

WASTEWATER FEASIBILITY STUDY

FOR

ROUND POND WINERY

Napa County, California
APN 030-140-022

Project No. 2008052



SUMMIT ENGINEERING, INC.
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September 2008

ROUND POND WINERY

Napa County, California

WASTEWATER FEASIBILITY STUDY

WASTEWATER MANAGEMENT DESCRIPTION

Project Description

Round Pond Winery is considering a modification to the Use Permit for the existing winery located at 877 Rutherford Crossroad (S.R. 128) near the town of Rutherford. The proposed Use Permit modification involves increase of production capacity to 100,000 gallons per year, as well as increases to hospitality and visitor serving uses.

The disposal of sanitary sewage (SS) from the proposed visitation, employees, and events will be accommodated in the existing pressure distribution (PD) leachfield. Additional septic and grease tankage will be required, but the size of the PD leachfield will be adequate to handle the increase in SS flows. The existing leachfield is 1,080 lineal feet and covers an area of approximately 10,800 square feet with an additional 10,800 square feet identified for reserve area (see attached site plan). Round Pond Winery proposes to construct a new pretreatment and subsurface disposal system to accommodate process wastewater (PW) flows projected from the proposed 100,000 gallon winery.

Site Description

The facility is located off State Highway 128 in Rutherford and is surrounded by vineyards. The existing topography of the site is generally flat. Part of the property is located within the 100-year flood plain. The existing winery, proposed PW disposal system, existing leachfield system, well location, and property lines are located on the Overall Site Plan in Enclosure A.

Site Evaluations

See Enclosure B for details of the 7 test pits that were observed at the May 23rd, 2005 soils site evaluation. The acceptable soil depths ranged from 48-inches to 66-inches and were classified as clay loam soils. Our recommendations for the wastewater disposal options are based on the acceptable soil depths assigned by Napa County Department of Environmental Management (NCEM) and the types of systems that would be the least intrusive to the property and proposed uses. For any of the subsurface treatment options available, the disposal area must be aligned along contour. The existing pressure distribution (PD) leachfield and reserve area was placed in the location of TP#4 and TP#7. A majority of the remaining test pits displayed acceptable soil depths to 48-inches which limits the disposal options to a subsurface drip system with pretreatment.

WINERY PROCESS WASTEWATER

Process Wastewater Characteristics

Process wastewater is and will be generated from receiving areas, the crush pad, fermentation tanks, and barrel wash down areas. Wastewater is collected at floor drains and trenches located throughout the winery. Exterior tank and process areas not under a roof are capable of diverting excess rainwater to a storm drainage system when process areas are not in use. No distillation occurs at the facility; hence there is no stillage waste. Refer to Enclosure C for typical winery wastewater characteristics.

Process Wastewater Conveyance, Treatment and Disposal

The PW treatment and disposal system will consist of the following components:

- 1) (E) Initial Screening
- 2) (E) Gravity Collection
- 3) PW Collection and Transfer Components:
 - a. pH control (if necessary)
 - b. Flow measurement
 - c. PW settling tank with effluent filter
- 4) Surge Tank
- 5) AdvanTex Pretreatment System
 - a. AX100 Textile Filter Pod(s)
 - b. Recirculation/blending Tank
- 6) Effluent Pump Tank
- 7) Flow Measurement
- 8) Subsurface Drip Field

A discussion of each of these features is provided below. Refer to Enclosure D for flow diagrams of the wastewater management systems.

- 1) (E) Initial Screening – Provided by screened baskets and strainers installed on the trench drains and floor drains within the winery. Screen opening sizes should be approximately ¼ inch for exterior drains and 1/8 inch for interior drains.
- 2) (E) Gravity Collection – Designed to provide low maintenance and no infiltration or exfiltration. Existing piping should be compatible with process wastewater per Uniform Plumbing Code (UPC) and local requirements.
- 3) PW Collection and Transfer Components:
 - a. pH control system (future, if necessary)

- i. Package treatment systems may require pH correction. The combination of naturally occurring alkalinity in the source water and the alkaline cleaning compounds used within the winery usually provides sufficient buffering to maintain pond pH above 6.5. Neutralizing chemicals should only be used when absolutely necessary.

For the above reasons, Summit does not recommend the installation of pH control systems when the PW Management System is first constructed. Instead, it is recommend that the pH be monitored for a year (monitoring is required by Napa County Department of Environmental Management), especially through one harvest season. If at the end of the one-year monitoring period it has been demonstrated that pH control is necessary (or sooner if conditions warrant), a pH control system could be added.

- b. Flow Measurement – An in-line magnetic flow measurement device will be provided to measure flows from the winery to the treatment system.
 - c. PW settling tank with effluent filter – 8,000 gallons of settling tank capacity upstream of the treatment system will provide solids removal and some treatment of PW flows from the winery. There is an existing 4,000 gallon settling tank, therefore a new 4,000 gallon settling tank will need to be installed. An effluent filter will be installed at the outlet of the final tank to reduce solids passage to the disposal system.
- 4) Surge Tank – A surge tank will be provided for flow equalization especially during peak harvest time. PW flows greater than the minimum peak day flows required by NCEM will be directed to the surge tank prior to being treated in the AdvanTex Textile Filter Treatment System. Daily flows no greater than NCEM peak day flows will be pretreated and disposed of in the subsurface drip system until the surge tank is empty.
- 5) AdvanTex Textile Filter Treatment System:
- a. AX100 Textile Filter Pod – Orenco System’s AdvanTex Treatment System is a packed bed filter that supports attached growth biological treatment. In addition to the packed bed filter, the treatment system will include a recirculating/blending tank, pumps, filtered pump vault, and valves. Controls will consist of a timer with float switch override, high water alarms, and a duplex pump control panel equipped with remote telemetry and a web based monitoring system.
 - b. Recirculation/Blending Tank – A recirculation blending tank is provided to allow for dilution and buffering of peak hydraulic and organic loads. A duplex pumping system is installed in the recirculation/blending tank to dose the AdvanTex filter pod(s).
- 6) Effluent Pump Tank – A precast concrete pump tank will be provided for flow equalization and storage of the treated PW prior to pumping to the subsurface drip field disposal system. The pump tank will incorporate a duplex pump system.
- 7) Flow Measurement – An in-line magnetic flow measurement device will be provided to measure SS flows to the subsurface drip field disposal system.
- 8) Subsurface Drip Field – Final dispersal of treated effluent will be by means of subsurface drip tubing as manufactured by GeoFlow. Subsurface drip tubing is pressurized drip line which discharges treated effluent into the surface soil horizon. Discharge into the surface soil horizon maximizes evaporation, uptake by native roots, and percolation into the soil.

SANITARY SEWAGE

Sanitary Sewage Wastewater Conveyance, Treatment and Disposal

The SS treatment and disposal system will consist of the following components:

- 1) (E) Gravity Collection
- 2) Grease Trap
- 3) Septic Tank(s) with effluent filter
- 4) (E) Effluent Pump Tank

5) (E) Pressure Distribution Leachfield

A discussion of each of these features is provided below. Refer to Enclosure D for flow diagrams of the wastewater management systems.

- 1) Existing Gravity Collection – Designed to provide low maintenance and no infiltration or exfiltration. Piping should be compatible with SS and satisfy Uniform Plumbing Code and local requirements.
- 2) Grease Trap – A precast concrete grease trap tank will be used for removing and retaining grease from wastewater in kitchen areas prior to discharge into the dosing tank. Such materials cause blockages in the system such as backups and overflows. The grease interceptor shall be sized using County and UPC guidelines.
- 3) Septic Tank(s) with effluent filter
 - a. (Existing) One precast concrete 1,200 gallon septic tank with an effluent filter handles the SS flow from existing winery domestic waste. An effluent filter is installed at the outlet of this tank to reduce solids passage to the pump station and PD leachfield system.
 - b. (Proposed) One additional precast concrete settling tank of approximately 1,500 gallons will be provided for solids removal. This will provide a total of 2,700 gallons of septic tank capacity. An effluent filter will be provided at the outlet of the tank to remove additional suspended solids which do not settle out in the tank to reduce solids passage to the pump station and PD leachfield system.
- 4) (E) Effluent Pump Tank – The pump tank contains a duplex pump control to direct flow on a demand basis with pump operation controlled via float switch positions.
- 5) (E) Pressure Distribution Leachfield – Effluent from the pump tank will be discharged into the existing PD leachfield system.

OTHER CONSIDERATIONS

Odor Control

There should be no obnoxious odors from a properly designed and operated treatment system of this type. See Alternative Courses of Action for operation alternatives for unforeseen conditions.

Ground Water Contamination

The nearest water well to any of the winery process treatment and disposal systems is a minimum of 100 feet. No system components will be placed within 100 feet of any existing wells.

Alternative Courses of Action

Although no operational difficulties are foreseen, the following additional courses of action would be available if necessary:

- 1) A 200% pretreatment subsurface drip reserve area is available to increase discharge capacity if needed
- 2) Ability to adjust the pH at the pretreatment site or installation of another type of pH control.
- 3) Ability to add supplemental oxygen to the PW surge tank for odor control, such as hydrogen peroxide

- 4) Additional stages of treatment to increase effluent quality
- 5) Increased use of disposal area to increase discharge capacity

WASTEWATER FEASIBILITY STUDY

PROCESS WASTEWATER DESIGN CRITERIA

Winery Process Design Flows

Based on typical flow data from wineries of similar size and characteristics and corresponding process wastewater (PW) generation rates, projected flows for the proposed 100,000 gallon winery are calculated as follows:

Annual Volume

Gallons of wine produced = 100,000 gal wine/year

Generation rate = 6 gal PW/gal wine

Total Annual Volume = 100,000 gal wine x 6 gal PW/gal wine = 600,000 gal PW

Average Day Flow

600,000 gal PW ÷ 365 days/year = 1,644 gpd PW

Using the Napa County Day Flow Formula:

$\frac{100,000 \text{ gal wine/year}}{60} \times 1.5 = \underline{2,500 \text{ gpd PW}}$

PW Settling Tank Sizing

The required settling tank size per criteria from Napa County Department of Environmental Management (NCEM) is calculated as a minimum detention time of three days, resulting in:

$$2,500 \text{ gal/day} \times 3 \text{ days} = 7,500 \text{ gal}$$

The winery will utilize a total of 8,000-gallon of settling tank for process wastewater prior to the proposed treatment system. The existing 4,000 gallon settling tank will be combined with a new 4,000 gallon settling tank for PW settling. These tanks will provide 3.2 days of retention time at NCEM peak flows and approximately 4.8 days at average flows. An effluent filter will be installed at the outlet of the final settling tank to further reduce solids passage to the treatment system.

Surge Tank Sizing

Refer to Enclosure E for surge tank sizing details. The peak week PW flow (4,900 gpd) is assumed to last for approximately 2.5 weeks with an average day flow (1,644 gpd) for the remainder of harvest. A minimum of a 40,800 gallon surge tank will be required under these conditions.

AdvanTex Textile Filter Treatment System

The Round Pond Winery AdvanTex filter treatment system component sizing is as follows:

AdvanTex units: 5 – AX100 Filter Pods
Recirculation/blending Tank: 1 – 5,000 gallon tank

The recirculation/blending tank provided will allow for approximately 2 days retention at peak flows and 3 days at average flows. Orenco Systems Inc. recommends a minimum of one (1) day retention in the recirculation/blending tank at peak flows and three (3) days at average flows. Therefore, the average flow of 1,644 gpd and peak flow of 2,500 gpd are within the design parameters provided by the manufacturer. The controls for the recirculation/blending tank pump system will consist of a timer with float switch override high water alarm, and a duplex pump control panel equipped with remote telemetry and a web based monitoring system.

Effluent Pump Tank

The pump tank will be a 4,000 gallon precast concrete tank. NCEM requires that the minimum pump tank size shall be approximately 1.5 times the design flow and also provide one day storage above the high water alarm for subsurface drip disposal. The proposed pump tank provides 1.6 times the design flow. A duplex pump system shall be installed or additional tank volume shall be designed to accommodate the one day storage capacity requirement. The duplex pump system will provide redundancy such that if one pump fails, the second pump will allow continuous operation.

Subsurface Drip Disposal

Subsurface drip disposal system field sizing is based on the drip tubing manufacturer's recommendation as well as Table 10 of the Napa County ASTS guidelines. Table 10 class III soil type (clay loam), corresponds to 167 square feet of disposal field per 100 gallons per day of effluent discharged. Therefore, the disposal field size is calculated as follows:

$$2,500 \text{ gpd} \quad \times \quad \frac{167 \text{ ft}^2}{100 \text{ gpd effluent}} \quad = \quad \underline{4,175 \text{ ft}^2}$$

A field size of 42' by 100' (4,200 square feet) will be used and installed. An additional 200% reserve area will be provided as required by Napa County regulations. Therefore a minimum total area of 12,600 square feet must be provided for primary and reserve subsurface drip field systems.

SANITARY SEWAGE WASTEWATER DESIGN CRITERIA

Sanitary Sewage Design Flows

Sanitary Sewage (SS) at Round Pond Winery property will consist of typical wastewater generated from restrooms, a laboratory, and an existing on-site kitchen. Tours and tasting will be by appointment only. It is estimated that there will be an average of 50 tasting visitors per week with a projected peak day of 60 tasting visitors. Additionally, Round Pond Winery proposes 3 private promotional tasting with meals of 75 visitors each (to occur on a non-harvest day). Release events with 150 visitors each will occur 4 times per year (attendees will be served cocktails/wine and horsedevous only and there will be no food preparation on site). Round Pond is also proposing to participate in the Wine Auction Weekend with a maximum of 100 attendees. During these larger events (Release and Wine Auction), the facility will utilize portable toilets. Anticipated SS flows are projected as follows:

Average Day w/ Private Promotional Event

7 Full-time employees x 15 gpcd	=	105 gpd
2 Part-time employees x 15 gpcd	=	30 gpd
60 Tasting visitors x 3 gpcd	=	180 gpd
75 Event visitors x 15 gpcd	=	1,125 gpd
Total	=	<u>1,440 gpd</u>

Average Day w/Release Event

7 Full-time employees x 15 gpcd	=	105 gpd
2 Part-time employees x 15 gpcd	=	30 gpd
60 Tasting visitors x 2.5 gpcd	=	180 gpd
150 Event visitors x 3 gpcd	=	450 gpd
Total	=	<u>735 gpd</u>

Peak Tasting Day w/ Private Promotional Event – Harvest

10 Full-time employees x 15 gpcd	=	150 gpd
4 Part-time employees x 15 gpcd	=	60 gpd
60 Tasting visitors x 3 gpcd	=	180 gpd
75 Event visitors x 15 gpcd	=	1,125 gpd
Total	=	<u>1,515 gpd</u>

Peak Tasting Day w/ Release Event – Harvest

10 Full-time employees x 15 gpcd	=	150 gpd
4 Part-time employees x 15 gpcd	=	60 gpd
60 Tasting visitors x 3 gpcd	=	180 gpd
150 Event visitors x 3 gpcd	=	450 gpd
Total	=	<u>810 gpd</u>

The peak SS flow is expected to occur during a peak tasting day during harvest with a private promotional event. The peak SS flow is projected to be 1,515 gpd.

Grease Trap

A precast concrete grease trap tank will be used for removing and retaining grease from SS generated in kitchens areas where food is prepared. There will be marketing events with on-site meal preparation for a peak of 75 visitors.

Round Pond Winery will maintain the existing 500 gallon grease tank and under counter grease interceptor due to the limited proposed food service operation. The septic tanks will have an effluent filter installed at the outlet to minimize grease entering the disposal field.

Septic Tank Sizing

The required septic tank size for the winery SS flow based on the projected peak day SS and the Uniform Plumbing Code Sizing Requirements is calculated as follows:

$$\begin{aligned} V &= 1,125 + 0.75*Q \\ &= 1,125 + (0.75) * 1,515 \text{ gpd} \\ &= 2,261 \text{ gallons} \end{aligned}$$

One 2,500 gallon septic tank will be adequate to handle the proposed SS flows. There is an existing 1,200 gallon septic tank. An additional 1,500 gallon septic tank will be installed. An effluent filter should be installed at the outlet of the final septic tank to reduce solids passage to the pump station.

Existing Effluent Pump Tank

NCEM requires that the minimum pump tank size shall be approximately 1.5 times the design flow and also provide one day storage above the high water alarm for subsurface drip disposal. The existing 2,500

gallon pump tank operates based on mercury float switch control. The existing pump tank provides 1.6 times the peak design flow. Three float switches, pump-off, pump-on, and high-water are installed within the tank. As a safety feature, if the wastewater in the pump tank reaches the high-water level, an audio-visual alarm will sound.

Existing Pressure Distribution Leachfield

The area required for disposal of the projected SS flows in a PD leachfield system is calculated as follows:

$$\begin{aligned} \text{Leach line required} &= \frac{1,515 \text{ gpd}}{0.6 \text{ sf/lf (2.67 gal/sf/day)}} \\ &= \underline{946 \text{ lf for SS Flows}} \end{aligned}$$

A minimum of 946 lineal feet (lf) of PD leachline is required to handle an SS flow of 1,515 gpd. The existing PD leachfield system is 1,080 lf (12 – 90 lf leachlines); therefore, this existing system is adequate to handle the proposed 1,515 gpd SS flows. The existing leachfield area is located south of the existing winery facility. The existing 100% reserve area of approximately 84 feet by 90 feet (7,560 square feet) is located south of the existing winery facility and north of the primary PD leachfield system. Both of these areas allow 10-foot horizontal spacing as the leachlines have been installed between vinerows.

**ROUND POND WINERY
WASTEWATER FEASIBILITY STUDY
ENCLOSURE A**

**VICINITY MAP
ASSESSOR'S PARCEL MAP
OVERALL SITE PLAN**

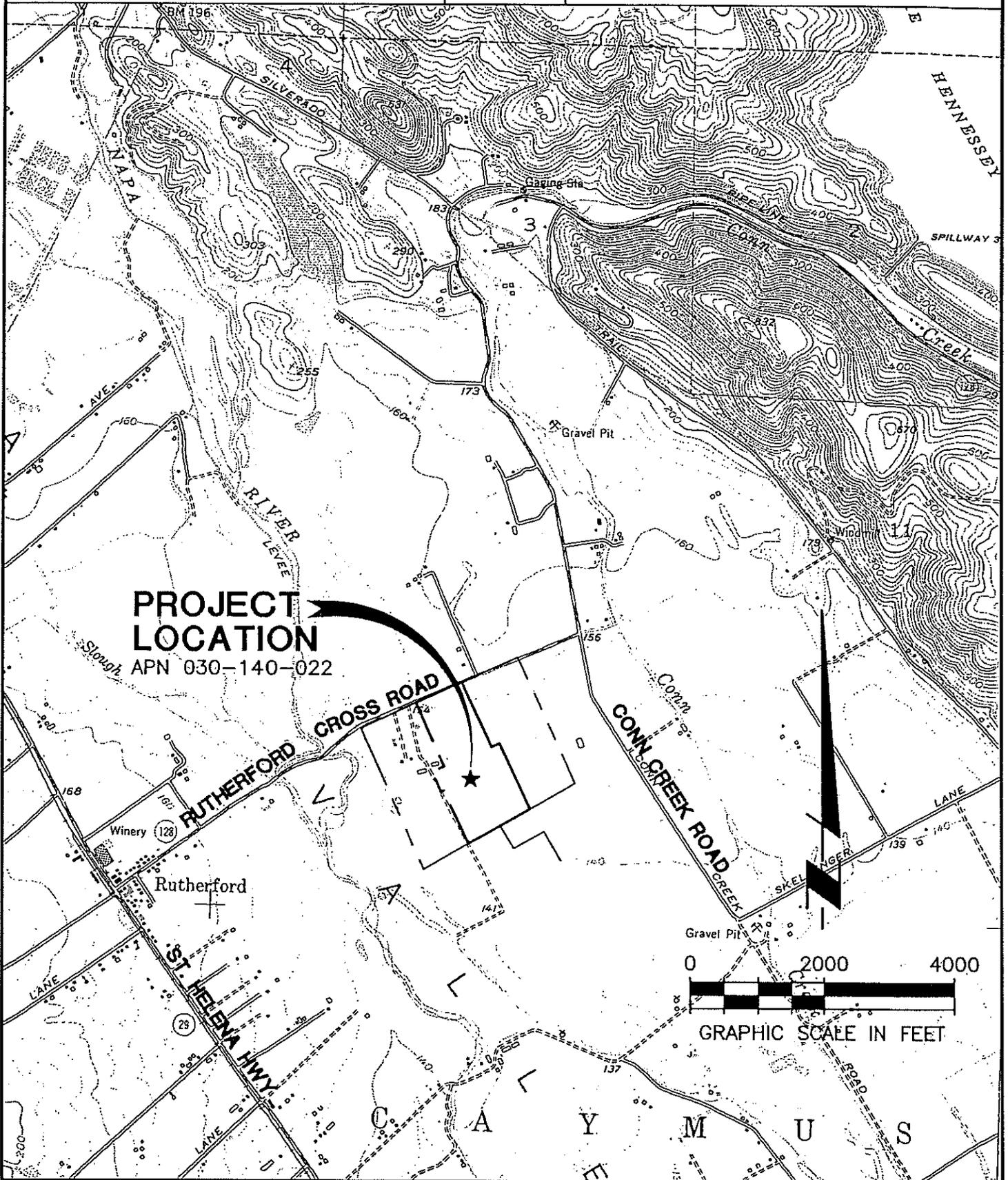
ROUND POND WINERY
877 RUTHERFORD CROSS ROAD
RUTHERFORD, CALIFORNIA
APN 030-140-022



VICINITY MAP

PROJECT NO. 2008052 DATE 08-21-08
BY MS CHK BG SHT NO 1 OF 1

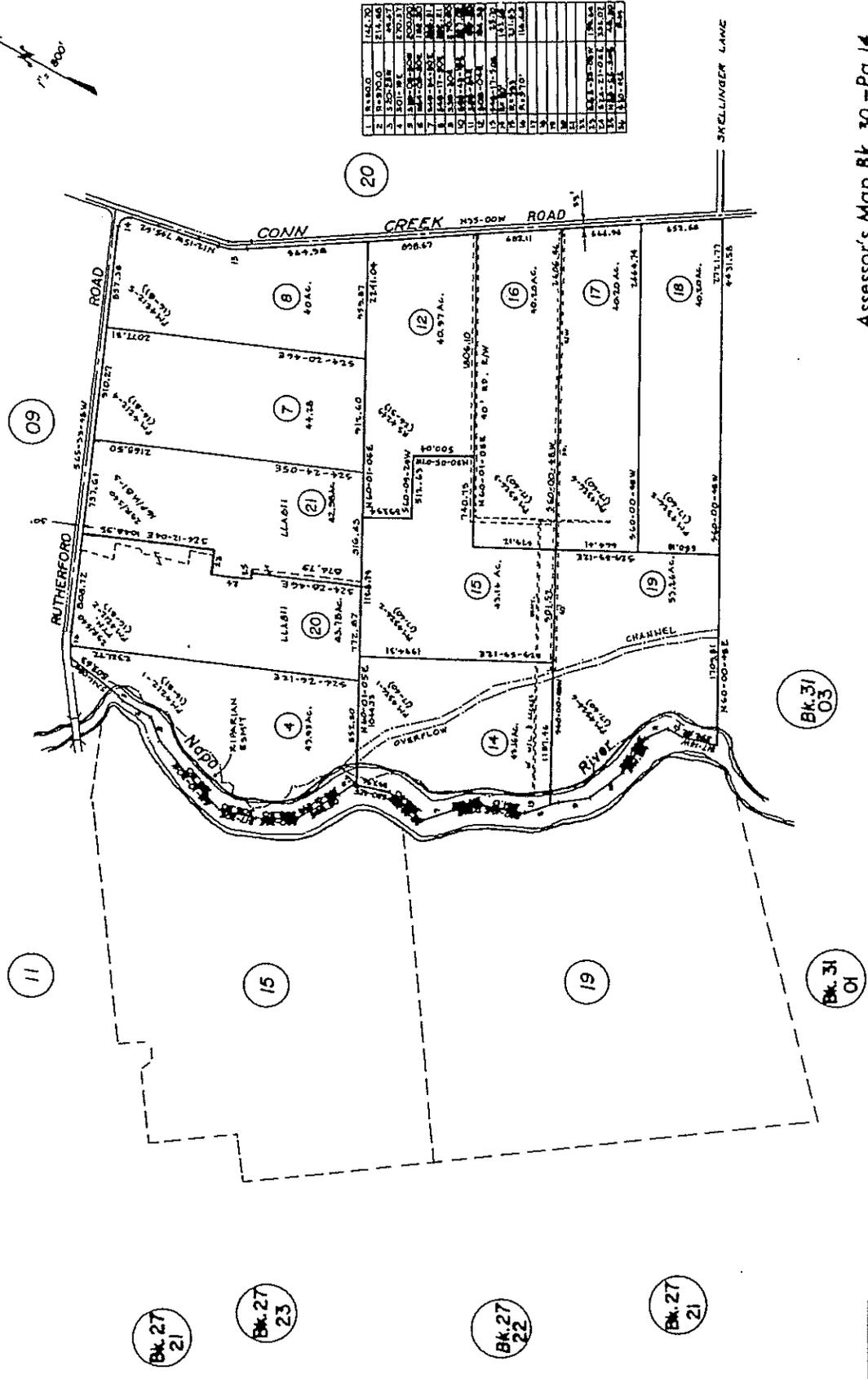
Sep 16, 2008 - 6:28pm G:\CAD Projects\2008\08052\dwg\Civil\Use Permit\08052-VICINITY MAP.dwg



PROJECT LOCATION
APN 030-140-022

Tax Area Code
85001

CAYMUS RANCHO
R.M. Bk. 1, Pt. Pp. 75



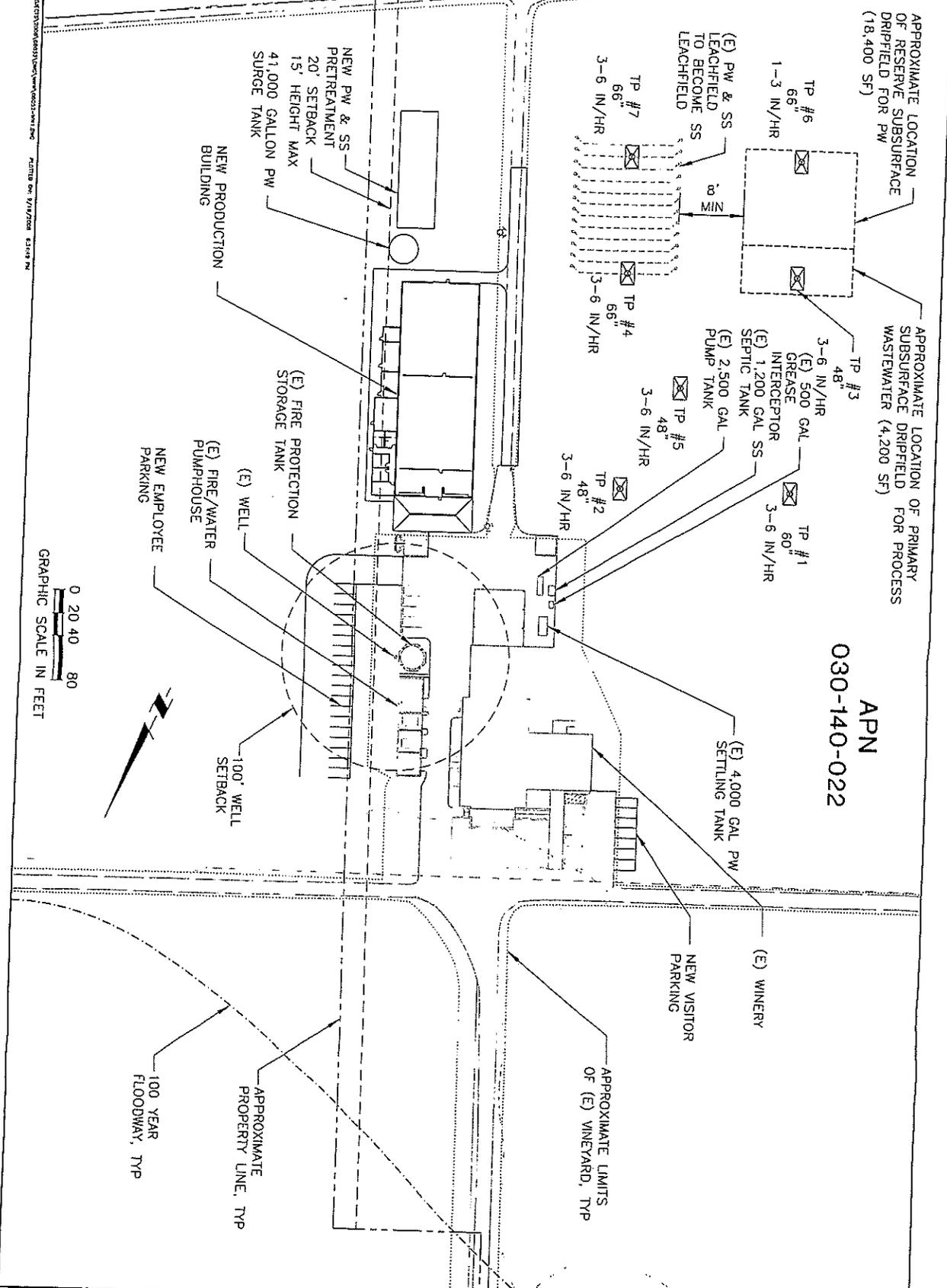
Assessor's Map Bk. 30 - Pg. 14
County of Napa, Calif.
1956 - 02

NOTE: This Map Was Prepared For Assessment Purposes Or, No Liability Is Assumed For The Accuracy Of The Data Delineated Hereon.

NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.

**ROUND POND WINERY
WASTEWATER FEASIBILITY STUDY
ENCLOSURE B
SITE EVALUATION REPORT**

THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF SUMMIT ENGINEERING, INC. AND IS NOT TO BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF SUMMIT ENGINEERING, INC.



APPROXIMATE LOCATION OF RESERVE SUBSURFACE DRIPFIELD FOR PW (18,400 SF)

APPROXIMATE LOCATION OF PRIMARY SUBSURFACE DRIPFIELD FOR PROCESS WASTEWATER (4,200 SF)

APN 030-140-022

0 20 40 80
GRAPHIC SCALE IN FEET

<p>DATE: 08-23-08 DRAWN BY: J208832 CHECKED BY: AS SHOWN SCALE: AS SHOWN SHEET: WW-1</p>		<p>WASTEWATER FEASIBILITY STUDY OVERALL SITE PLAN</p>	<p>ROUND POND WINERY 877 RUTHERFORD CROSS ROAD RUTHERFORD, CALIFORNIA APN 030-140-022</p>	<p>SUMMIT ENGINEERING INC. 463 AVIATION BLVD. #200 SANTA ROSA, CA 95403 Phone 707.527.0715 Fax 707.527.0212</p>
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Soil Profile Data

Profile	Horizon Depth	Boundary	Color	% Coarse Particles (>2 mm)	Texture	Structure	Perc Rate (inches/hr)	Consistence			Pores	Roots	Mottling
								D	M	W			
1	0-30"	Abrupt		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Medium	Few Fine	Few Med/D
	30"-40"	Abrupt		15 - 30%	SCL	Strong Sb Blk	3-6	Lo	V Frb	SS	Common Medium	None	None --/--
	40"-60"	Abrupt		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Few Fine	None	Few Med/Ft
	60"-66"	--		>50%	Sand	--	>12	Lo	Lo	NS	None	None	None --/--
2	0-24"	Diffuse		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Medium	Few Coarse	Few Med/D
	24"-48"	Abrupt		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Few Fine	None	Few Med/D
	48"-60"	--		>50%	Sand	--	>12	Lo	Lo	NS	None	None	None --/--
3	0-24"	Diffuse		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Medium	Few Coarse	Few Med/D
	24"-48"	Abrupt		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Few Fine	None	Few Med/D
	48"-60"	--		>50%	Sand	--	>12	Lo	Lo	NS	None	None	None --/--
4	0-66"	Abrupt		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Medium	Few Fine	Few Med/D
	66"-72"	--		>50%	Sand	--	>12	Lo	Lo	NS	None	None	None --/--
Boundary	USDA Texture Class	Structure	Consistence	Pores	Roots	Mottles							
Abrupt: <1"; Clear: 1" - 2.5"; Gradual: 2.5" - 5"; Diffuse: >5"	Sand; Loamy Sand; Sandy Loam; Sandy Clay Loam; Sandy Clay; Clay Loam; Loam; Clay; Silty Clay; Silty Clay Loam Silt Loam; Silt	Weak, Moderate, or Strong and Granular; Play; Prismatic; Columnar; Blocky; Angular Blocky; Subangular Blocky; Massive; Cemented	Moist: Loose; Very Friable; Friable; Firm; Very Firm; Extremely Firm;	Wet: NonSticky; Slightly Sticky; Sticky; Very Sticky; NonPlastic; Slightly Plastic; Plastic; Very Plastic	Quantity: Few, Common or Many; Size: Very Fine, Fine, Medium, Coarse, Very Coarse	Quantity: Few, Common, or Many; Size: Fine, Medium, Coarse, Very Coarse or Extremely Coarse; Contrast; Faint, Distinct or Prominent							

Site Address: 877 Rutherford Crossroad
Owner: Round Pond
City: Rutherford
AP Number: 030-140-021
Site Evaluator: Summit
Permit #: E05-0288

Soil Profile Data

Profile	Horizon Depth	Boundary	Color	% Coarse Particles (>2 mm)	Texture	Structure	Perc Rate (inches/hr)	Consistence			Pores	Roots	Mottling
								D	M	W			
5	0-24"	Diffuse		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Medium	Few Fine	Few Med/Ft
	24"-48"	Abrupt		15 - 30%	CL	Strong Sb Blk	3-6	S Hard	V Frb	SS	Common Fine	--	None
	48"-60"	--		>50%	Sand	--	>12	Lo	Lo	NS	--	--	None
6	0-24"	Diffuse		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Medium	Few Fine	Few Med/Ft
	24"-48"	Gradual		0 - 15%	CL	Weak Sb Blk	1-3	Hard	Frb	SS	Few Very Fine	Few Very Fine	None
	48"-66"	--		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Fine	--	Few Med/D
7	0-66"	Abrupt		0 - 15%	CL	Strong Sb Blk	3-6	Soft	V Frb	SS	Common Medium	--	Few Med/D
	66"-72"	--		>50%	Sand	--	>12	Lo	Lo	NS	--	None	None
		--		0 - 15%	--	--	--	--	--	--	--	--	--
		--		0 - 15%	--	--	--	--	--	--	--	--	--
		--		0 - 15%	--	--	--	--	--	--	--	--	--
		--		0 - 15%	--	--	--	--	--	--	--	--	--
		--		0 - 15%	--	--	--	--	--	--	--	--	--

Site Address: 877 Rutherford Crossroad City: Rutherford AP Number: 030-140-021
 Owner: Round Pond Site Evaluator: Summit Permit #: E05-0288

ROUND POND WINERY
PROCESS WASTEWATER FEASIBILITY STUDY
ENCLOSURE C
TYPICAL WINERY WASTEWATER CHARACTERISTICS

TYPICAL WINERY WASTEWATER CHARACTERISTICS

<u>Characteristic</u>	<u>Units</u>	<u>Crushing Season Range</u>	<u>Non-crushing Season Range</u>
pH	--	2.5 - 9.5	3.5 - 11.0
Dissolved Oxygen	mg/L	0.5 - 8.5	1.0 - 10.0
BOD ₅	mg/L	500 – 12,000	300 – 3,500
COD	mg/L	800 – 15,000	500 – 6,000
Grease	mg/L	5 - 30	5 - 50
Settleable Solids	mg/L	25 - 100	2 - 100
Nonfilterable Residue	mg/L	40 - 800	10 - 400
Volatile Suspended Solids	mg/L	150 - 700	80 - 350
Total Dissolved Solids	mg/L	80 – 2,900	80 – 2,900
Nitrogen	mg/L	1 - 40	1 - 40
Nitrate	mg/L	0.5 - 4.8	-
Phosphorous	mg/L	1 - 10	1 - 40
Sodium	mg/L	35 - 200	35 - 200
Alkalinity (CaCO ₃)	mg/L	40 - 730	10 - 730
Chloride	mg/L	3 - 250	3 - 250
Sulfate	mg/L	10 - 75	20 - 75

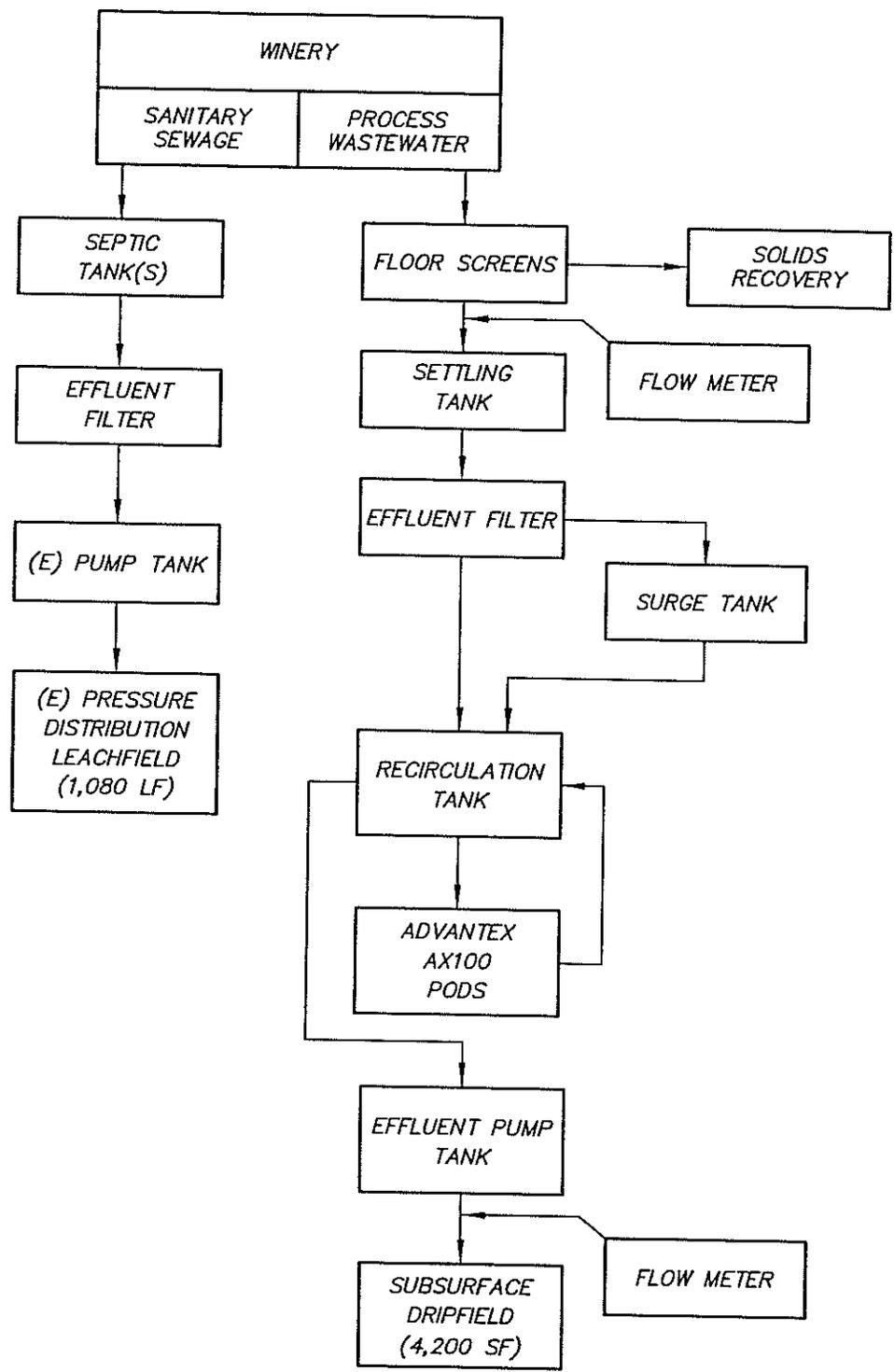
ROUND POND WINERY
WASTEWATER FEASIBILITY STUDY
ENCLOSURE D
WASTEWATER MANAGEMENT SYSTEM SCHEMATIC

ROUND POND WINERY
877 RUTHERFORD RD.
RUTHERFORD, CA
APN 030-140-022



**WASTEWATER MANAGEMENT
 SYSTEM SCHEMATIC**

PROJECT NO. 2008052 DATE 09-02-08
 BY SL CHK GG SHT NO 1 OF 1



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**ROUND POND WINERY
WASTEWATER FEASIBILITY STUDY
ENCLOSURE E
PW SURGE TANK SIZING**

Assumptions

Annual Permitted Production = 100,000 gal wine/year
 Permitted Tonnage = 606 tons grapes/year
 Peak Day PW Generation Rate = 160 gal PW/ton
 Peak Week Crush = 150 tons
 Peak Week PW Generation Rate = 225 gal PW/ton
 Number of days/peak week = 7 days/week

Number of Harvest Days =	45 days
Average Day Flow =	1644 gal PW/day
NCEM Peak Day Flow* =	2500 gal PW/day
Peak Week PW Flow =	4900 gal PW/day

*min design criteria set by NCEM

**Assume peak week PW flow for 2.5 weeks then normal day flow

**Design Flow of AdvanTex system = 2500 gpd (5-AX100 pods)

**Would take 65 days total for surge tank to empty under these conditions

**Size surge tank required = 40800 gallons

	PW Flows sent to surge tank (gals)	PW Flows sent to settling tank or recirc tank (gals)	Total PW left in surge tank (gals)
Day 1	4900	2500	2400
Day 2	4900	2500	4800
Day 3	4900	2500	7200
Day 4	4900	2500	9600
Day 5	4900	2500	12000
Day 6	4900	2500	14400
Day 7	4900	2500	16800
Day 8	4900	2500	19200
Day 9	4900	2500	21600
Day 10	4900	2500	24000
Day 11	4900	2500	26400
Day 12	4900	2500	28800
Day 13	4900	2500	31200
Day 14	4900	2500	33600
Day 15	4900	2500	36000
Day 16	4900	2500	38400
Day 17	4900	2500	40800
Day 18	1644	2500	39944
Day 19	1644	2500	39088
Day 20	1644	2500	38232
Day 21	1644	2500	37375
Day 22	1644	2500	36519
Day 23	1644	2500	35663
Day 24	1644	2500	34807
Day 25	1644	2500	33951
Day 26	1644	2500	33095
Day 27	1644	2500	32238
Day 28	1644	2500	31382
Day 29	1644	2500	30526

Day 30	1644	2500	29670
Day 31	1644	2500	28814
Day 32	1644	2500	27958
Day 33	1644	2500	27101
Day 34	1644	2500	26245
Day 35	1644	2500	25389
Day 36	1644	2500	24533
Day 37	1644	2500	23677
Day 38	1644	2500	22821
Day 39	1644	2500	21964
Day 40	1644	2500	21108
Day 41	1644	2500	20252
Day 42	1644	2500	19396
Day 43	1644	2500	18540
Day 44	1644	2500	17684
Day 45	1644	2500	16827
Day 46	1644	2500	15971
Day 47	1644	2500	15115
Day 48	1644	2500	14259
Day 49	1644	2500	13403
Day 50	1644	2500	12547
Day 51	1644	2500	11690
Day 52	1644	2500	10834
Day 53	1644	2500	9978
Day 54	1644	2500	9122
Day 55	1644	2500	8266
Day 56	1644	2500	7410
Day 57	1644	2500	6553
Day 58	1644	2500	5697
Day 59	1644	2500	4841
Day 60	1644	2500	3985
Day 61	1644	2500	3129
Day 62	1644	2500	2273
Day 63	1644	2500	1416
Day 64	1644	2500	560
Day 65	1644	2500	-296

Size Surge Tank Required = 40800