text{ ft of leach line} \\ &= \mathbf{333 \text{ gallons/day}} \end{aligned}$$

Information on these systems from Napa County are contained in Appendix 2, and McCollum General Engineering's inspection report can be found in Appendix 3.

DOMESTIC WASTEWATER CHARACTERISTICS

The domestic wastewater system for the residence and new tasting room will need to accommodate the unit values in Table 1 and 2 below. The proposed number of visitors and employees are shown in Table 1 below. The projected flows are based on County of Napa Environmental Management guidelines. The following is a summary of the estimated maximum daily flows from the winery.



Table 1

Source	Number	Projected Flow (gpd per unit)	Total Flow Saturday (gpd)	Total Flow Small Event Day (gpd)	Total Flow Large Event Day (gpd)
Peak Tasting Employees	3	15	45	45	45
Peak Weekend Day Visitors	44	3	132	0	0
Small Private Event (offsite catered) [2 per yr]	25	15	0	375	0
Large Private Event (offsite catered) [1 per yr]	50	15	0	0	750
Peak Totals			177	420	795

The domestic wastewater flows for the existing residential system are based on the bedroom count for the home as shown in the Use Permit Modification floorplans. The flows are shown in Table 2 below.

Table 2

Use	Source	Number	Projected Flow (gpd)	Total Flow (gpd)
Residential	Bedrooms	1	150	150
Residential Total				150

Table 3

Source	Total Flow (gpd)
Residential Total	150
Winery Total (Peak Visitation Day, no events)	177
Total Domestic Flow	327

The number of visitors is based on the maximum daily visitor count. The existing primary residence/tasting room system has capacity for the peak visitation day. For event days, portable sanitation facilities will be used.

PROPOSED DOMESTIC WASTEWATER SYSTEM IMPROVEMENTS – RESIDENCE/TASTING ROOM

The septic system inspection completed on the primary residence/tasting room system on February 14, 2020 by McCollum General Engineering found that the septic system is in need of minor repairs. The repair of leach line #5 will be completed, and this system will continue to be used for the residence and tasting room.



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:

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

PROCESS WASTEWATER GENERATION

The Paloma Vineyards is currently entitled for 10,000 gallons of wine per year, but based on the information provided by the Client, the current production is closer to 3,000 cases of wine per year. Client has informed RSA+ that there is no intention to increase production.

WATER SAVING PRACTICES

Paloma Vineyards is proposing winery operations that will ensure water usage is consistent with or better than the industry standard for process water. Water conservation measures to reduce water usage throughout the facility will include shutoff valves for hoses and reducing volume of hot water for more conservative barrel cleaning practices. In addition, floor cleaning will be performed as needed with handwashing and push brooms in place of using hoses. These practices allow adoption of four (4) gallons of process wastewater per gallon of wine. In order to confirm current wastewater production level, a flow meter will be placed on the existing wastewater system. This site-specific wastewater generation is consistent with other efficient wineries encountered.

The following is a summary of the winery wastewater characteristics:

Wine Production: Entitled: 10,000 gallons of wine per year
Actual & Future: 3,000 cases of wine per year
2.38 gallons of wine per case
= 3,000 cases x 2.38 gal/case
= 7,140 gallons of wine per year

Wastewater Production: 4 gallons of wastewater/gallon of wine
= 7,140 gallons of wine x 4 gal ww/gal wine
= 28,560 gallons/year

Peak Daily Waste Water Flow: Crush Period = 30 days
= 7,140 gallons x 2 / 30 days
= 476 gallons/day

Average Daily Flow: 28,560/365 = 78 gallons/day



Monthly Wastewater Flows:

Table 1

	% By Month	Waste/Month	
Sept	15%	4,284	Gal/Month
Oct	13%	3,713	Gal/Month
Nov	11%	3,141	Gal/Month
Dec	8%	2,285	Gal/Month
Jan	4%	1,142	Gal/Month
Feb	6%	1,714	Gal/Month
Mar	6%	1,714	Gal/Month
Apr	5%	1,428	Gal/Month
May	6%	1,714	Gal/Month
Jun	7%	1,999	Gal/Month
Jul	9%	2,570	Gal/Month
Aug	10%	2,856	Gal/Month
Totals	100%	28,560	Gal/Year

PROPOSED WINERY PROCESS WASTEWATER TREATMENT AND DISPOSAL SYSTEM

Paloma Vineyard proposes modifications to the existing process wastewater system. The winery is evaluating options for this system including hold and haul of process wastewater flows or the installation of a pre-packaged treatment system to treat and disperse winery process wastewater onsite. The proposed treatment system would be a BioFiltro system, STS system, NVIRO system, or equivalent. If onsite treatment is selected, 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 160 mg/L for BOD and 80 mg/L for TSS. A conservative approach for calculating BOD loading was adopted by using the peak monthly generation (4,284 gallons from Table 1) of process wastewater. Based on calculations in Appendix 4, this treatment level will meet BOD loading limits given in Clause 35D of the State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water.

TREATMENT SYSTEM

Option 1: Hold & Haul

Paloma Vineyards may propose to take process wastewater flows from the pump tank and store them in a 5,000-gallon tank from where it would be hauled off site. Based on the weekly analysis, 3,332 gallons of storage would be required, being 7 days of peak storage. A 5,000-gallon storage tank would be provided. The additional storage would act as a buffer during extended periods when off-hauling is not feasible.

If a Hold & Haul system is implemented, coverage under the Winery Order would not be required.



Option 2: Pre-Packaged Treatment System

The treatment system will be composed of a BioFiltro “Can of Worm” system, STS system, NVIRO system, or equivalent. The flow will be conveyed to the selected treatment unit via the initial pump/holding tank. After treatment, the treated water will be pumped to an irrigation storage tank. Treatment system information can be found in Appendix 5. Below is a potential layout of the proposed pre-packaged systems.

Pump Tank

The initial flows will drain to an existing 1,500-gallon pump tank which will provide greater than 3 days storage. From this tank, flow will be pumped to a 1,000-gallon equalization tank at the control unit. 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 proposed treatment system.

Holding Tank and Dispersal Field

To provide a preliminary estimate of the amount of storage tanks required, we have prepared a monthly water balance, as shown in Appendix 4. Monthly wastewater production is based on a percentage of the total annual wastewater production from the full entitled use. The amount of water allowed to be applied is estimated by the typical vine and cover crop water demand. The irrigation will be applied to areas of vineyards outside of setback requirements. An area of 5.20 acres of vineyard and 0.2 acres of cover crop has been used to calculate the storage capacity required. Based on the monthly analysis, no extra storage is required. To buffer peak flows and allow for wet weather periods without irrigation, a 5,000-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 and also for 24-hours after a rain event. 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.

IMPLEMENTATION PROGRAM

Owner proposes to install meters to monitor process wastewater flows over the next three (3) years to further inform the design of the winery process wastewater treatment and disposal system. The process wastewater system may be expanded in the future if production ever increases to the full current entitlement.

Owner intends to submit plans to County of Napa permitting during the fall/winter 2027 for an installation of the proposed system during the spring/summer of 2028 in order to comply with the State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water timelines. Permit plans will also be submitted to the State Water Resources Control Board.



CONCLUSION

The project proposes ongoing use of existing systems to serve the residences on site. The existing primary residential system will be repaired and will remain to serve the residence and the increased visitation. This report demonstrates that the existing primary residential wastewater system has sufficient capacity to handle the peak visitation for a weekend day, but in order to utilize this existing system, events will require the use of portable sanitation facilities.

The existing winery system will remain to serve the winery for production and employees domestic flows at this time, but the on-site process wastewater system will either be upgraded to meet the new Winery General Order, or, a Hold and Haul system will be implemented. This report demonstrates both Hold & Haul and on-site treatment of process wastewater are feasible. If an on-site system is proposed, a package treatment system will be selected that will meet all applicable State and County requirements, and treated process wastewater would then be used for vineyard irrigation.



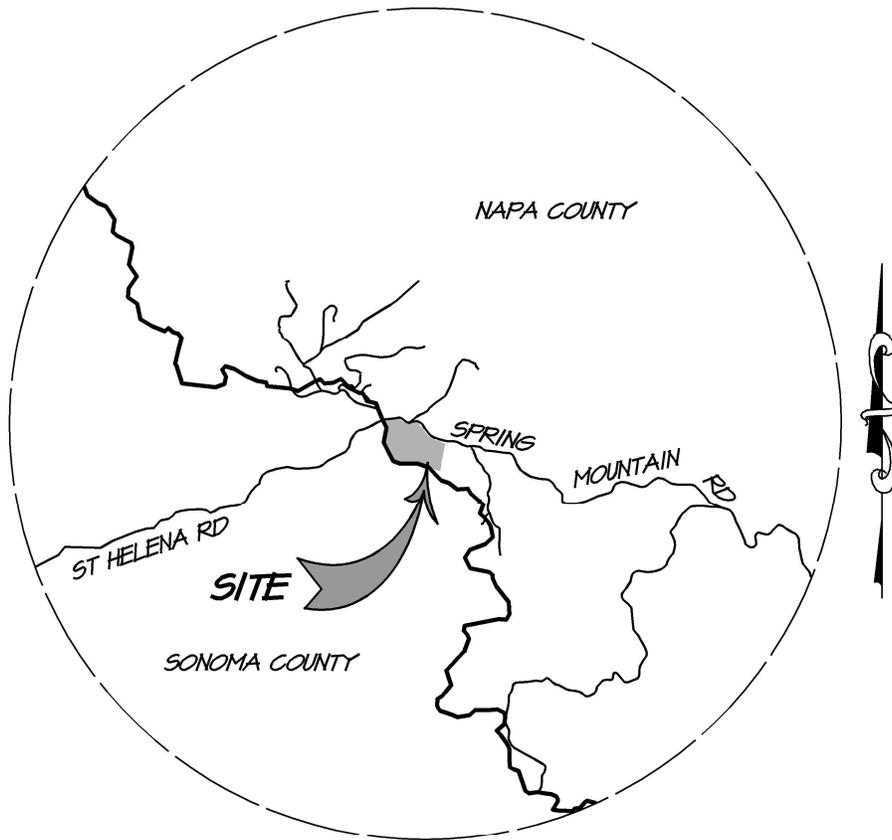
Appendix 1

Vicinity Map
USGS Quad Map

PALOMA VINEYARDS

VICINITY MAP

SAINT HELENA CALIFORNIA



VICINITY MAP

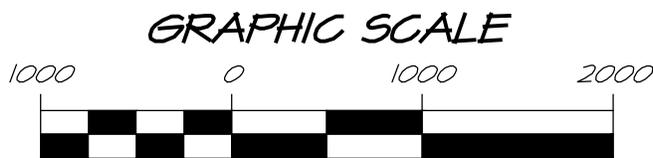
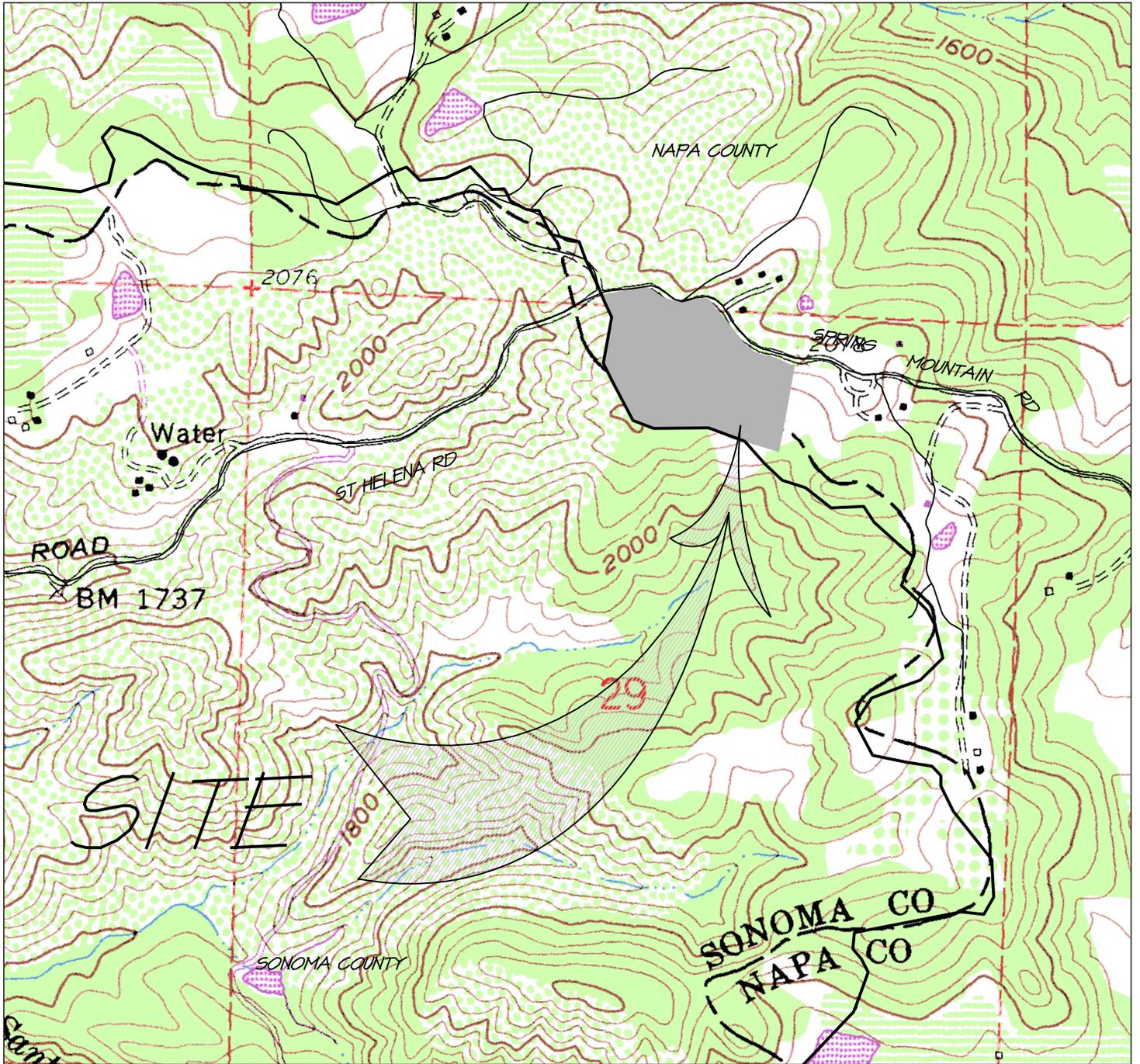
SCALE: 1" = 4000'

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

RSA ⁺ CONSULTING CIVIL ENGINEERS + SURVEYORS +	est. 1980
10/02/2023	4119046.0

PALOMA VINEYARDS USGS MAP

SAINT HELENA CALIFORNIA



(IN FEET)
1 inch = 1000 FT

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Appendix 2

Existing Process and Wastewater System Design Documentation

WASTEWATER SYSTEM INFO FOR
(E) RESIDENCE/(P) TASTING ROOM

Environmental

Cover Sheet

APN	022-150-008-000
Permit #	
Program	SD
DocType	PMT
Street #	4013
Street Name	SPRING MTN
Year	1992



DATE 3/3/92
FEE 122
RECEIPT NO. 30390
BY J. Castella

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

A.P.# 22-150-08
RECORD # 3903

OWNER: James Richards CONTRACTOR: _____
SITE ADDRESS: 4013 Spring mtn. Rd ADDRESS: _____
MAILING ADDRESS: 1149 Oak Ave. 5H PHONE # _____
PHONE # 963-2804

TYPE OF WORK: NEW CONSTRUCTION () REPAIR () ADDITION () ALTERATIONS ()
SPECIAL DESIGN () PRIVATE SEWAGE DISPOSAL SYSTEM (Ponds) ()
PROPOSED USE: Residential () Units 1 /BDRMS _____ Commercial/Industrial () _____ G.P.D. _____
Other () Explain _____

WATER SUPPLY: Public () Individual () (Well , Spring _____, Creek _____ or Lake _____)
Name of Agency _____ Individual Water Supply Permit Issued _____
Distance from well to any part of nearest sewage disposal system 100+ feet.
Additional nearby wells 100+. Plot plan of proposed sewage system received _____
County Road setback _____ feet from center line. Bldg. Dept. Form Received ()

SPECIFICATIONS: Septic Tank: Type concrete Size 1200 (gallons)
Drainline: Total Length 600LF Trench Depth 18" Rock Under Leach Line 12"
Sewer Line: Type ABS/PC, SCH 40 Approximate Length _____ Depth _____
Sump Pump: Tank Size _____ Alarm Type _____
Date Special Design Plans Approved: _____ Designer _____
Date Private Sewage Disposal System Plans Approved: _____ Designer _____
Other Provide 12" air over system

Issuing Sanitarian: myrachel

WORKER'S COMPENSATION COVERAGE: (Check one of the following)
() A certificate of current Worker's Comp. Insurance is on file with this office.
() A certificate of current Worker's Comp. 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 California.

TERMS OF PERMIT

- Applicant agrees that:
- 1) Sanitarian will be notified a minimum of 24 hours prior to requiring inspection(s).
 - 2) Sanitarian and engineer's inspection, when indicated, will be obtained prior to covering the system.
 - 3) The permit, and a copy of the approved sewage disposal system design shall be available at the parcel site at all times.
 - 4) Any deviation from approved plan and specifications without prior approval of 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 an engineered designed system a signed statement by the design engineer certifying that the system was installed in compliance with the approved plan must be submitted to the Department of Environmental Health.
 - 6) This permit is subject to revocation if found to be in nonconformance with Napa County Code of Ordinances, Title V, Article 3 (The Sewage Ordinance).

IT IS UNDERSTOOD THAT THE ISSUANCE OF A PERMIT IN NO WAY INDICATES THAT A GUARANTEE OF PERFECT AND INDEFINITE OPERATION OF THIS SYSTEM IS MADE BY THE NAPA COUNTY DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND THAT THE OWNER IS REQUIRED TO MAKE ANY REPAIRS NECESSARY TO CONFINE SEWAGE AS REQUIRED BY THE COUNTY SEWAGE ORDINANCE. I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL COUNTY ORDINANCES AND STATE LAWS REGULATING CONSTRUCTION OF SEWAGE DISPOSAL SYSTEMS. THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK AUTHORIZED IS NOT COMMENCED WITHIN 2 YEARS.

EHD-10:11/12/86 Owner or Authorized Agent James W. Richards

20 LF ±

INSPECTION RECORD

Sewer Line ABS SUT 40 4" 12" 5/18/92 CMS
 Material Depth Date Inspector ✓
 Septic Tank CONCRETE 1200 5/18/92 CMS
 Type Size Date Inspector
 Leach Lines _____ 5/18/92 CMS
 Date Inspector

Soil Compares with Percolation Record _____

Average Surface Slope(s) _____

Trench Width 18' Depth 18" Total Length 600 No. Lines 6

Rock Under Leachline 12" Distance Between Trenches 10-20' varies

Top of Leachline to Finish Grade 12" fill Distance Wells from System 100' to tanks

Accessory Facilities (Diversion Drains, Sump Pumps, etc.) _____

- 1 85 4 85
- 2 90 5 150 - solid pipe 12'
- 3 90 6 100

Additional Field Notes _____

Plot Plan Accuracy Checked NEED / REL 5-28-92

Date of Final 6-1-92 Inspector CMS

Date Bldg. Dept. Final 6-1-92 Inspector CMS

EHD-10:10/86

WESFLEX PERF
 LEACH PIPE 3"
 ASTM F-810

P.E.
 OHARE

TBM #2 SPIKE IN TREES.

AD. BUILDING SEPTIC PLOT

MR & MRS JAMES RICHARDS
4013 SPRING MT. ROAD.
AP# 22-150-08
DATE 5-20-92
BY BLAKELEY

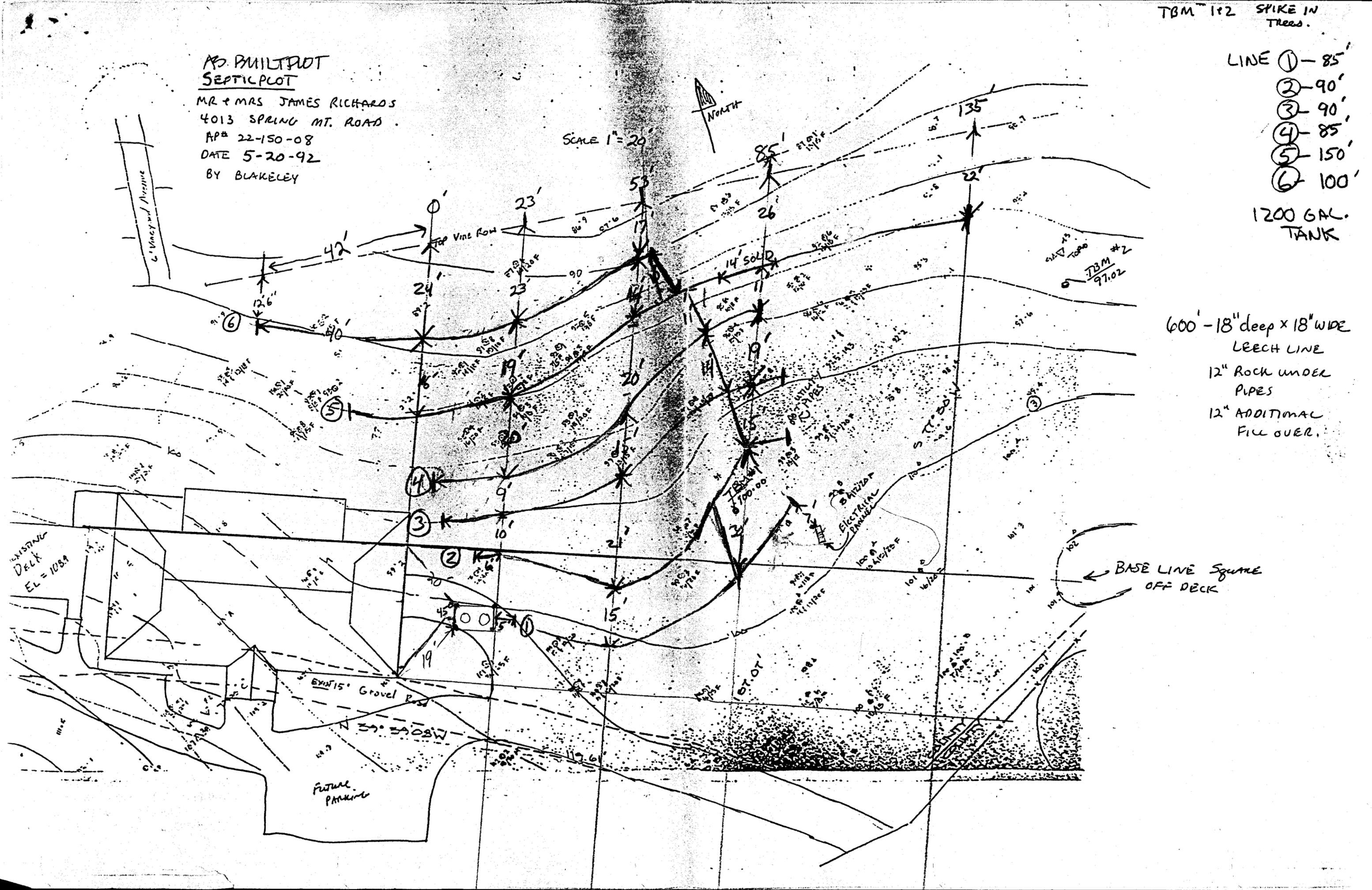
SCALE 1" = 20'



- LINE ① - 85'
- ② - 90'
- ③ - 90'
- ④ - 85'
- ⑤ - 150'
- ⑥ - 100'

1200 GAL. TANK

600' - 18" deep x 18" WIDE
LEECH LINE
12" ROCK UNDER
PIPES
12" ADDITIONAL
FILL OVER.



WASTEWATER SYSTEM INFO FOR
(E) RESIDENCE/(P) TASTING ROOM

Environmental

Cover Sheet

APN	022-150-008-000
Permit #	
Program	SD
DocType	SEP
Street #	4013
Street Name	SPRING MTN
Year	1990



NAPA COUNTY DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
REQUEST FOR SITE EVALUATION INSPECTION

(2nd) - Park at Drive
- 10/16/90 #2924

ENVIRONMENTAL HEALTH DEPT. USE ONLY

FEE: \$112.00
DATE: 10-15-90
RECEIPT: 27240
BY: su

PARCEL NUMBER: 22-150-08
JOB ADDRESS: 4013 Spring Mtn Rd
OWNER: Jim Richards
TEST CONDUCTED BY: Blakeley

TYPE OF TEST: FIELD ANALYSIS PERCOLATION TEST
To be run on 10-15 at 10:30 am/pm To be run on _____ from _____ am/pm to _____ pm

PURPOSE OF TEST: HOUSE: WINERY: _____ OTHER: _____
PROJECTED WASTEWATER FLOWS: 450 gpd

PERCOLATION TEST INSPECTION RESULTS

Pre-soak checked? yes _____ no _____ Length of pre-soak: _____
Checked by: _____ Date: _____
Rate at time of inspection: _____ Stabilized perc rate: _____
Gravel and Pipe Used? yes _____ no _____ If so, take the perc rate _____ x .6 = _____ in/hr

TYPE OF SYSTEM APPROVED

STANDARD SYSTEM
Acceptable soil to: 54" / Assigned perc range: 1-3 / 3-6 / 6-12
Depth of trenches: 18" / Rock under pipe: 12" / Cover over rock: 12" WITH FILL
Lineal feet of leachline required: 600 / Plot plan received: NO 10/15/90
Slope: 3-5% / Surface drainage problems: NO OK
Additional information: _____

SPECIAL DESIGN SYSTEM DUE TO THE FOLLOWING - Size constraints:
Perc rate too slow: _____ / Perc rate too fast: _____ / Steep slope: _____
Insufficient soil depth: _____ / High seasonal groundwater: _____
Acceptable soil for special design: _____ / Other problems: _____

E.H. Specialist cmbecheli Date 10/11/90

FIELD ANALYSIS

TEXTURE (In the proposed trench zone)

CLAY CONTENT						SAND CONTENT						GRAVEL, COBBLE, STONE CONTENT								
Core Hole	1	2	3	4	5	6	Core Hole	1	2	3	4	5	6	Core Hole	1	2	3	4	5	6
Low (<12)							High (>50)							Very High (>60)						
Mod (12-27)							Mod (20-50)	X	X	X				High(35-60)						
High (27-40)	X	X	X				Low (<20)							Mod (15-35)		X	X			
High (>40)														Low (<15)	X					

STRUCTURE

SOIL DENSITY WHEN PICKED (Circle whether wet or dry)						CONSISTENCE (Circle w or d)							
Core Hole	1	2	3	4	5	6	Core Hole	1	2	3	4	5	6
pick sluffs or caves soil in							Easy						
pick bites and soil sluffs	X	X	X				Moderate		X	X			
pick bites/ little or no soil sluffs							Hard	X					

STRUCTURE						MODIFIER CHARACTERISTICS						
Core Hole	1	2	3	4	5	6						
Granular							1) Soil Survey Name: _____					
Blocky	X	X	X				2) Horizon Boundaries: Diffuse <u>#2</u> Gradual <u>#1</u> Abrupt _____					
Prism							3) Topography: Concave _____ Convex <u>X</u> / Aspect: <u>E</u>					
Platy							4) Vegetation: Type <u>trees</u> Condition: <u>OK</u>					
Massive												
Cemented												

CORE HOLE RECORD			CORE HOLE RECORD			CORE HOLE RECORD		
HOLE #1	EST. PERC		HOLE #2	EST. PERC		HOLE #3	EST. PERC	
0 to 36" clay loam	1-3		0 to 70" clay loam	1-3		0 to 18" rocky	1-3	
36" to 48" dense clay loam	1-3		to - rocky + gravelly			18" to 72" rocky clay loam - denser		
48" to bottom - clay	4 1/2"		to			to		
Roots: <u>few</u>			Roots: <u>few</u>			Roots: <u>FEW 20 60"</u>		
Color: <u>bright</u> / dull			Color: <u>bright</u> / dull			Color: <u>(bright)</u> / dull		
Water Table: <u>not seen</u>			Water Table: <u>not seen</u>			Water Table: <u>NONE</u>		
Dug: <u>easy</u> / hard / dusty / smear			Dug: <u>easy</u> / hard / dusty / smear			Dug: <u>easy</u> / hard / dusty / smear		
Acceptable Soil To: <u>48"</u>			Acceptable Soil To: <u>70"</u>			Acceptable Soil To: <u>54"</u>		

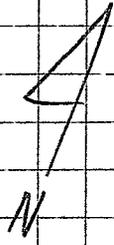
CORE HOLE RECORD			CORE HOLE RECORD			CORE HOLE RECORD		
HOLE #4	EST. PERC		HOLE #5	EST. PERC		HOLE #6	EST. PERC	
0 to _____			to _____			to _____		
to _____			to _____			to _____		
to _____			to _____			to _____		
Roots: _____			Roots: _____			Roots: _____		
Color: <u>bright</u> / dull			Color: <u>bright</u> / dull			Color: <u>bright</u> / dull		
Water Table: _____			Water Table: _____			Water Table: _____		
Dug: <u>easy</u> / hard / dusty / smear			Dug: <u>easy</u> / hard / dusty / smear			Dug: <u>easy</u> / hard / dusty / smear		
Acceptable Soil To: _____			Acceptable Soil To: _____			Acceptable Soil To: _____		

Richards
Plot of
Soil evaluation
Holes

22-150-08

Fence 4013 Spring Hill Rd.

10/15/90



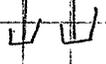
Water Tanks



Deck



Grape Rows



Vineyard Ave

Fence
gate

35'

35'

110'

190'

Grape
Vines
Rows



2

Perc
Hole

20'

Shake
Rd.

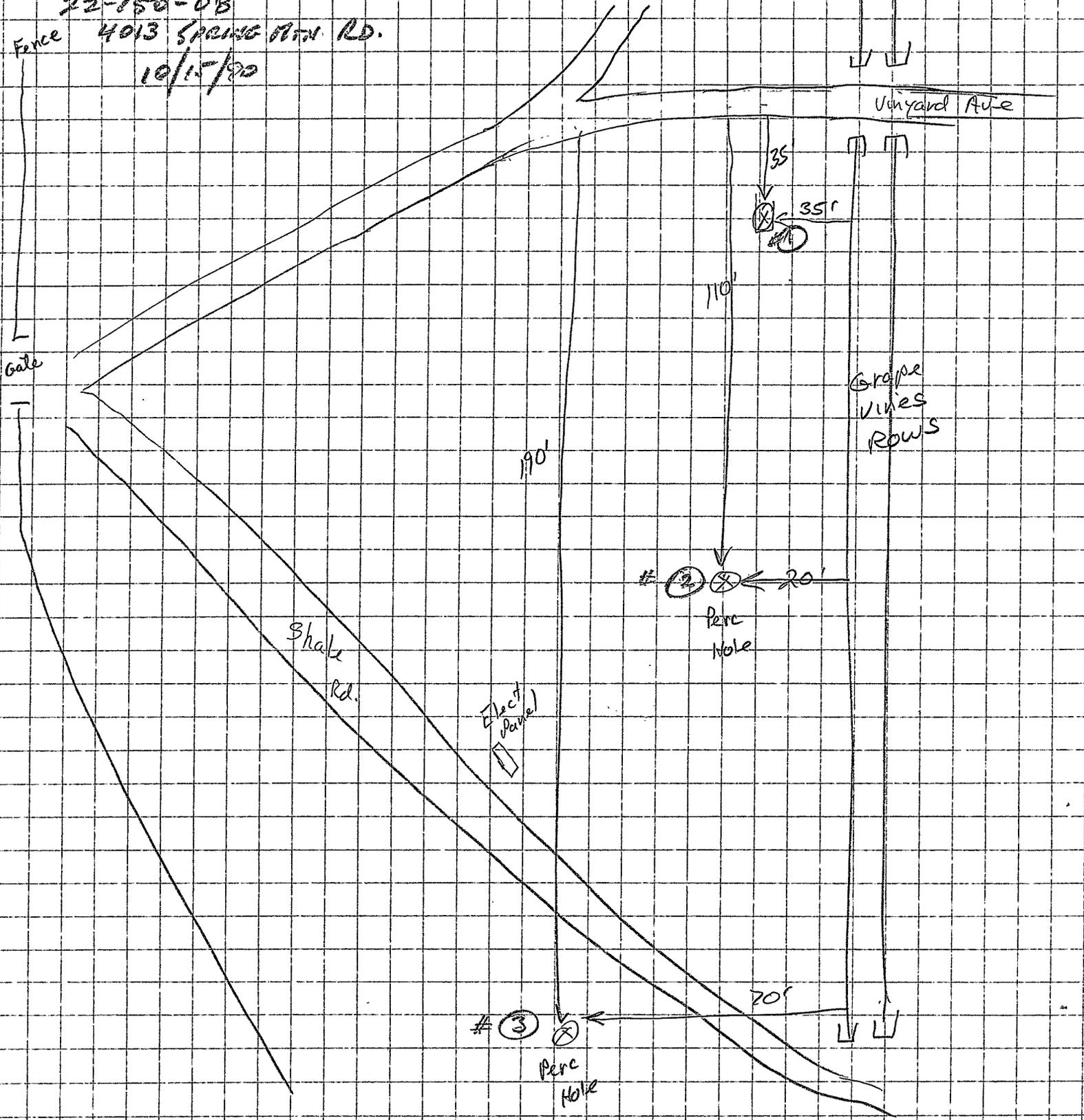
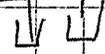
Elect
Panel

3

Perc
Hole

70'

Stand pipe



WASTEWATER SYSTEM INFO FOR
(E) PROCESS WASTEWATER SYSTEM

Environmental

Cover Sheet

APN	022-150-008-000
Permit #	
Program	SD
DocType	PMT
Street #	4013
Street Name	SPRING MTN
Year	2000



DATE: 5/8/00
FEE: #205
RECEIPT NO: 13009
BY: [Signature]

A.P. # 22-150-08
JOB # 92-12751
ISSUE DATE 6/16/00
EXPIRATION DATE 6/16/02

CR-#4340

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

OWNER: Richard, James CONTRACTOR: self
SITE ADDRESS: 4013 Spring Mtn. Rd, St. Helena ADDRESS:
MAILING ADDRESS: same Helena - CW Backhoe
PHONE #: 963-7504 PHONE #:

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

PROPOSED USE RESIDENTIAL: RESIDENCE () 2nd DWELLING () GUESTHOUSE ()
EXISTING BEDROOMS
TOTAL POTENTIAL BEDROOMS
COMMERCIAL/INDUSTRIAL 500 GPD
OTHER () FLOW (gpd)
BUILDING DEPARTMENT FORM RECEIVED (IF APPLICABLE)
CITY/SEWER DISTRICT CLEARANCE () APPROVED () NOT APPROVED BY

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

SPECIFICATIONS SEPTIC TANK: EXISTING SIZE (GAL) PROPOSED SIZE (GAL) 1500 Process 1200 Domestic
DRAINLINE: TOTAL LENGTH 500 TRENCH DEPTH 18" TRENCH WIDTH 18"
ROCK UNDER PIPE 12" DEPTH COVER MATERIAL OVER ROCK- BACKFILL FILL 12"
SEWER LINE: TYPE ABS or PVC 8" x 40 APPROX. LENGTH
SUMP PUMP: SIZE N/A GAL (audible and visual alarms required on all pump systems)
SPECIAL DESIGN PLANS: DATE APPROVED DESIGNER
PRIVATE SEWAGE DISPOSAL SYSTEM PLANS: DATE APPROVED DESIGNER

ISSUING ENVIRONMENTAL HEALTH SPECIALIST: [Signature]

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: James W. Richard

INSPECTION SCHEDULE

WORK PERFORMED BY (CONTRACTOR) D.C. Backhoe

SEWER LINE: MATERIAL AND SIZE 4" PVC
FALL O.K. FINAL DEPTH > 1-1/2'
DISTANCE TO ANY WATER SOURCE > 100 FT

COMMENTS C

INSPECTOR C. Fye DATE 7/5/00

SEPTIC TANK: MANUFACTURER Selway TYPE Concrete SIZE 1100cm x 1200
DISTANCE TO ANY WATER SOURCE _____

COMMENTS Ends are grates

INSPECTOR C. Fye DATE 7/6/00

LEACH LINES: TRENCH WIDTH 18" TRENCH DEPTH 18"
TOTAL LENGTH 500 FT NUMBER OF LINES _____
ROCK UNDER LEACH LINE 12" DISTANCE BETWEEN TRENCHES 6-10 FT
DEPTH OF COVER MATERIAL OVER ROCK _____ DISTANCE TO ANY WATER SOURCE > 100 FT

COMMENTS Lines are level; will add solid ground under solid pipe (excavate ditch trench)

INSPECTOR C. Fye DATE 7/5/00

SUMP PUMP: MANUFACTURER _____ TYPE _____ SIZE _____
PUMP CHECKED N/A ALARM CHECKED _____
COMMENTS _____

INSPECTOR _____ DATE _____

ACCESSORY FACILITIES: (DIVERSION DRAINS, D-BOXES, ETC.)

inspect
see plan on file.

Valves diverting PW to/away from septic/storm drains

COMMENTS Owner stated valves were checked by other

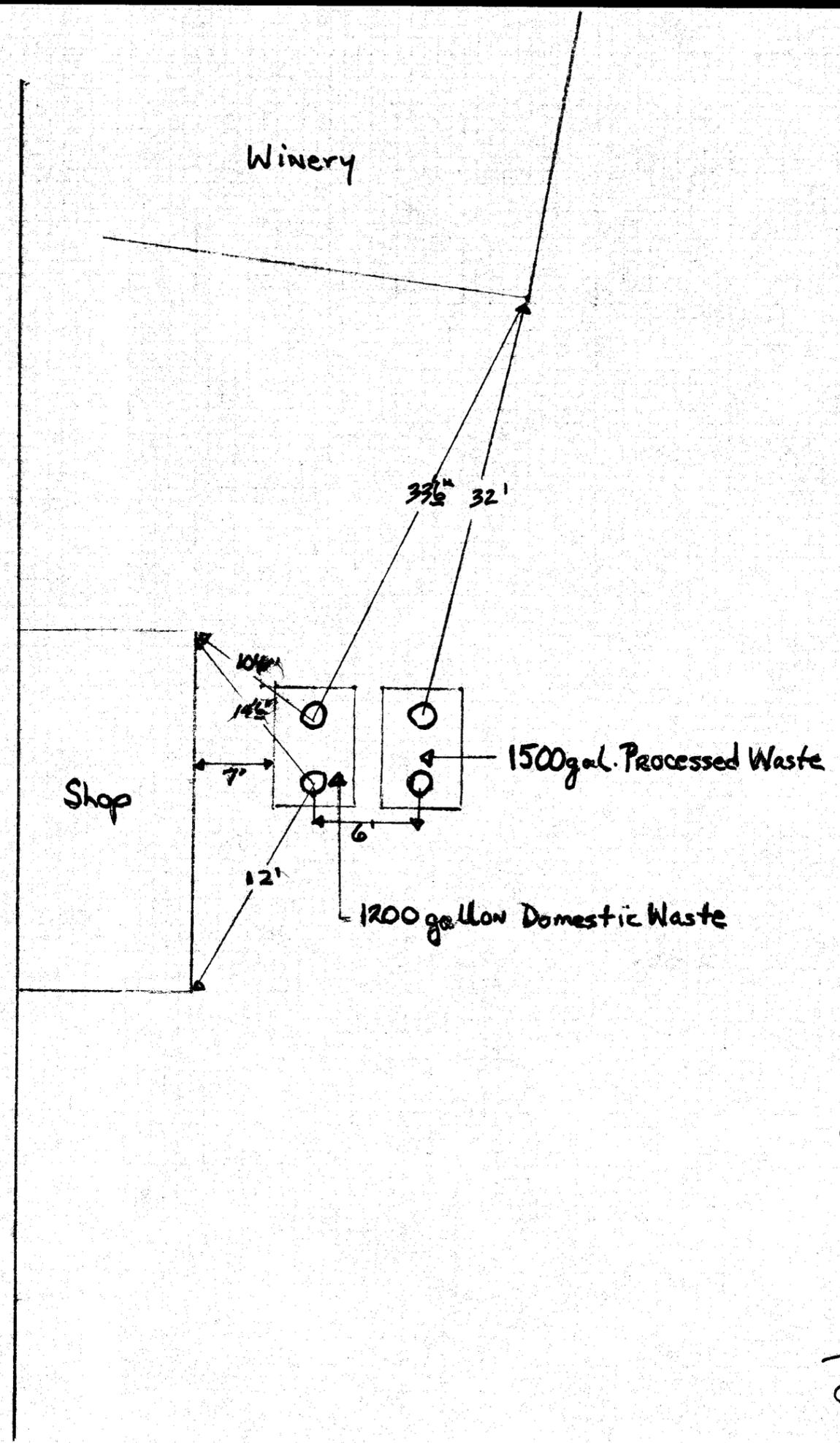
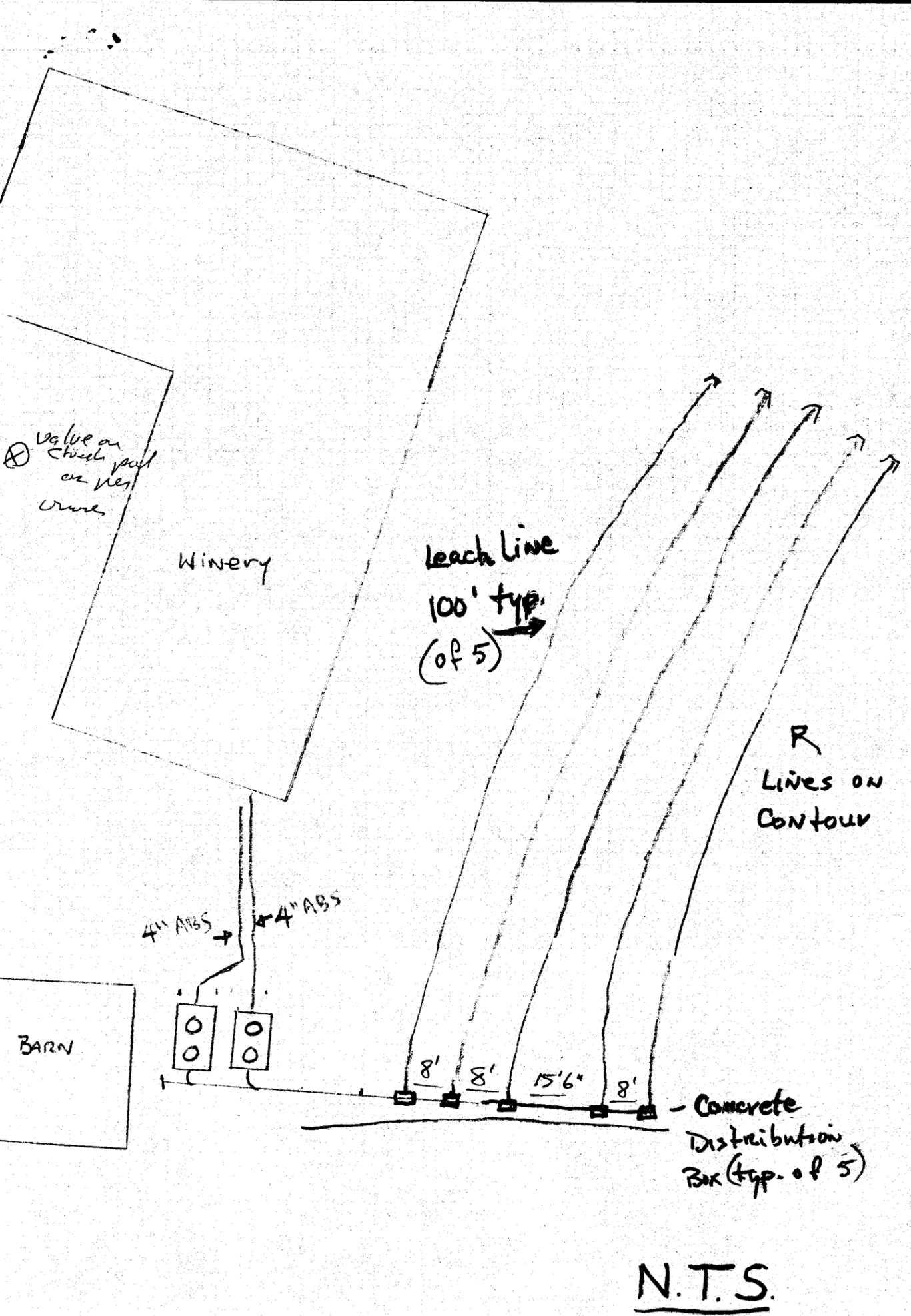
INSPECTOR _____ DATE _____

FINAL INSPECTION: (construction completed and approved)
INSPECTOR V. Alvarez DATE 11/17/00

- 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 _____

Richards Winery
 4013 Spring Mtn. Rd.
 St. Helena Ca. 94574
 Job # 92-12751

RECEIVED
 JUL 19 2000
 DEPT. OF
 ENVIRONMENTAL MANAGEMENT



N.T.S.

"AS Built"
 Not to Scale
 July 7, 2000
 D.C. Backhoe, Inc.
 Dennis W. Clary

WASTEWATER SYSTEM INFO FOR
(E) OWNER'S RESIDENCE

Environmental

Cover Sheet

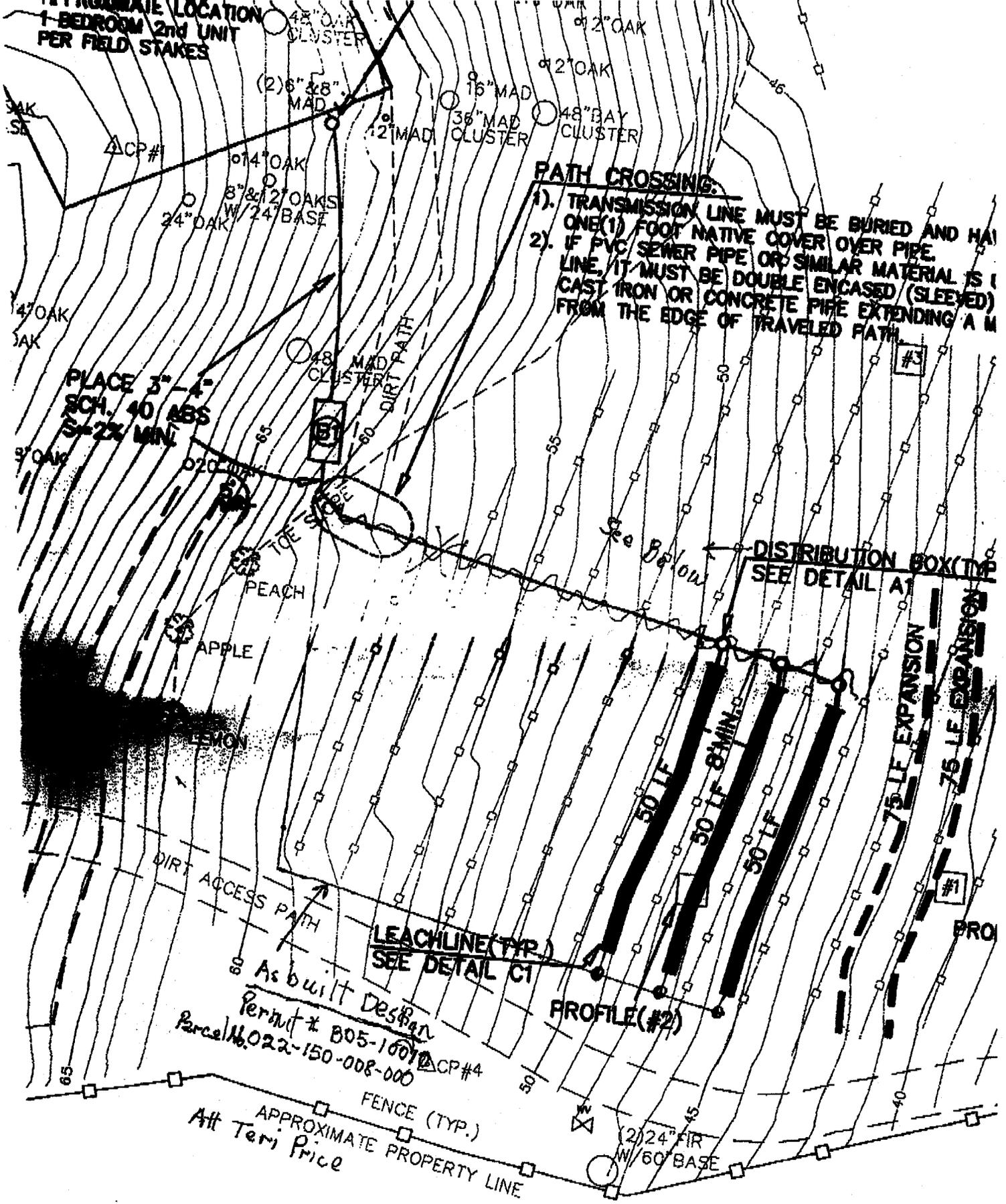
APN	022-150-008-000
Permit #	
Program	SD
DocType	ASBLT
Street #	4013
Street Name	SPRING MTN
Year	2006



APPROXIMATE LOCATION
1-BEDROOM 2nd UNIT
PER FIELD STAKES

PATH CROSSING:

- 1). TRANSMISSION LINE MUST BE BURIED AND HAVE ONE (1) FOOT NATIVE COVER OVER PIPE.
- 2). IF PVC/SEWER PIPE OR SIMILAR MATERIAL IS IN LINE, IT MUST BE DOUBLE ENCASED (SLEEVED) IN CAST IRON OR CONCRETE PIPE EXTENDING A MINIMUM FROM THE EDGE OF TRAVELED PATH.



WASTEWATER SYSTEM INFO FOR
(E) OWNER'S RESIDENCE

Environmental

Cover Sheet

APN	D22 - 150 - 008 - 000
Permit #	E05-0632
Program	SD
DocType	PMT
Street #	4013
Street Name	SPRING MTN
Year	2005





NAPA COUNTY

DEPARTMENT OF Environmental Management
1195 THIRD STREET ROOM 101 NAPA, CALIFORNIA 94559
PHONE 707-253-4471 FAX 707-253-4545 www.co.napa.ca.us

TRENT CAVE, R.E.H.S.
Director of Environmental Management

SEWAGE PERMIT

Permit Number:	E05-0632	Applied:	08/03/2005
Status:	ISSUED	Issued Date:	09/08/2005
Comp Type:	EMSEWAGE - ADDITION	Permit Expires On:	09/08/2007
Fee:	\$456.00		

Site Address:	4013 SPRING MOUNTAIN RD STH	Parcel Number:	022-150-008-000
Owner:	RICHARDS JAMES W AND BARBARA J T	Phone:	
Address:	4013 SPRING MTN RD ST HELENA CA 94574-9773		
Applicant:	JAMES RICHARDS	Phone:	

Type of Project: **Septic Addition**

Proposed Use:

Residence:	1	bedrooms	150	gpd	Commercial-UP#
2nd Dwelling:	0	bedrooms	0	gpd	0 gpd Sanitary Waste
Guest House:	0	bedrooms	0	gpd	0 gpd Process Waste
Total waste Flow:			150	Total	0

Water Supply:

Individual:	Well: Y	Spring:	Other:	Public:
Distance from closest water source to any part of sewage system: >100 ft.				

Specifications:

Designer: Dimensions 4	Engineered plan approval date:	Conventional Plan
approved: 09/08/2005		
Septic Tank: 1200 gal.	Drainline: 150 ft.	Trench Depth: 30 in.
Chamber Manufacture: ADS	Model number	Narrow Bio 3
Depth of cover: backfill: 18 in.	Fill:	
Sewer line: type:	Length: ft.	Sump Pump: gal.
Audible and Visual alarm required? N	Remote alarm required? N	Electrical self certification required? N

Worker's Compensation Coverage:

() A certificate of current Worker's Comp. Insurance Coverage is on file with this office(or 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 of California.

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 the system, and that future repair may be necessary.

Applicant Signature: *James W Richards* Date: 9/9/05

Staff Signature: *Diana Monte* Date: 9-8-05



NAPA COUNTY

DEPARTMENT OF Environmental Management
1195 THIRD STREET ROOM 101 NAPA, CALIFORNIA 94559
PHONE 707-253-4471 FAX 707-253-4545 www.co.napa.ca.us

TRENT CAVE, R.E.H.S.
Director of Environmental Management

CONDITIONS/INSPECTIONS

Type: EMSEWAGE SubType: ADDITION

Owner:	RICHARDS JAMES W AND BARBARA J T	Permit Number:	E05-0632
	STH SPRING MOUNTAIN ROAD STH	Status:	ISSUED
Parcel No:	022-150-008-000	Applied Date:	08/03/2005
Applicant:	JAMES RICHARDS	Issue Date:	09/08/2005

Conditions

- 1: As-Built Drawing to be submitted.
- 2: Environmental Management must be notified a minimum of 24 hours prior to requesting inspection(s)
- 3: Environmental Management specialist's inspection must be obtained prior to covering the system
- 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: The applicant (owner/contractor) shall comply with all stormwater measures as identified on approved construction drawing for building permit , as it pertains to the sewage disposal system only.
- 6: The applicant shall comply with the Department of Public Works "Conditions of Approval_National Pollution Discharge Elimination System Requirements", a copy of which was provided at the time of permit issuance. Failure to comply with the NPDES requirements will result in a stop-work order.

Inspections

Item: 00612 E Septic Tank Installation DC 10.6.05
 Item: 00618 E D-Box 11.18.05?
 Item: 00632 E- Leach Lines 11.18.05?
 Item: 00610 E-Sewer Line DC 10.6.05

Inspected by:

Date:

A. INSTALLING THE CHAMBERS

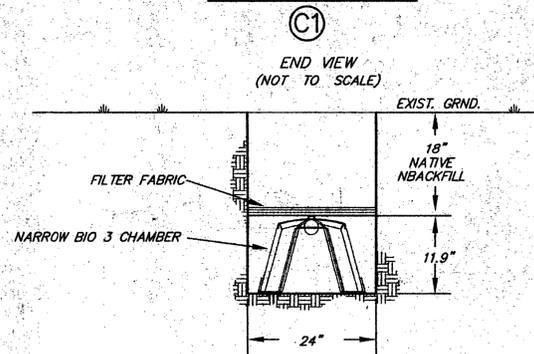
1. Excavate trenches to proper width, and depth as shown on plans.
2. Smooth irregularities in the excavation. A level, flat surface is required.
3. Assemble Biodiffuser leaching chambers and universal end plates together in trenches.
4. Punch out pipe hole openings in the end plates as needed and connect inlet pipes.
5. Check the installed chambers to be sure it is level or has the prescribed slope.
6. Fill sidewall area to top chambers with native soil or 3/8"-3/4" double washed gravel, as required by Napa County Dept. of Environmental Health.
7. Place backfill and "walk" it in on both sides of Biodiffuser. This is very important to achieve load rating.
8. Cover Biodiffuser leaching chambers to a minimum of 18" native material avoid large rocks and debris in cover material.
9. Pack down the fill by walking along the edges of the trench. This is an important step that assures correct structural support.
10. Proceed to the next trench and begin with step 1 again.

B. COVERING THE SYSTEM

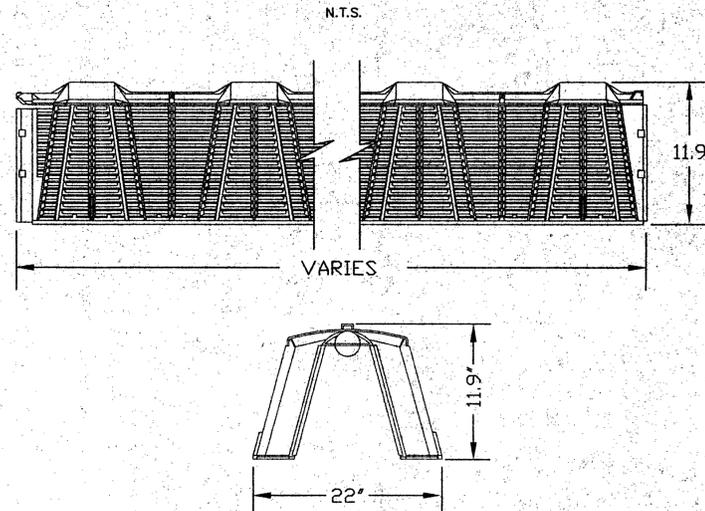
NOTE: Before backfilling, the system should be inspected by a health official or as otherwise required.

1. Backfill the trench by pushing the cover onto the units. Keep a minimum of 12" of compacted cover over the chambers before driving over the system. When finishing the system, it is best to leave several inches of soil above the trenches to allow for settling and to ensure that runoff water is diverted away from the system.
2. When the system is covered, the site should be seeded or sodded to prevent erosion.

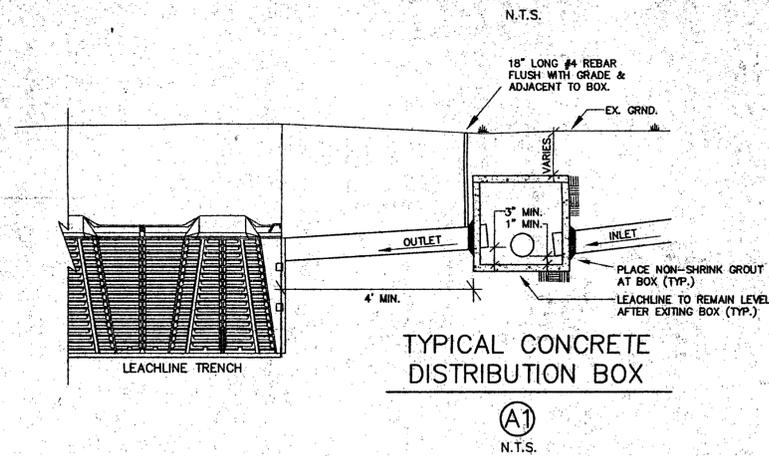
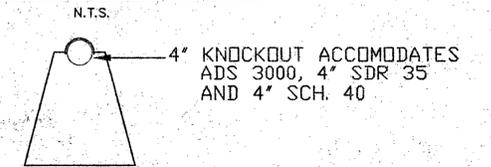
TYPICAL TRENCH DETAIL



ADS BIODIFFUSER® NARROW BIO 3 CHAMBER SIDE VIEW TYPICAL DETAIL



ADS BIODIFFUSER® BIO 3 UNIVERSAL END CAP TYPICAL DETAIL



STANDARD SEPTIC SYSTEM WITH INFILTRATOR TRENCH

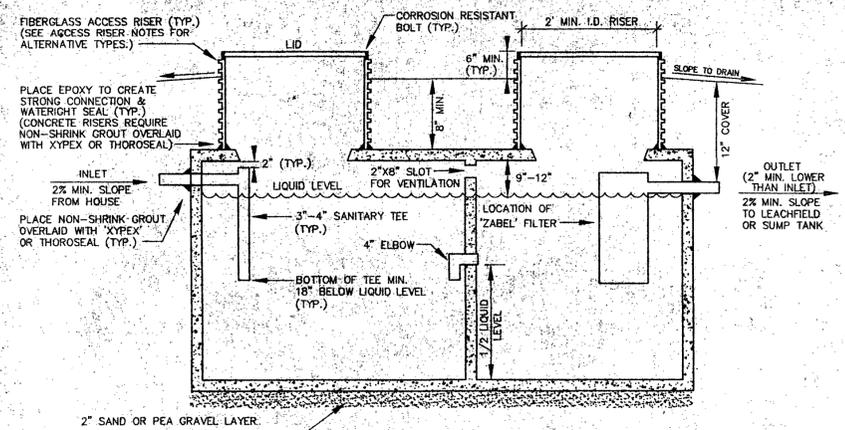
FOR
JIM & BARBARA RICHARDS
 AT
 4013 SPRING MOUNTAIN ROAD
 ST. HELENA, CALIFORNIA
 A.P. NO. 022-150-08



ANALYSIS • PLANNING • SURVEYING • ENGINEERING
 2952 MENDOCINO AVENUE, SANTA ROSA, CA. 95403 (707) 578-3433

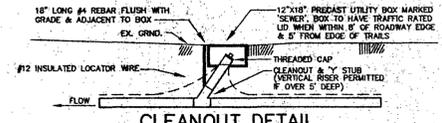
SEPTIC TANK AND RISER REQUIREMENTS

- I. GENERAL NOTES:**
- All septic tanks (reinforced concrete, fiberglass, or other durable non-corrodible synthetic materials) installed for all types of septic systems must be accepted by I.A.P.M.O. as meeting standard PS-1.
 - All septic tanks shall be of two-compartment construction. The first compartment shall be twice the capacity of the second and separated by a baffle.
 - Metal or wooden tanks are prohibited.
 - All septic tanks shall be watertight.
 - Septic tank shall be capable of withstanding anticipated structural loads. (See ordinance no. 3999)
- II. PLACEMENT NOTES:**
- Septic tanks shall be installed per manufacturer's specifications.
 - All tanks shall be coated on the interior and shall cover all of the internal area with an approved waterproof compound and shall be applied per the manufacturer's recommendations.
 - Tanks shall bear on undisturbed soil a min. of 12 inches below original grade on a solid bed and to be installed level.
 - If tank hole is over excavated or has rocky uneven bottom, 2 inches of sand-pea gravel to level bottom is recommended.
 - Fill tank with water after it has been set in place and the sides backfilled and compacted.
- III. SEPTIC TANK CONNECTION NOTES:**
- All pipes leaving and entering tanks shall be sealed with a non-shrink grout mix and thorosealed.
 - All connections from building to septic tanks shall be made in accordance with the most recent edition of the Uniform Building Code.
 - The Sonoma County Building Dept. is the legal inspecting authority for the septic tank.
- IV. SEPTIC TANK SIZES:**
- Septic tank size is determined by the number of bedrooms for residential uses, such that:
- 1 - 2 bedrooms = minimum 810 gallon precast tank. (1200 gal. recommended)
 - 3 - 4 bedrooms = minimum 1200 gallon precast tank.
 - 5 - 6 bedrooms = minimum 1500 gallon precast tank.
- V. VARIANCES:**
- Septic tanks which deviate from the above design criteria must be approved by the Sonoma County Building Dept. In such cases, a registered civil engineer shall submit plans and specifications of such a tank to the building dept. for approval and inspection.
- VI. ACCESS RISER NOTES:**
- Access risers shall be mandatory for all pressure distribution, mound, in-grade and at-grade systems, and all construction within The Sea Ranch Subdivision. Risers for standard systems are recommended when finish grade is more than 6 inches above tank.
 - Access risers shall be installed from the top of the tank to above the ground surface at both the inlet & outlet ends of the septic tank.
 - The top of the septic tank riser shall be clean and dry and fully exposed. Fiberglass, P.V.C., or masonry risers are acceptable. The riser must have a watertight seal to the top of the tank, be large enough for maintenance (roughly 2' x 2' min.) and be watertight at all joints. Lids shall be either gasketed or weather striped to prevent surface water and insect entry and the escape of odors. P.V.C. and fiberglass lids shall include locking mechanism.
 - Risers and lids shall extend a min. 6 inches above existing grade to maintain access and prevent burial.
 - Risers installed in a driveway or parking area must be designed to withstand traffic loads or be barricaded from traffic.
 - Access risers must also be installed on all pump chambers. These should be sized according to chamber cover openings and must allow full access for maintenance and repair of the pump, or control equipment.



TYPICAL SEPTIC TANK DETAIL
SEPTIC TANK SIZE: _____ 1200 GAL _____
(I.A.P.M.O. APPROVED)

(B1)
N.T.S.



(12)
N.T.S.

BEDROOM DEFINITION

- The following guidelines are generally applicable in determining "bedrooms" for purposes of designing an on-site sewage disposal system:
- Sewing rooms, dens, offices, studios, lofts, game rooms, ect., of at least 70 square feet as shown on the floor plan are considered bedrooms.
 - A bedroom has a minimum 7'6" ceiling height, portions of which may be sloping, 70 square feet superficial floor area, is no less than 7' in any one dimension, and has at least one window with a sill height no more than 44" above the floor and a net clear opening of 5.7 square feet.
 - A closet, or lack thereof, does not determine whether a room is potentially a bedroom.
 - If a room described in (1) above is at the same end of the dwelling as the bedroom(s) and meets the criteria of (2), it will be considered a bedroom in designing the sewage disposal system. Rooms on a second story which otherwise consist of room space will be considered a bedroom. Second story lofts will also generally be considered bedrooms. A single large upstairs room adaptable to partitioning will be counted as one bedroom for each 70 square feet of superficial floor area.
 - If a "family room" is shown on the plan, it will generally not be counted as a bedroom if it meets the criteria outlined in (6). If both a "family room" and a "den" are proposed, then at least one bedroom will be counted for the two rooms, even if both rooms meet the criteria of (6).
 - Some features which, in various combinations (generally having only one feature does not preclude use as a bedroom), may make it unlikely that a room will be used as a bedroom include:
 - A. A large, arched, doorway without a door which opens into the entryway or a main activity area.
 - B. Use of a half wall of railing along at least one side of the room.
 - C. A conversation pit which encumbers the floor area.
 - D. Presence of a fuel-burning water heater or fireplace in a room designated as the family room, game room or recreation room.
 - E. Location in a main activity area of the dwelling.
 - F. Wet bar in family, game or recreation room.
 - G. Built-in bookcase, file cabinets, desk, etc.

LEACHFIELD NOTES

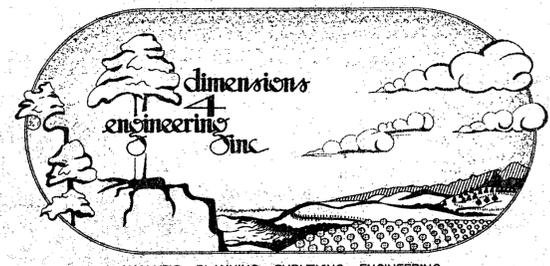
- LEACHLINE PLACEMENT:**
- 1) _____ 150_____ lineal feet of distribution line is required, _____ 150_____ lineal feet is to be placed. (_____ 150_____ lineal feet per bedroom.)
 - 2) Additional lines shall be constructed in expansion areas if capacity in use is inadequate as determined by the County Health Department.
- LEACHLINE MONUMENTATION:**
(Applies to standard septic systems only)
- In order to aid in the future location of leachfield lines and all distribution boxes for on-site septic systems installed without monitoring wells the following shall be required:
- 1) The placement of 1/2" rebar or 1/2" galvanized pipe, a minimum of 2' in length, in a vertical position against the trench wall at a maximum depth of 24" below ground surface.
 - 2) Rebar or galvanized pipe is to be installed every 50' and at ends in lines that are not straight, and at the end wall of the leachfield line.
 - 3) One 2' x 1/2" rebar or galvanized pipe is to be installed flush with each distribution box.

STANDARD SEPTIC SYSTEM CONSTRUCTION REQUIREMENTS FOR A SINGLE FAMILY DWELLING

- A standard septic system consists of an approved septic tank and standard leachlines.
- Septic tank size is determined by number of bedrooms. Studies, sewing rooms, dens, lofts, home offices, etc., of at least 70 square feet as shown on floor plan are generally considered as bedrooms for the purpose of these standards (refer to Environmental Health Instruction 23-85). Septic tanks must be accepted by I.A.P.M.O. as meeting standard PS-1.
 - 1-2 bedrooms: minimum 810 gallon precast tank (1200 gal. recommended)
 - 3-4 bedrooms: minimum 1200 gallon precast tank
 - 5-6 bedrooms: minimum 1500 gallon precast tank
- The septic tank is to be set level in the excavation with a recommended earth cover of 12". If cover over the tank will be greater than 18", risers over both manholes shall be installed with top no less than 6" of surface level; risers shall have appropriate covers to prevent insect and rodent access and exclude surface water. Wooden risers are not allowed.
- The area over a septic tank cannot be subjected to weight loads in excess of 1,000 pounds. In areas where ground water can be expected to be higher than 5 feet from the surface, concrete tanks must be waterproofed on the inside with thorosealed or equivalent sealants.
- Tanks other than concrete are to be installed in accordance with the manufacturer's specifications for that type of tank. Tanks other than concrete must be filled with water to the midpoint to check for leakage during the final inspection. Check with the Division of Environmental Health for approval of any tank before installation.
- The system is to have at least one distribution box. A minimum of 4 feet of solid pipe shall be provided, surrounded by undisturbed native earth, connected to the perforated pipe in the leachline. This 4 feet of solid line is not considered as contributing to the total lineal footage of leachline required. The solid pipe from the distribution box shall be sloped at 1/4" per foot, unless a 4" pipe shall be laid level.
- The connection between the septic tank and the first distribution box, or a minimum length of 5 feet, shall be A.S.S. Schedule 40, or any other material approved for a house sewer connection. Fall from the septic tank to the first distribution box be 1/4" per foot, unless a 4" pipe is used which allows 1/8" per foot.
- A standard leachline consists of 63 to 165 lineal feet of trench per bedroom (length of line required is determined by percolation rate). The width of the trench is 24", and a minimum depth is 36" with 12" of rock below the pipe. (The depth of trench is dependent upon slope and percolation depth.) Maximum length of any one leachline is 100 feet.
- The bottom of the leachline is to be a minimum of 60" above the seasonal high groundwater table (refer to Rule V-2, Sonoma County Public Health Department). Greater depths to seasonal high groundwater table are required in instances of rapid percolation. (Refer to Regional Water Quality Control Board Basin Plan.)
- The trench bottom and total length of line shall be level and installed with the aid of a transit. Leachlines must follow the surface contours to minimize variations in trench depth.
- Compacted trench sides are to be scarified to a depth of 1" and the loose material removed before placing the drain rock in the trench. System installation shall not be attempted during winter months when the potential for sidewall smearing can occur.
- The drain rock used in the line shall be clean, 3/4" to 2 1/2" in size, and either coarse aggregate, crushed rock, or washed river gravel from an approved source.
- The perforated pipe is to be of 3" or 4" (inside diameter) approved plastic or other approved material. Perforations shall be 5/8" dia. in size and the pipe placed perforations down in the trench with the pipe laid level with the aid of a transit.
- There must be at least 2" of level drain rock over the top of the perforated pipe.
- Straw, untreated building paper, or other approved material must be placed over the drain rock prior to backfill to prevent infiltration of soils.
- On sloping ground, leachlines are to be installed to allow for serial distribution into individual lines.
- If a dual leachfield system utilizing an approved diversion valve is installed, the total system is to be equal to 1 1/2 times the amount of leachline required for a single system. The dual leachfield system is recommended as a means of increasing the efficiency and expected life of the leaching system.
- The Environmental Health Specialist must be notified on a county work day, at least 24 hours in advance of the desired inspection. A transit must be provided on the site at the time of inspection. No portion of the septic system may be covered until it is inspected by the S.C.P.H.D.

STANDARD SEPTIC SYSTEM WITH INFILTRATOR TRENCH

FOR
JIM & BARBARA RICHARDS
AT
4013 SPRING MOUNTAIN ROAD
ST. HELENA, CALIFORNIA
A.P. NO. 022-150-08



ANALYSIS • PLANNING • SURVEYING • ENGINEERING
2982 MENDOCINO AVENUE, SANTA ROSA CA. 95403 (707) 578-3433



Appendix 3

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

Sheldon Richards

RE: 4013 Spring Mountain Rd.

As instructed by Sheldon Richards, McCollum General Engineering (M.G.E.) conducted an investigation of the existing septic system located at 4013 Spring Mountain Rd, St. Helena CA. The following information was collected during a one day investigation (02/14/2020).

1. The septic tank was located, opened, pumped and visually inspected. Septic tank is a pre fab concrete with concrete lids. The concrete access lids do not have a tight seal. The inlet T, outlet T are in place. The baffle wall is in place. The tank is located fourteen feet away from the house foundation. The tank was at normal operating range upon arrival.
2. Leach lines were probed, rodded and potholed for location and depth. The outlet tight line from the septic tank flows directly into a serial distribution gravity leach field. There are six random length leach lines in the leach field. The leach line pipe is Hancore PVC. There is four hundred forty five of leach line in the field. Leach line five is damaged and is full of soil debris and obstructions.

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 not 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 has six Hancore PVC leach lines. Line five is damaged and full of soil debris.

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.)

Repairs needed:

1. Replace damaged section of line five in leach field.
2. County repair permit.
3. Plan draft fee.

Budget \$3,500.00 To be performed on a time and material basis

Recommended repairs:

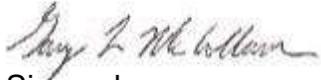
1. Install PVC access risers and lids on septic tank.
2. Install a Zabel filter on the septic tank outlet.

Budget \$2,850.00 To be performed on a time and material basis.

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,

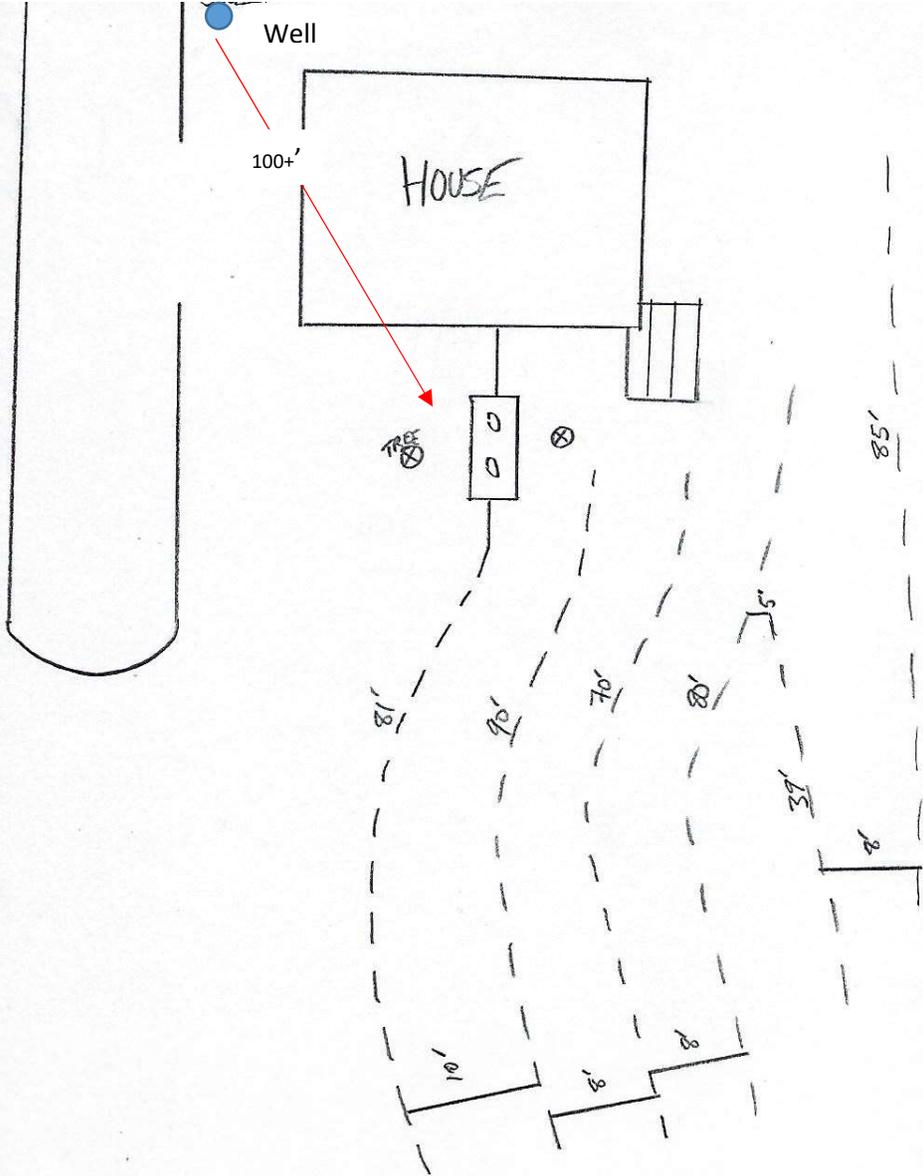
Gary L. McCollum

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.



4013 Spring Mountain Rd
 2-14-20
 A = BUILT

EXISTING INDIVIDUAL SEPTIC SYSTEM INSPECTION REPORT FORM FOR NAPA COUNTY

PROPERTY OWNER Richards
ADDRESS: 4013 Spring Mountain Rd, St Helena, CA

DATE: 2/14/2020
A.P.N.

PRIMARY TREATMENT SEPTIC TANK

Distance from closest well:

This parcel 100+' Adjacent parcel 100+'

Distance from foundation: 14'

Distance from property line: 80'

Material-tank Concrete Lid Concrete

Number of compartments: Two

Total Capacity: 1200gal.

Date tank was last pumped: 2/14/2020

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: 31'

Distance to property line: 75'

Number of lines: 6

Total length on leach line: 445'

Total effective sidewall: 890'

Amount of filter Material: 16" Type of pipe: 3" Hancore

Below pipe: 12" Type of filter material: 1" rock

Above pipe: 4" Depth of cover over pipe: 12"

Trench Width: 18" Depth: 31"

GENERAL INFORMATION

Is the house/structure presently occupied? Yes How many bedrooms? 1

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. Tank is pre fab concrete with concrete access lids. 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. There are six Hancore leach lines in the field. Leach line five is full of obstructions and soil debris. 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 4

Irrigation Water Balance & BOD Loading Limit Calculation

**Reclaimed Process Wastewater
Water Balance for Irrigation and Storage**



Project Description		Annual Process Waste Flow Volume	
Project Number:	4119046.0	Wine Production:	7,140 gal/year
Project Name:	Paloma Winery		
Prepared By:	DRL/BTF	Annual Process Waste per Gallon Wine:	4 gal/year
Date:	November 25, 2024	Total Annual Process Waste Generated:	28,560 gal/year

Vineyard Irrigation Parameters		Landscape Irrigation Parameters	
Acres of irrigated vineyard:	5.20 acres	Crop type / name:	Cover Crop
Row spacing:	11.0 feet	Total irrigated acres of crop:	0.20 acres
Vine spacing:	6.0 feet		
Total number of vines:	3,432 vines		
Water use per vine per month (peak):	7 gal		
Total peak monthly irrigation demand:	24,024 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%	14%	14%	11%	8%
Monthly process wastewater generated [gallons]:	1,142	1,714	1,714	1,428	1,714	1,999	2,570	2,856	3,998	3,998	3,142	2,285

Monthly Vineyard Irrigation Water Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(Based on per-vine water use)	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Beginning of month reclaimed water in storage [gallons] (This number brought forward from end of previous month)	0	0	0	0	0	0	0	0	0	0	0	0
Vineyard irrigation as % of peak month irrigation demand:	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	0%	0%
Irrigation per month per vine (gallons):	0.0	0.0	0.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	0.0	0.0
Total vineyard irrigation demand [gallons]:	0	0	0	24,024	24,024	24,024	24,024	24,024	24,024	24,024	0	0
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]	0	0	0	1,428	1,714	1,999	2,570	2,856	3,998	3,998	0	0
Remaining vineyard irrigation demand after using this month's process water [gallons]	0	0	0	22,596	22,310	22,025	21,454	21,168	20,026	20,026	0	0
Drawdown from storage for remaining vineyard irrigation [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
Well water required to satisfy remaining vineyard irrigation demand	0	0	0	22,596	22,310	22,025	21,454	21,168	20,026	20,026	0	0
Net storage after vineyard irrigation drawdown [gallons]	0	0	0	0	0	0	0	0	0	0	0	0
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation [gallons]	1,142	1,714	1,714	0	0	0	0	0	0	0	3,142	2,285

Water balance continues on next page for cover crop irrigation.

Monthly Landscape Irrigation Water Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(Based on evapotranspiration crop demand and irrigated area)	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation [gallons] (From sheet 1)	1,142	1,714	1,714	0	0	0	0	0	0	0	3,142	2,285
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]	4,301	5,865	10,818	15,575	19,908	22,287	23,036	20,527	15,966	11,241	5,669	4,203
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]	1,142	1,714	1,714	0	0	0	0	0	0	0	3,142	2,285
Landscape irrigation water required from storage or other source [gallons]	3,159	4,151	9,104	15,575	19,908	22,287	23,036	20,527	15,966	11,241	2,528	1,918
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]	0	0	0	0	0	0	0	0	0	0	0	0
Net end-of-month reclaimed water storage after all irrigation [gallons]	0	0	0	0	0	0	0	0	0	0	0	0

End of Water Balance

Peak Monthly Storage = 0 gallons

Notes:

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

Paloma Vineyards - BOD Loading Calculation

Input Criteria

Land Application Area	5.07 Acres
Post Treatment BOD (County of Napa)	160 mg/L
* Loading Limit (Target)	100 lbs/acre/day
Peak Process Wastewater month, Sept.	4284 Gallons/month

Calculations

Process Wastewater Generation per week (4 weeks / month)	1071 Gallons/week
Process Wastewater Generation per week (1 gallon / 3.78541 Liters)	4054 Liters/week
BOD Generation per week (160 mg/L Post Treatment Loading)	648668 mg/week
BOD Generation per week (453,592 mg/lb)	1 lbs/week
BOD loading per acre	0.3 lbs/acre/day **

Conclusion

BOD Loading per acre less than loading limit 0.3 < 100 lbs/acre/day **

* State Water Board General Waste Discharge Requirements For Winery Process Water, Section 35-D

** Assumes irrigation once per week with a 7-day irrigation cycle



Appendix 5

Process Wastewater System Information



BIDA[®] Modular System Quote

Prepared for:

Sheldon Richards of Paloma Vineyards, 4013 Spring Mountain Rd., St. Helena, CA 94574

Prepared by:

Sarah Haupt, of BioFiltro, 1949 5th Street, Suite 101, Davis, CA 95616

Proposal is Valid for 30 Days

1. INTRODUCTION

1.1 Background Information

RSA+ has solicited a proposal on behalf of Paloma Vineyards (“Client”) for the process water (PW) treatment of an existing winery in St. Helena, California. Client is requesting a proposal based off an estimated annual production up to 10,000 gallons of wine. As the winery does not have existing flow data, RSA+ has estimated the peak harvest flow below.

Annual Total Wine Production (Gallons)	Peak Harvest Flow (GPD)
10,000	335

1.2 Project Description

BioFiltro proposes one (1) **Can of Worms**, a compact wastewater package system housed in a 20’ shipping container. The Can of Worms consists of 90 square feet of BioFiltro’s patented Biodynamic Aerobic (BIDA®) Technology.

1.3 Influent Parameters

Influent parameters for BioFiltro’s system require for pH to range between 6.0 - 9.0. As there is currently no existing pH adjustment system at the winery, BioFiltro is including one in this proposal. Assuming typical winery process water levels and influent temperature of 30 degrees Celsius or less, BioFiltro has considered the following design parameters:

Constituent	Influent	Effluent	Unit
Influent Flow Estimated Maximum	335	335	GPD
pH	3-9	6-9	S.U.
Maximum BOD5	5,000	750	mg/l
Maximum TSS	1000	150	mg/l

1.4 Overall Treatment Method/Technology

The BioFiltro BIDA® System could be classified as a trickling filter, where the filtering media is made of wood chips and shavings. Wastewater is spray irrigated over the media, and organic constituents in water are retained and digested by the microbiological community that grows in the media (biofilm). Additionally, the media is inhabited by worms (*Eisenia andrei*) as an improvement to biological treatment by providing natural aeration, proliferating the biofilm, mixing, and further reducing biological solids.

2. PACKAGE OFFERING

2.1 Package Offering

Units	Item	Dimensions
1	Can of Worms – A compact wastewater package system housed in one container	20' L x 8' W x 8' H
	Includes all system medias (wood shavings, geotextiles, irrigation system, drainage cells)	
	Includes starter worms and microbes	
1	Rosedale LCO Bag Filter	
1	pH Adjustment System	
1	1,000 Gallon Storage Tank	
1	Mazzei Venturi Injector	
2	Recirculation and BIDA Irrigation Pumps	
1	Lot of pH, temperature, pressure, and ultrasonic level influent and effluent sensors and probes	
1	Pressure Relief Valve	
1	Programmable Logic Controller	
1	Flow Meter	
1	Overhead Light and Ventilation Fan	

The Sustainable Choice

Thank you for considering BioFiltro for your wastewater treatment needs. We are a carbon neutral company with a mission to provide climate smart regenerative solutions that enable companies and communities to treat water, build soil health, and offset their carbon footprint. In doing so, we use business as a force for good to cultivate a harmonious relationship between people, planet, and profit.

By harnessing the natural digestive power of worms, BioFiltro is a non-combustion technology that demands up to 95% less energy than traditional wastewater systems while still delivering the same, if not better, water quality. By improving water quality, BioFiltro enables its customers to reduce their environmental footprint and land application area, thereby freeing up land for more beneficial uses.

BioFiltro is also a nature-based solution that does not generate sludge, a byproduct of wastewater treatment that is often hauled to landfill. Instead, BioFiltro generates vermicompost, a beneficial soil amendment rich in nutrients and microbial activity that can be used to improve water retention, root structure, and soil diversity and health. BioFiltro is currently participating in the California Department of Food and Agriculture's Healthy Soils Program to study the application of our vermicompost on croplands and its effects on carbon sequestration. In 2021, BioFiltro generated more than 45,000 cubic yards of vermicompost in the United States, enough to amend ~450,000 acres.

BioFiltro's systems have also been validated and verified to prevent the formation of greenhouse gases from forming. In one case study, one of our dairy systems is preventing the formation of 42,000 metric tons of CO₂ equivalent every year. Carbon credit generation varies and depends on upstream practices, existing wastewater treatment infrastructure, and pre-existing water quality.





A Whole New Can Of Worms



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.

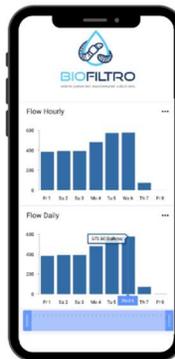
The Can of Worms comes with its own solid separator, equalization tank, lift station, PLC, monitoring camera. If necessary, the system can be upgraded to include a pH adjustment system, climate control equipment, and/or tertiary disinfection.

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



Take Control of Your Wastewater



- ✓ Energy Efficient
- ✓ Mobile & Scalable
- ✓ Turn Key Installation
- ✓ Remotely Monitored
- ✓ Beneficial Byproducts
- ✓ Self Contained

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.

Should the customer's flow, water quality, or discharge permit change and thereby require additional treatment, additional Cans of Worms and or tertiary treatment systems can be snapped on to keep the system within compliance.

Removal Efficiencies		TREATMENT CAPACITY	
BOD5	85 - 99%	Influent BOD5 mg/L	Gallons Per Day
TSS	85 - 99%	0 - ≤ 500	≤ 1,500
TKN	60 - 95%	500 - ≤ 1,000	≤ 1,125
Ammonia	65 - 85%	1,000 - ≤ 6,000	≤ 450
Phosphorus	50 - 75%	6,000	≤ 225

1949 5th Street, Suite 101, Davis, CA 95616 530 302 5692
 www.biofiltro.com info@biofiltro.com

Wastewater Treatment Solutions

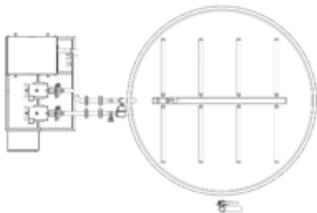
Winery wastewater treatment for compliance

MICRO SEQUENCING BATCH REACTOR (mSBR)

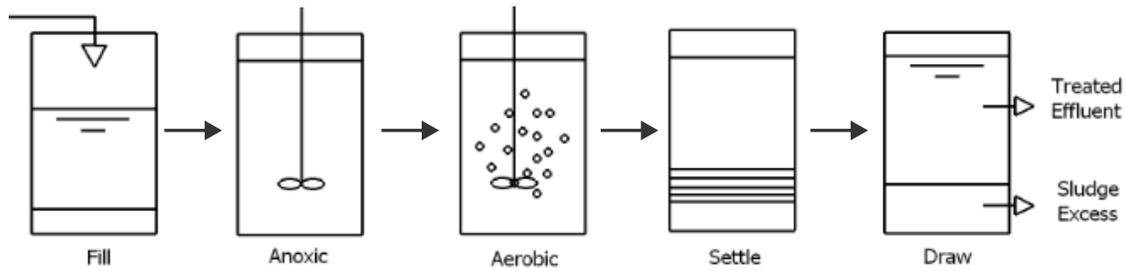
Nviro's Micro Sequence Batch Reactor (mSBR) offers a compact, cost-effective solution for small to medium size wineries needing to meet waste discharge requirements.

KEY FEATURES

- Industrial HDPE or Stainless-Steel Tanks
- Stainless-Steel Equipment Skid and Piping
- Aeration Manifold with Fine Bubble Membrane Diffusers
- Premium Efficiency Pump and Regenerative Blower
- PLC/HMI Controls, UL508A Control Panel with AC
- Adjustable Stainless-Steel Influent Static Screen



TECHNICAL



The mSBR performs a series of batch cycles, including filling, aeration, settling, decanting, and idling – all within a single treatment tank. This process integrates aerobic and anoxic phases to effectively reduce Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) while promoting nitrification and denitrification.

PRODUCT DETAILS

Designed for small to medium sized facilities, the mSBR can operate in series or parallel and is available in Ultrafiltration and micro-SBR variations.

Model	Capacity (gallons)	Max Flow (gpd)	Influent Constituents		Treated Effluent	
			BOD (mg/L)	TSS (mg/L)	BOD (mg/L)	TSS (mg/L)
mSBR 10.0*	10,000	1,350	5,000	350	<100	<80

*Performance is contingent upon meeting Nviro's operational requirements as outlined in the mSBR Operations and Maintenance Manual.

*Standalone unit does not meet Title 22 reclaimed compliance.

BENEFITS

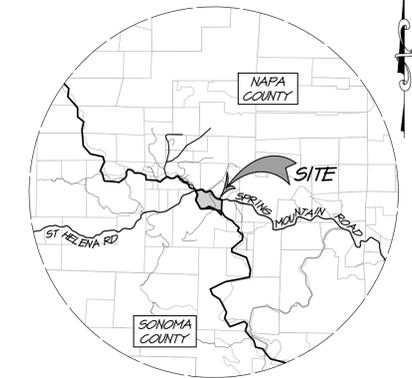
- **Efficient and Flexible:** Easily manages variable flows and loadings.
- **High Treatment Performance:** Effectively removes BOD, TSS, and nutrients.
- **Cost-Effective:** Simplified design and automation reduce operational costs.



info@nviro.com
(888) 88 NVIRO



PALOMA VINEYARD PROCESS WASTEWATER SYSTEM CONCEPT



VICINITY MAP
SCALE: 1" = 4000'

PROJECT INFORMATION

CLIENT: PALOMA VINEYARD
SHELDON RICHARDS
SITE ADDRESS: 4013 SPRING MOUNTAIN ROAD
ST. HELENA, CA 94574
CIVIL ENGINEER: RSA
1515 FOURTH STREET
NAPA, CA 94559
PARCEL NO: 150-008-022
PARCEL AREA: 17.11 ACRES

SURVEY NOTES

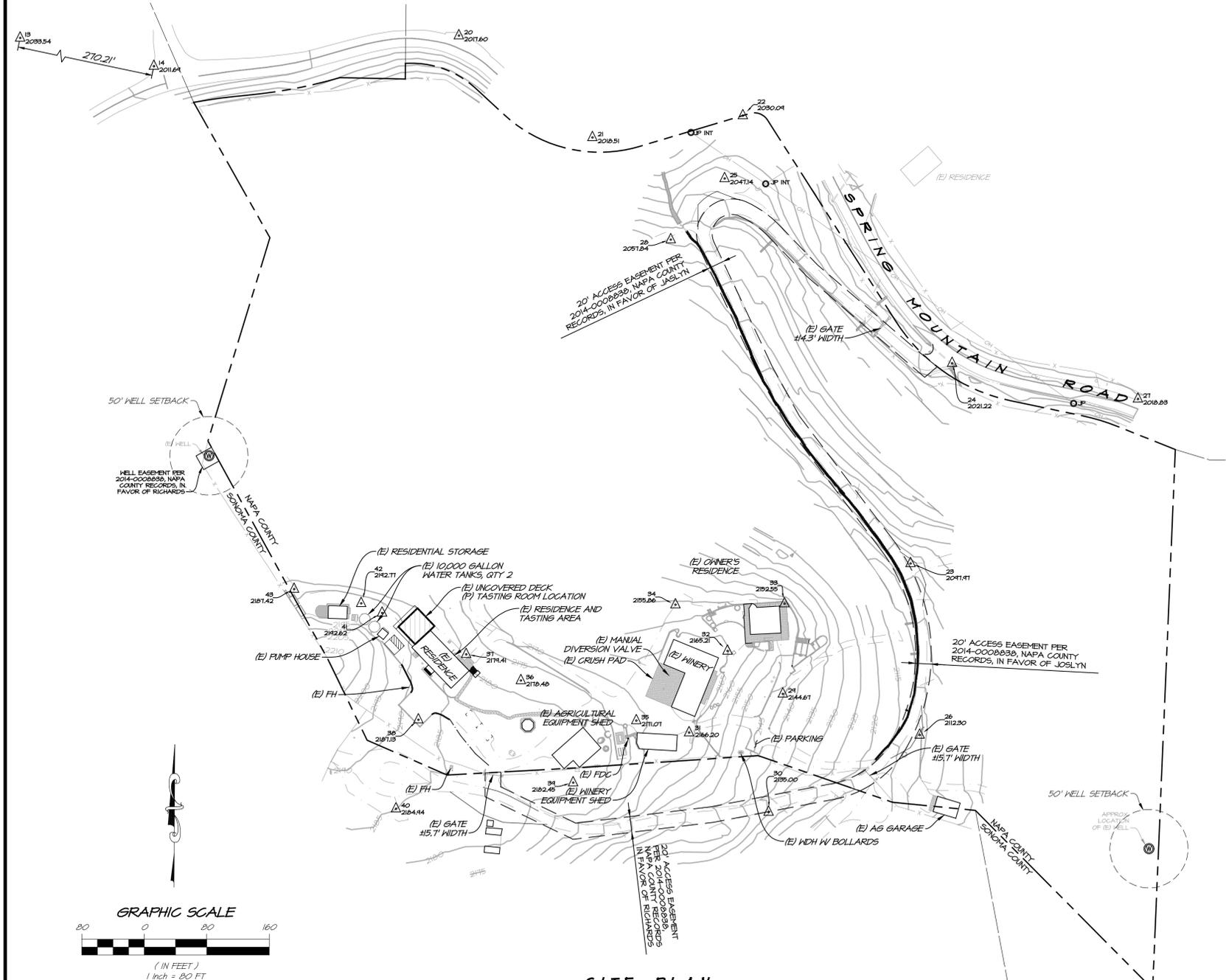
- FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION WAS BASED ON A FIELD SURVEY BY RSA+ SEPTEMBER, 2022.
- CONTOUR INTERVAL: ONE (1) FOOT, HIGHLIGHTED EVERY FIVE (5) FEET.
- APPROXIMATE BOUNDARY SHOWN IS PER GRANT DEED, DOCUMENT NO. 2016-0004808, NAPA COUNTY RECORDS, AND THE QUILT-LAM DEED FILED IN THE RECORDS OFFICE OF BOTH COUNTIES, DOCUMENT NO. 2014-0008828, NAPA COUNTY, AND DOCUMENT NO. 2014030465, SONOMA COUNTY.
- VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88).
- HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83) 2011 EPOCH BASED UPON G.P.S. OBSERVATIONS ON NETWORK UTILIZING CONTINUALLY OPERATING REFERENCE STATION (CORS) INFORMATION FROM THE CALIFORNIA SPATIAL REFERENCE CENTER (C.S.R.C.).
- THE APPROXIMATE COUNTY LINE SHOWN IS PER THE RECORD OF SURVEY FILED IN THE OFFICE OF THE SONOMA COUNTY RECORDER IN BOOK 162 OF SURVEYS AT PAGES 34-44.

SHEET INDEX

COVER SHEET
PWW-1
PWW-2
PWW-3
PWW-4

SYMBOL LEGEND

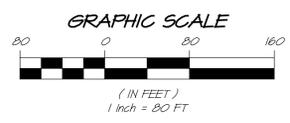
- EXISTING**
- TREE (AS NOTED)
 - △ SURVEY CONTROL STATION
 - IGV
 - IP / PP
 - PIV / FDC
 - SANITARY SEWER MANHOLE
 - AREA DRAIN
 - WELL
 - JT — JOINT TRENCH LINE
 - SS — SANITARY SEWER LINE
 - W — WATER LINE
 - OH — OVERHEAD UTILITY LINE
 - DH — DOMESTIC WATER LINE
 - FSH — FORCED SANITARY SEWER LINE
 - SFM — FIRE WATER LINE
 - F — FLOWLINE
 - X — FENCE
 - — GRADE BREAK
 - — PROPERTY LINE
 - — ADJACENT PROPERTY LINE
 - — TOE OF BANK
 - — TOP OF BANK
- PROPOSED**
- SD — STORM DRAIN LINE
 - W — WATER LINE
 - F — FIRE WATER LINE
 - JT — JOINT TRENCH LINE
 - — PERF PIPE / RAIN WATER LEADER
 - SS — SANITARY SEWER LINE
 - — TO BE DEMOLISHED
 - SSGO
 - AD
 - DI
 - PIV / FDC
 - FH
 - WV
 - — SLOPE AS SHOWN



SITE PLAN
SCALE: 1" = 80'

ABBREVIATION LEGEND

AB	AGGREGATE BASE	(F)	FUTURE	NCRS	NAPA COUNTY ROAD & STREET STANDARDS	S.A.D.	SEE ARCHITECTURAL DRAWINGS
AC	ASPHALT CONCRETE	FG	FACE OF CURB	(P)	PROPOSED	SD	STORM DRAIN
AD	AREA DRAIN	FDC	FIRE DEPT. CONNECTION	PC	POINT OF CURVATURE	SL	STREET LIGHT
APPROX	APPROXIMATE	FES	FLARED END SECTION	PCG	PORTLAND CEMENT CONCRETE	SL.A.D.	SEE LANDSCAPE ARCHITECT'S DRAWINGS
BCV	BEGIN VERTICAL CURVE	FF	FINISH FLOOR	PG&E	PACIFIC GAS AND ELECTRIC	S.P.D.	SEE PLUMBING DRAWINGS
BF6	BOTTOM FINISH GRADE	FG	FINISH GRADE	(P)	PROPERTY LINE	SS	SANITARY SEWER
BH	BENCHMARK	FSS	FORKED SANITARY SEWER	(PVC)	POLYVINYL CHLORIDE	S.S.D.	SEE STRUCTURAL DRAWINGS
BO	BLOWOFF	FH	FIRE WATER	PVI	POINT OF VERTICAL INTERSECTION	SSMH	SANITARY SEWER MANHOLE STATION
B.S.D.	BRICK SLOT DRAIN	GB	GRADE BREAK	PW	PROCESS WASTE	STA	STATION
CB	CATCH BASIN	GV	GATE VALVE	PWW	PROCESS WASTEWATER	TC	TOP OF CURB
CL	CENTERLINE	HP	HIGH POINT	R	RADIUS	TFG	TOP OF FINISH GRADE
CO	CLEANOUT	INV	INVERT	RCH	RIGHT OF WAY	TYP	TYPICAL
CONF	CONFORM	IW	IRRIGATION WATER	RCP	REINFORCED CONCRETE PIPE	TW	TOP OF WALL
CV	CHECK VALVE	IP	IRRIGATION WATER	RG	ROUGH GRADE	VCP	VITRIFIED CLAY PIPE
DCV	DOUBLE CHECK VALVE	JP	JOINT POLE	RL	RAIN WATER LEADER	W	WATER
DI	DRAIN INLET	LAA	LAND APPLICATION AREA	RPBP	REDUCED PRESSURE BACKFLOW PREVENTOR	WM	WATER METER
DS	DOWNSPOUT	LP	LAND FEET/FOOT	RW	RECLAIMED WATER	WV	WATER VALVE
DN	DOMESTIC WATER	LP	LOW POINT	S	SLOPE (FEET/FOOT)		
EX	EXISTING	MAN	MANHOLE				
EP	EDGE OF PAVEMENT	MIN	MINIMUM				
EVC	END VERTICAL CURVE	MON	MONUMENT				

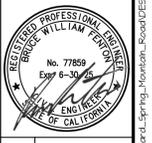


NO.	DATE	REVISIONS	BY	APPD

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PALOMA VINEYARD COVER SHEET NAPA COUNTY CALIFORNIA



DATE	NOV 25, 2024
DRAWN	DCB
DESIGNED	DRL
CHECKED	BNF
JOB NO.	419046.0

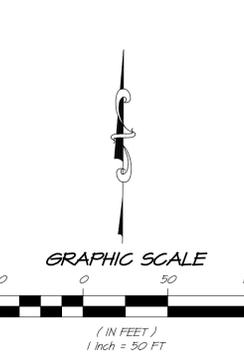
SHEET NO.
PWW-1
1 OF 4 SHEETS



LAA NOTE
LAA 1-3 ARE VINEYARD IRRIGATION
5.20 ACRES (LAA 1-3)

LEGEND

- (A) APPROXIMATE LOCATION OF (E) OWNER'S RESIDENCE WASTEWATER SYSTEM PER E05-0632
- (B) APPROXIMATE LOCATION OF (E) WINERY PROCESS WASTEWATER SYSTEM PER JOB # 12-1278
- (C) APPROXIMATE LOCATION OF (E) RESIDENCE WASTEWATER SYSTEM PER MCCOLLUM SEPTIC INSPECTION REPORT DATED 02/24/2020



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**PALOMA VINEYARD
PROCESS WASTEWATER IRRIGATION**
CALIFORNIA
NAPA COUNTY



DATE	NOV 25, 2024
DRAWN	DCB
DESIGNED	DRL
CHECKED	BNF
JOB NO.	4119046.0
SHEET NO.	PWW-2
	2 OF 4 SHEETS

NO.	DATE	REVISIONS	BY

