WASTEWATER FEASIBILITY STUDY

R.E.B. Engineering, Inc



Civil & Structural Engineering - Land Surveying & Planning

7/10/2007 Mr. Sheldon Sapoznik, REHS Napa County Department of Environmental Management 1195 Third Street, Rm. 101 Napa, CA 94559

Subject: Wallis Winery Use Permit (A.P.N. 020-450-014)

Dear Sheldon:

Attached is the wastewater feasibility report for the Wallis Winery located at 1670 Diamond Mountain Road in Calistoga, with a proposed production of 30,000 gallons per year. The winery will use a conventional leach field disposal system for both winery process and domestic wastewater with 36 inches under the trench bottom.

I am hopeful that this feasibility report addresses all of your questions with regard to the wastewater system and the feasibility of the Wallis Winery which will meet Napa County Regulations for wastewater systems. Please call if you have any further questions.

Sincerely,

Kenneth C Deibert Jr, PE, Civil Engineer REB Engineering, Inc.

Phone: 707.963.8638 Fax: 707.963.2346 345 La Fata St., Suite B, P.O. Box 113, St. Helena, California, 94574



Civil & Structural Engineering - Land Surveying & Planning

7/10/2007 JOB **#** 2007-555

WALLIS WINERY APN 020-450-014 (7.4 ac.) SEPTIC FEASIBILITY REPORT

Introduction

Wallis Winery is applying to the County of Napa for a Use Permit for the establishment of a 30,000 gallon per year winery on a 7.4 acre parcel (A.P.N. 020-450-014).

The permitted production capacity of the winery will be 30,000 gallons per year. It is anticipated that the winery will staff a maximum of 4 employees during the harvest season. The daily maximum number of visitors is 20 visitors per day and one annual wine auction event with up to 100 people.

This report has been prepared to evaluate the feasibility of constructing a new alternative wastewater treatment and disposal system to accommodate the winery process and domestic wastewater flows per the Napa County Department of Environmental Management (NCEM) design guidelines.

SCS Soil Types and Site Evaluation

The soil conservation service indicates that the soil is Boomer Forward Felta Complex. A site evaluation in the disposal area was performed by Ken Deibert of REB Engineering and a representative from NCEM on June 28, 2007.

Wastewater Flow Determination Winery Process Waste

The proposed annual wine production shall be approximately 30,000 gallons. The harvest winery process wastewater flow is calculated as follows:

Harvest waste flow calculation:

(30,000 gallons of wine) X (1.5 gallons of wastewater/gallons of wine) = **1000 gallons/day** 45 days of crush

Winery Domestic Wastewater flow:

The domestic wastewater flow calculated for the winery facility is based on anticipated employee and wine tasting visitors at the winery. Peak winery uses are found to be 4 fulltime employees, and 20 visitors. The peak domestic wastewater flow for the winery will therefore be 125 gallons per day, as calculated below. Plumbing fixtures for the new winery shall be low-flow fixtures per the uniform building code.

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| Peak Domestic Wastewater Flow Calculation: | | | | | | | | |
|--|-----------------------------|----|----|--|--|--|--|--|
| | es: 5 15 <u>Total (gpd)</u> | | | | | | | |
| Full-time employees: | 5 | 15 | 65 | | | | | |
| Wine tasting visitors: | 20 | 3 | 60 | | | | | |

Total Domestic wastewater: Total Process wastewater: **Total combined wastewater:** 125 gallons per day 1,000 gallons per day **1,125 gallons per day**

Combined Wastewater System Design:

Due to the available soil depth of 72 inches in pits 1 and 2, it is proposed to use a conventional leach field sewage disposal system. Domestic wastewater shall flow into a 1,500 gallon septic tank at the winery and then flow to the disposal field. Process wastewater shall flow into a 3,000 gallon septic tank at the winery and then flow into the disposal field.

Combined Process and Domestic Conventional System Disposal Field Sizing

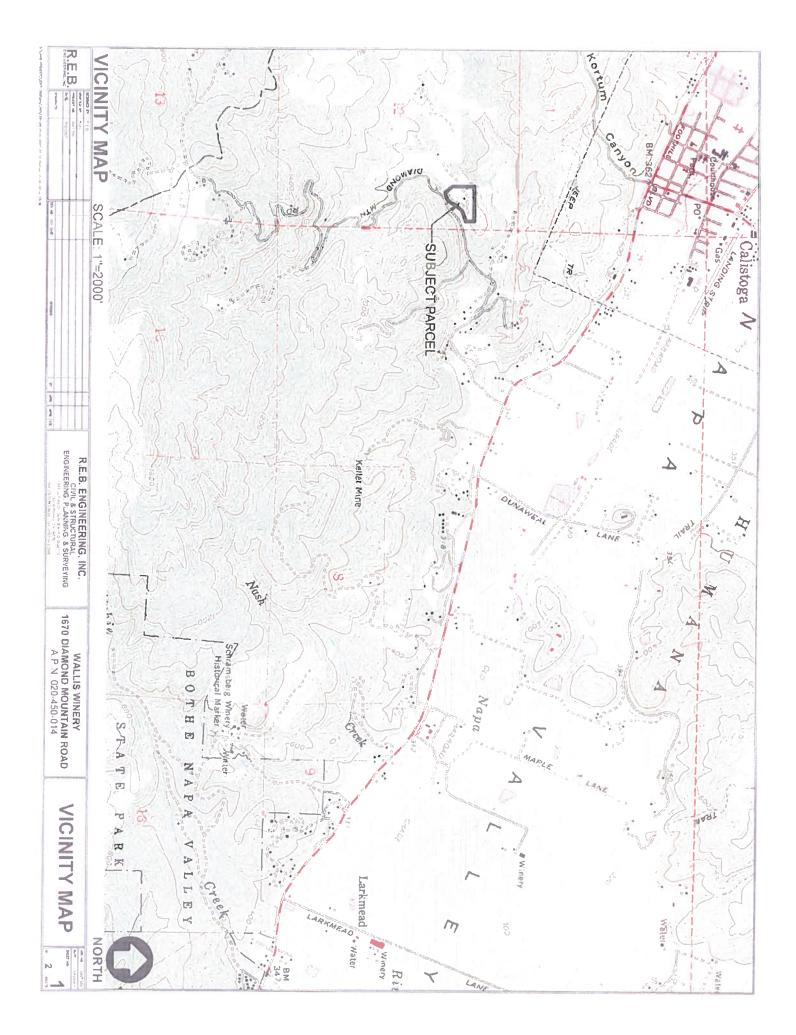
NCEM guidelines for conventional sewage disposal systems indicate an application rate of 0.33 gallons per square foot for the sandy clay loam soil with moderate and blocky structure at the site. Based on this application rate, and a design flow of 1,125 gallons per day, the minimum required sidewall area is 3,409 square feet. Given a sidewall area of 4 square feet per linear foot, the total amount of trench required is 3,409/4 = 852 feet. It is proposed to provide 9 lines at 100 feet for a total of 900 feet of trench.

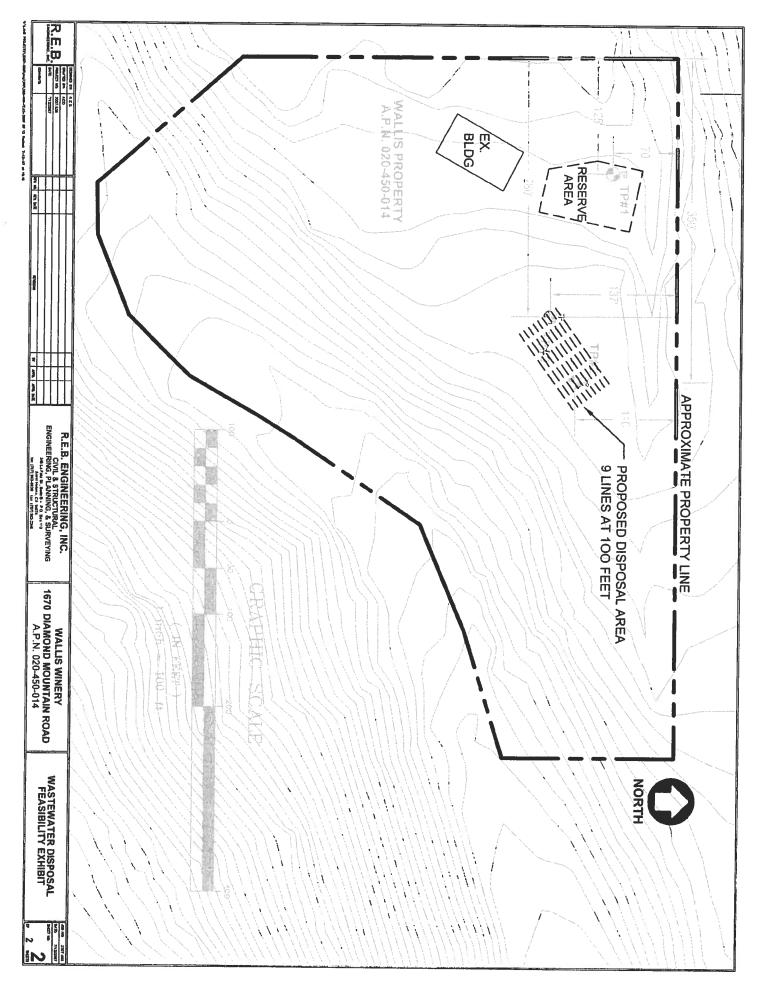
Combined Process and Domestic Reserve System:

The reserve system shall be located in the area of test pit 1as shown.

Conclusion:

The discussions and calculations presented in this report demonstrate the wastewater flows and system requirements for the Wallis Winery. The attached site plan shows the proposed layouts of the domestic and process wastewater disposal system. The reserve area for the process and domestic wastewater systems have also been identified on the site plan. The proposed project as described above can be served with an onsite wastewater disposal system.





FACSIMILE TRANSMITTAL SHEET

| TO: | FROM: | | | | | | |
|--|--|--|--|--|--|--|--|
| Jack Boureston | Ken Deibert | | | | | | |
| COMPANY: | DATE: | | | | | | |
| MK2 | 7-12-07 | | | | | | |
| FAX NUMBER: 707-307-1550 | TOTAL NO. OF PAGES INCLUDING COVER: | | | | | | |
| PHONE NUMBER: | SENDER'S REFERENCE NUMBER: | | | | | | |
| 707-307-1520 | Job # 555 | | | | | | |
| RE: Wallis sewage feasibility report 1670 Diamond Mtn Rd | YOUR REFERENCE NUMBER. | | | | | | |
| DURGENT X FOR YOUR USE | PLEASE COMMENT PLEASE REPLY PLEASE RECYCLE | | | | | | |

NOTES/COMMENTS:

Jack,

Please find attached a draft of the sewage feasibility report for the above referenced project. Please review the report and call me either to discuss changes or to confirm that it accurately reflects the proposed winery project and I will submit the report to Environmental Management once the draft is approved.

D PLEASE RECYCLE

Sincerely,

Ken Deibert **REB** Engineering, Inc.

> P.O. BOX 113 ST. HELENA, CA 94573 TEL: (707) 963-8638 FAX: (707) 963-2346

Napa County Department of Environmental Management

SITE EVALUATION REPORT

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

Permit #:

APN: 020-450-014

(County Use Only) Reviewed by:

Date:

PLEASE PRINT OR TYPE ALL INFORMATION

| Property Owner | | Τ- | | ······ | | |
|--------------------------------|----------|----|------------------------|------------|----------------|-----------|
| EDWARD WALLIS | | X | New Construction | 3 Addition | 🛛 Remodel 🛛 R | elocation |
| Droporty Oursen Marillon A 11 | | | Other: | | | |
| Property Owner Mailing Address | | | | | | ···· |
| 1670 DIAMOND MTN RD | | | Residential - # of Bec | rooms: | Design Flow : | gpd |
| City Sta | ate Zip | 1 | | | | |
| CALISTOGA | CA 94515 | X | Commercial – Type: | | | |
| Site Address/Location | | 1 | Sanitary Waste: 120 |) gpd | Process Waste: | 650 gpd |
| SAME | | | Other: | | | |
| | | | Sanitary Waste: | gpđ | Process Waste: | gpd |

Evaluation Conducted By:

| Company Name REB Engineering, Inc | Evaluator's Name Ken Delbert | Signature (Civil Engineer, R.E.H.S., Georogist, Soil Scientist) |
|--|---------------------------------|---|
| Malling Address: 345 La Fata Street | | Telephone Number (707) 963-8638 |
| City ST HELENA | State Zip CA 94574 | Date Evaluation Conducted |

| Primary Area | Expansion Area |
|---|---|
| Acceptable Soil Depth: 72 in. Test plt #'s: 2,3 | Acceptable Soli Depth: 60 in. Test pit #'s: 1 |
| Soli Application Rate (gal. /sq. ft. /day): 0.33 | Soli Application Rate (gal. /sq. ft. /day): 0.33 |
| System Type(s) Recommended: conventional gravity | System Type(s) Recommended: conventional gravity |
| Slope: 5 %. Distance to nearest water source: ft. | Slope: 5 %. Distance to nearest water source: ft. |
| Hydrometer test performed? No x Yes □ (attach results) | Hydrometer test performed? No x Yes □ (attach results) |
| Bulk Density test performed? No x Yes D (attach results) | Buik Density test performed? No x Yes D (attach results) |
| Groundwater Monitoring Performed? No x Yes D (attach results) | Groundwater Monitoring Performed? No x Yes D (attach results) |
| Site constraints/Recommendations: | |

Page 1 of 2

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|------------|---|
| Test Pit # | |

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PLEASE PRINT OR TYPE ALL INFORMATION

| Horizon Boundary %Rock Texture Depth (Inches) | oundary %Rock Toxture Struct | 0 | C | Consisten | e | Pores | Roots | Mottling | | |
|---|------------------------------|----------------|--------------|-----------|-----|-------|-------|-------------|---------|----|
| | rexture | ture Structure | Side Wall | Ped | Wet | | | | | |
| 60 | G | 30% | SCL | M-AB | SH | FRB | S | F-F | F-F | NO |
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| Horizon Boundary %Rock Depth (Inches) | % Pook | Terrhouse | | C | Consistenc | e | | | T | |
|---|-----------|-----------|--------------|------|------------|-------|-------|----------|-----|----|
| | Texture S | Structure | Side Wall | Ped | Wet | Pores | Roots | Mottling | | |
| 72 | G | 20% | SCL | M-AB | SH | FRB | S | F-F | F-F | NO |
| | | | | | | | | | | |
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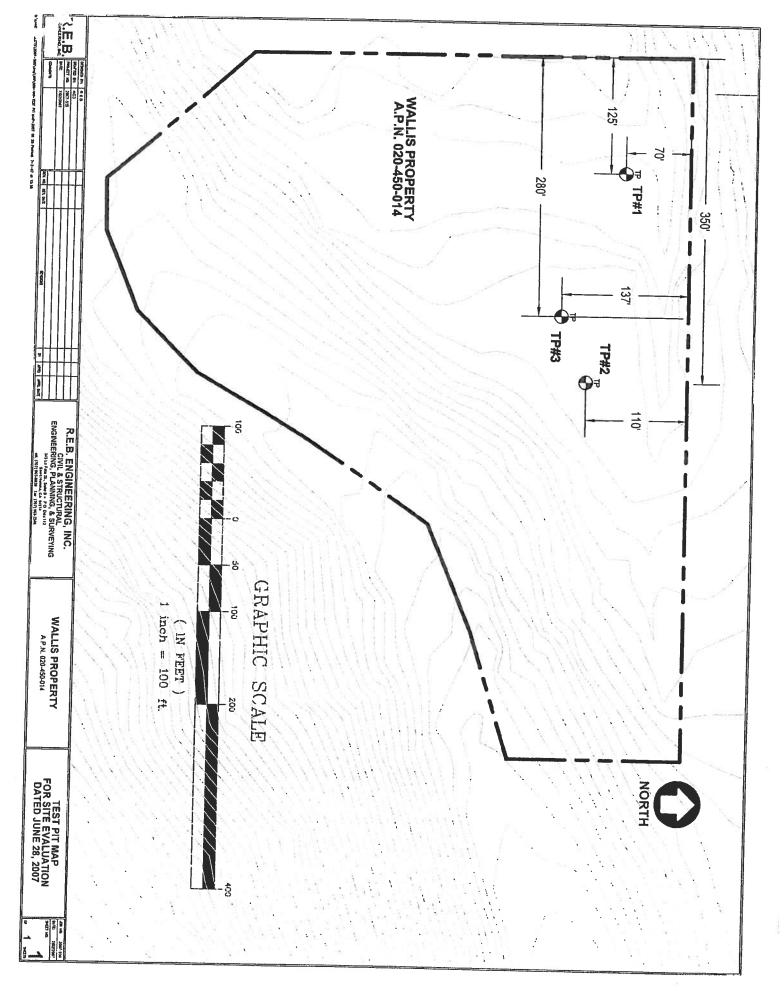
Test Pit # 3

Test Pit # 2

| Horizon Boundary %Rock Text Depth (tnches) | Boundary %Pock | %Pook Texture | | C | Consisten | се | | [| T | |
|--|-------------------|---------------|-----|------|-----------|-------|----------|-----|----------|----|
| | Texture Structure | Side Wall | Ped | Wet | Pores | Roots | Mottling | | | |
| 72 | G | 10 | SCL | M-AB | SH | FRB | S | F-F | F-F | |
| | | | | | | | † | 1-1 | <u> </u> | NO |
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