“H”

Domestic & Production Wastewater Feasibility Study

Hendry Winery Use Permit Major Modification Application No. P15-00173
Planning Commission Hearing, December 18, 2024

CMP Civil Engineering & Land Surveying Inc.
1607 Capell Valley Road
Napa, CA 94558
(707) 266-2559
Cameron@CMPEngineering.com
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Domestic & Production Wastewater Feasibility Report for the Hendry Winery

3104 Redwood Road

Napa, CA 94558

APN: 035-120-031

Prepared By:

CMP Civil Engineering & Land Surveying
1607 Capell Valley Road
Napa, CA 94558
(707) 266-2559

Date: 6/21/2017
Rev1: 11/20/2017
Rev2: 9/19/2019
Rev3: 9/26/2022
Rev4: 1/5/2023

Contact Information	
Property Owner:	George Hendry
Owner Address:	3104 Redwood Road Napa, CA 94558
Owner Phone:	(707) 266-2130

Site Map

Please refer to the Use Permit Site Plan for the Hendry Winery. The said plan shows the existing wastewater system as well as the proposed improvement to said wastewater system.

Existing Wastewater System Condition

The existing winery is served by an existing private wastewater system that was designed to handle the peak flow from a 59,000 gallon winery. The system consists of (1) 1200 gallon septic tank with a Zabel Filter for domestic waste. It also consists of (1) 1500 gallon and (1) 3000 gallon septic tank with a Zabel Filter for process waste. Lastly there is (1) 3000 gallon sump tank with an estimated 1500 gallons of reserve for pumping the process waste and (1) 1500 gallon sump tank with an estimated 750 gallons of reserve for pumping domestic waste. Upon inspection all tanks and associated equipment were found to be in good working order. The treated effluent from the domestic and process tanks is then conveyed to (15) 100 foot leach lines totaling 1500 feet. The existing leach lines are rock and pipe type and have 18" of rock under the pipe with 6" of rock around and above the pipe for a total rock depth of 24" with 12" of native cover over the top.

Looking at the above tank sizes, specifically the 1200 gallon domestic septic tank, and using a 3 day hydraulic retention time, the existing 1200 gallon septic tank could handle a peak flow of 400 gallons per day (GPD). Looking at the above combined 4500 gallons of process septic tank storage and using the same 3 day hydraulic retention time, the combined process septic tanks can handle a peak flow of 1500 GPD. Looking at the above trench configuration, each linear foot of leach field trench nets 4 square feet of sidewall absorption area. Based on the findings of the site evaluation on file with Napa County and conducted by Environmental Health Specialist Peggy P. Carr on 3/18/1998, the acceptable soil depth in the existing leach field area is 72" and the soil absorption rate for treated effluent going to this leach field is 0.25 gallons per square foot of trench sidewall. Thus each foot of existing leach field can treat one gallon of effluent and the entire 1500 feet of leach field can handle a peak of 1500 GPD of effluent.

Previously Approved Wastewater Flows & Analysis

Under the most recently approved Use Permit, the winery is approved to produce 59,000 gallons of wine annually. The estimated process wastewater flow from this level of production is 1475 peak GPD. The winery is allowed 3 full-time and 2 part-time employees and up to 20 daily and weekly visitors. Given expected flows of 15 GPD per full-time employee, 8 GPD per part-time employee, and 3 GPD per visitor, the estimated peak daily combined wastewater flow is 1596 GPD. Thus, the existing leach field is undersized by 96 feet when compared to the previously approved Use Permit. This is likely due to a mistake in the original calculations and the designer did not account for the additional flow from the domestic waste. Despite this oversite, the system has been, and still is, functioning well without any evidence of being overtaxed.

Existing Wastewater Flows & Analysis

The existing winery produces up to 59,000 gallons of wine annually, resulting in an estimated process waste peak flow of 1475 GPD. The winery currently has 3 full-time and 3 part-time employees, and sees

an average of 12 daily visitors with a peak day of 34 visitors. This results in an estimated peak domestic wastewater flow of 171 GPD. Combining the flows together results in a total peak flow of 1646 GPD. Thus, the existing leach field is undersized by 146 feet when compared to the existing use.

Proposed Wastewater Flows & Analysis

We are not proposing to change the process wastewater flows at all since the production level is staying the same. We are proposing to increase domestic wastewater flows by the following: increasing the maximum number of visitors allowed in a given day from 20 to 35, increasing the maximum number of employees from 3 full-time and 2 part-time (total of 5) to 5 full-time and 5 part-time (10 total). Given the above and an expected flow of 3 GPD per visitor, 15 GPD per full time employee and 8 GPD per part time employee we expect the peak domestic wastewater flow to be 220 GPD. Given that the existing septic tank has a 400 GPD capacity and the associated pump tank has 750 gallons of reserve, no improvements need to be made to the septic or pump tank. Looking at the leach field, the existing field only has a 25 GPD capacity for the domestic waste, thus we will need to improve the existing leach field to accommodate the additional 195 GPD generated by the proposed increase in use. In relation to the domestic waste flows, we are also proposing to increase the number of event visitors, however this won't impact the onsite wastewater system because all event wastewater flows will be handled by portable restroom facilities.

Proposed Wastewater Improvements

Based on the above existing leach field and soil conditions, we plan to add (2) 100 foot rows of additional leach line to the end of the existing field which will allow the field to treat an additional 200 GPD of additional peak effluent flow. Combining that with the existing domestic capacity of 25 GPD the improved leach field will be able to handle a peak domestic flow of 225 GPD.

Statewide General Waste Discharge Requirements for Winery Process Water

The State Water Resources Control Board recently adopted Statewide General Waste Discharge Requirements for Winery Process Water (WDR). Hendry Winery is required to apply for coverage under this order by January 2024. Under the order, Hendry Winery will be classified as a Tier 2 facility, producing an estimated 295,000 gallons of process wastewater per year. In order to comply with the WDR, it is anticipated that the existing process waste treatment and disposal system will be converted from a comingled sub-surface disposal system to a land-application system. This conversion is readily feasible since the existing domestic and process waste collection and treatment systems are fully segregated upstream of the leach field. In other words, the existing system will be modified downstream of the existing tanks to provide additional treatment, storage, and dispersal within the existing vineyard.

The WDR imposes limits on land application systems to prevent excessive hydraulic, BOD and nitrogen loading. The practical hydraulic loading limit for the existing vineyard is determined by current farming practices. In this case, current practice utilizes a supplemental irrigation rate of 0.2 acre-feet per acre per year. Using this value, 4.53 acres of vineyard is required to dispose of the process wastewater without disrupting established irrigation practices. The WDR imposes a BOD loading limit of 100 pounds per acre per irrigation cycle day. Assuming a conservative post-treatment effluent BOD concentration of 300 mg/L, 1.85 acres of vineyard is required to comply with the BOD loading limit. Lastly, the WDR requires a nitrogen balance calculation to ensure nitrogen is applied at an agronomic rate to the crop. Assuming a conservative post-treatment effluent total nitrogen concentration of 50 mg/L and an agronomic rate of 20.6 pounds per acre, 5.96 acres of vineyard is required to comply with the nitrogen loading limit. With 26.26 acres of established vineyard on the winery parcel, there is ample opportunity to facilitate a future land application process waste disposal system in compliance with the WDR.

Summary and Conclusions

The entire existing wastewater system is functioning well and the proposed increase in use only affects the domestic wastewater system. Of the components comprising the domestic wastewater system, the existing domestic septic tank and pump tank are more than adequate to handle the proposed peak flow of 220 GPD. That said, the existing leach field at its current size is not adequate to handle this increase in peak flow. The existing leach field needs 195 additional feet of leach line to accommodate the proposed increase in use. Because of this we are proposing to add an additional 200 feet of leach line to meet this need. We see no physical or regulatory reason this can't be accomplished, thus from a wastewater perspective the proposed increase in use to this winery is feasible.

While the proposed additions to the existing leach field will allow for continued satisfactory operation of the existing wastewater system under the proposed conditions of this Use Permit Modification, it is acknowledged that the winery will soon be required to apply for coverage under the WDR. As such, the conversion of the process wastewater treatment and disposal system to a land application system was evaluated and found to be readily feasible given the ample vineyard land available.

For further details on the calculations please see the attached Winery Waste Flow Calculations, Historical Septic Documentation and WDR Feasibility Calculations.

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Previously Approved Winery Wastewater Flow Calculations

for the

Hendry Winery

Located at:
3104 Redwood Road
Napa, CA 94558

Date: 4/16/2015
Rev 1: 6/21/2017
Rev 2: 11/10/2017
Rev 3: 9/19/2019
Rev 4: 9/26/2022

Project # 00067

Legend

Requires Input
Automatically Calculates
Important Value Automatically Calculate
Important Value Requires Input

Hit ctrl + alt + shift + F9 when finished to recalc all formulas

Previously Approved Winery Waste Flow Summary

Below is the estimated process and domestic peak wastewater flows for the 59000 gal/yr winery based on the most recently approved use permit.

Peak Process Waste Flow Calculations

Wine Production =	59000	gal/wine/yr
Crush Duration =	60.00	days (30 -60)
Peak Process Waste Flows During Crush =	1475.00	gal/day ((1.5 x production)/crush days)
Average Process Flows (non crush) =	808.22	gal/day ((5 x production)/days in yr)
Additional Process Flow =	0.00	gal/day (usually 0)
Total Design Peak Process Waste Flow =	**1475.00**	gal/day

Peak Domestic Waste Flows

Typical Crush Weekend		
Number of FT Employees =	3	#
Number of PT Employees =	2	#
Number of daily visitors =	20	#
Event people count serviced by this system =	0	# (no visitors on event days)
FT employee daily domestic waste flow =	45.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	16.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	60.00	gal/day (3 g/p)
Event daily domestic waste flow =	0.00	gal/day (5 g/p)
Winery Domestic Flow =	**121.00**	**gal/day**
Total Winery Waste Peak Design Flows =	**1596**	**gal/day**

Combined Winery Waste Annual Volume Calculations

Combined Winery Process & Domestic Waste Volumes

Winery Wasteflow Volumes		
Number of FT Employees =	3	#
Number of PT Employees =	2	#
Maximum number of weekly visitors =	20	#
FT employee daily domestic waste flow =	45.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	16.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	60.00	gal/day (3 g/p)
Visitor Number of Flow Weeks =	52.00	weeks/yr
Employee Number of Flow Days =	365.00	days/yr
Total domestic wastewater volume =	25385	gal/year
Total process wastewater volume =	295000	gal/year
Combined Process and Domestic Volume =	320385	gal/year

Special Event Visitor Volumes	visitors	days/yr	flow/day	gallons	
Large Events =	0	0	5	0	
Medium Events =	0	0	5	0	
Small =	30	2	5	300	
Very Small =	0	0	5	0	
Total Annual Event Visitor Waste Volume =	300	gal/year	(Events serviced by portable restroom facilities)		
Total annual domestic wastewater volume =	**25685**	**gal/yr**	**0.08**	**af**	
Total annual process wastewater volume =	**295000**	**gal/yr**	**0.91**	**af**	
Total Winery Wastewater Annual Vol =	**320685**	**gal/yr**	**0.99**	**af**	

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for the

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Existing Winery Waste Flow Summary

Below is the estimated existing process and domestic peak wastewater flows for the 59000 gal/yr winery.

Existing Peak Process Waste Flow Calculations

Wine Production =	59000	gal/wine/yr
Crush Duration =	60.00	days (30 -60)
Peak Process Waste Flows During Crush =	1475.00	gal/day ((1.5 x production)/crush days)
Average Process Flows (non crush) =	808.22	gal/day ((5 x production)/days in yr)
Additional Process Flow =	0.00	gal/day (usually 0)
Total Design Peak Process Waste Flow =	**1475.00**	gal/day

Existing Peak Domestic Waste Flows

Typical Crush Weekend		
Number of FT Employees =	3	#
Number of PT Employees =	3	#
Number of daily visitors =	34	#
Event people count serviced by this system =	0	# (no visitors on event days)
FT employee daily domestic waste flow =	45.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	24.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	102.00	gal/day (3 g/p)
Event daily domestic waste flow =	0.00	gal/day (5 g/p)
Winery Domestic Flow =	**171.00**	**gal/day**
Total Winery Waste Peak Design Flows =	**1646**	**gal/day**

Existing Combined Winery Waste Annual Volume Calculations

Existing Combined Winery Process & Domestic Waste Volumes

Winery Wasteflow Volumes					
Number of FT Employees =	3	#			
Number of PT Employees =	3	#			
Average number of daily visitors =	12	#			
FT employee daily domestic waste flow =	45.00	gal/day (15 g/p)			
PT employee daily domestic waste flow =	24.00	gal/day (8 g/p)			
Visitor daily domestic waste flow =	34.50	gal/day (3 g/p)			
Visitor Number of Flow Days =	365.00	days/yr			
Employee Number of Flow Days =	365.00	days/yr			
Total domestic wastewater volume =	37778	gal/year			
Total process wastewater volume =	295000	gal/year			
Combined Process and Domestic Volume =	332778	gal/year			
Special Event Visitor Volumes	visitors	days/yr	flow/day	gallons	
Large Events =	0	0	5	0	
Medium Events =	0	0	5	0	
Small =	30	2	5	300	
Very Small =	0	0	5	0	
Total Annual Event Visitor Waste Volume =	300	gal/year	(Events serviced by portable restroom facilities)		
Total annual domestic wastewater volume =	**38078**	**gal/yr**	**0.12**	**af**	
Total annual process wastewater volume =	**295000**	**gal/yr**	**0.91**	**af**	
Total Winery Wastewater Annual Vol =	**333078**	**gal/yr**	**1.03**	**af**	

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Proposed Winery Waste Flow Summary

Below are the estimated proposed process and domestic peak wastewater flows from the 59000 gal/yr winery.

Winery Proposed Process Waste Flow Calculations

Wine Production =	59000	gal/wine/yr
Crush Duration =	60.00	days (30 -60)
Peak Process Waste Flows During Crush =	1475.00	gal/day ((1.5 x production)/crush days)
Average Process Flows (non crush) =	808.22	gal/day ((5 x production)/days in yr)
Additional Process Flow =	0.00	gal/day (usually 0)
Total Design Peak Process Waste Flows =	**1475.00**	gal/day

Proposed Domestic Waste Flows

Peak Crush Weekend		
Number of FT Employees =	5	#
Number of PT Employees =	5	#
Number of daily visitors =	35	#
Event people count serviced by this system =	0	# (no visitors on event days)
FT employee daily domestic waste flow =	75.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	40.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	105.00	gal/day (3 g/p)
Event daily domestic waste flow =	0.00	gal/day (5 g/p)
Winery Domestic Flow =	**220.00**	**gal/day**
Peak Non Crush Weekend		
Number of FT Employees =	5	#
Number of PT Employees =	5	#
Number of daily visitors =	35	#
Event people count serviced by this system =	0	# (no visitors on event days)
FT employee daily domestic waste flow =	75.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	40.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	105.00	gal/day (3 g/p)
Event daily domestic waste flow =	0.00	gal/day (5 g/p)
Winery Domestic Flow =	**220.00**	**gal/day**
Peak Weekday		
Number of FT Employees =	5	#
Number of PT Employees =	5	#
Number of daily visitors =	35	#
Event people count serviced by this system =	0	# (no visitors on event days)
FT employee daily domestic waste flow =	75.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	40.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	105.00	gal/day (3 g/p)
Event daily domestic waste flow =	0.00	gal/day (5 g/p)
Winery Domestic Flow =	**220.00**	gal/day

Total Winery Waste Peak Design Flows =	**1695**	**gal/day**

Proposed Combined Winery Waste Annual Volume Calculations

Proposed Winery Combined Process & Domestic Waste Volumes

Crush Domestic Volumes		
Number of FT Employees =	5	#
Number of PT Employees =	5	#
Number of daily visitors =	35	#
FT employee daily domestic waste flow =	75.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	40.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	105.00	gal/day (3 g/p)
Number of Flow Days =	60.00	days/yr
Total domestic wastewater volume =	13200	gal/year
Total process wastewater volume =	48493	gal/year
Combined Process and Domestic Volume =	61693	gal/year
Non Crush Weekend Domestic Volumes		
Number of FT Employees =	5	#
Number of PT Employees =	5	#
Number of daily visitors =	35	#
FT employee daily domestic waste flow =	75.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	40.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	105.00	gal/day (3 g/p)
Number of Flow Days =	86.00	days/yr
Total domestic wastewater volume =	18920	gal/year
Total process wastewater volume =	69507	gal/year
Combined Process and Domestic Volume =	88427	gal/year
Non Crush Weekday Domestic Volumes		
Number of FT Employees =	5	#
Number of PT Employees =	5	#
Number of daily visitors =	35	#
FT employee daily domestic waste flow =	75.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	40.00	gal/day (8 g/p)
Visitor daily domestic waste flow =	105.00	gal/day (3 g/p)
Number of Flow Days =	219.00	gal/day
Total domestic wastewater volume =	48180	gal/year
Total process wastewater volume =	177000	gal/year
Combined Process and Domestic Volume =	225180	gal/year

Special Event Visitor Volumes	visitors	days/yr	flow/day	gallons
Large Events =	150	1	5	750
Medium Events =	50	12	5	3000
Small =	0	0	5	0
Very Small =	0	0	5	0
Total Annual Event Visitor Waste Volume =	3750	gal/year	(Events serviced by portable restroom facilities)	

Total annual domestic wastewater volume =	**84050**	**gal/yr**	**0.26**	**af**
Total annual process wastewater volume =	**295000**	**gal/yr**	**0.91**	**af**
Total Winery Wastewater Annual Vol =	**379050**	**gal/yr**	**1.17**	**af**

PEGGY

NAPA COUNTY DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
REQUEST FOR SITE EVALUATION INSPECTION

#92-1602

ENVIRONMENTAL HEALTH DEPT. USE ONLY

FEE: $289.00

DATE: 3-17-98

RECEIPT: 4912

BY: RS

PARCEL NUMBER: 35-120-31

JOB ADDRESS: 3104 REDWOOD RD.

OWNER: GEORGE HENDRY.

TEST CONDUCTED BY: BOB COVEY

TYPE OF TEST: FIELD ANALYSIS ____

To be run on 3/18 at 11:00 am/pm

PERCOLATION TEST X

To be run on 3-18-98 from 10 AM am/pm to 10:30 pm

PURPOSE OF TEST: HOUSE: ____ WINERY: X OTHER: ____

PROJECTED WASTEWATER FLOWS: 1475 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: 72" / Assigned perc range: (1-3) / 3-6 / 6-12

Depth of trenches: 30/36 / Rock under pipe: 12/18 / Cover over rock: 12" min (36" trench) 18" max (30" trench)

Lineal feet of leachline required: 1967/1475 / Plot plan received: 3-18-98 - PCarr

Slope: <5% / Surface drainage problems: may require V-ditch

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 Peggy P. Carr Date 3-18-98

FIELD ANALYSIS

TEXTURE **(In the proposed trench zone)**

CLAY CONTENT

Core Hole	1	2	3	4	5	6
Low (<12)	X	X				
Mod (12-27)						
High (27-40)						
High (>40)						

SAND CONTENT

Core Hole	1	2	3	4	5	6
High (>50)						
Mod (20-50)	X	X				
Low (<20)						

GRAVEL, COBBLE, STONE CONTENT

Core Hole	1	2	3	4	5	6
Very High (>60)						
High(35-60)						
Mod (15-35)						
Low (<15)	X	✓				

* *

STRUCTURE

SOIL DENSITY WHEN PICKED **(Circle whether wet or dry)**

Core Hole	1	2	3	4	5	6
pick sluffs or caves soil in	X	X				
pick bites and soil sluffs						
pick bites/ little or no soil sluffs						

CONSISTENCE **(Circle (w) or d)**

Core Hole	1	2	3	4	5	6
Easy						
Moderate	X	X				
Hard						

STRUCTURE

Core Hole	1	2	3	4	5	6
Granular						
Blocky	X	X				
Prism						
Platy						
Massive						
Cemented						

MODIFIER CHARACTERISTICS

1) Soil Survey Name: ______
2) Horizon Boundaries: Diffuse ______ Gradual X Abrupt ____
3) Topography: Concave ______ Convex ______ / Aspect: ______ Flat
4) Vegetation: Type Grass Condition: Good

* *

CORE HOLE RECORD

HOLE #1 — EST. PERC

		EST. PERC
0 to	38" Clay loam	1-3 →
38" to	72" tighter Clay	1-3 ←
72" to	very tight clay/bedrock	

Roots: 36"
Color: (bright) / dull
Water Table: none
Dug: (easy) / hard / dusty / smear
Acceptable Soil To: 72"

HOLE #2 — EST. PERC

____ to ______ ____
____ to ______ ____
____ to ______ ____

SAME AS #1

Roots: ______
Color: bright / dull
Water Table: ______
Dug: easy / hard / dusty / smear
Acceptable Soil To: 72"

HOLE #3 — EST. PERC

____ to ______ ____
____ to ______ ____
____ to ______ ____

Roots: ______
Color: bright / dull
Water Table: ______
Dug: easy / hard / dusty / smear
Acceptable Soil To: ______

CORE HOLE RECORD

HOLE #4 — EST. PERC

0 to ______ ____
____ to ______ ____
____ to ______ ____

Roots: ______
Color: bright / dull
Water Table: ______
Dug: easy / hard / dusty / smear
Acceptable Soil To: ______

HOLE #5 — EST. PERC

____ to ______ ____
____ to ______ ____
____ to ______ ____

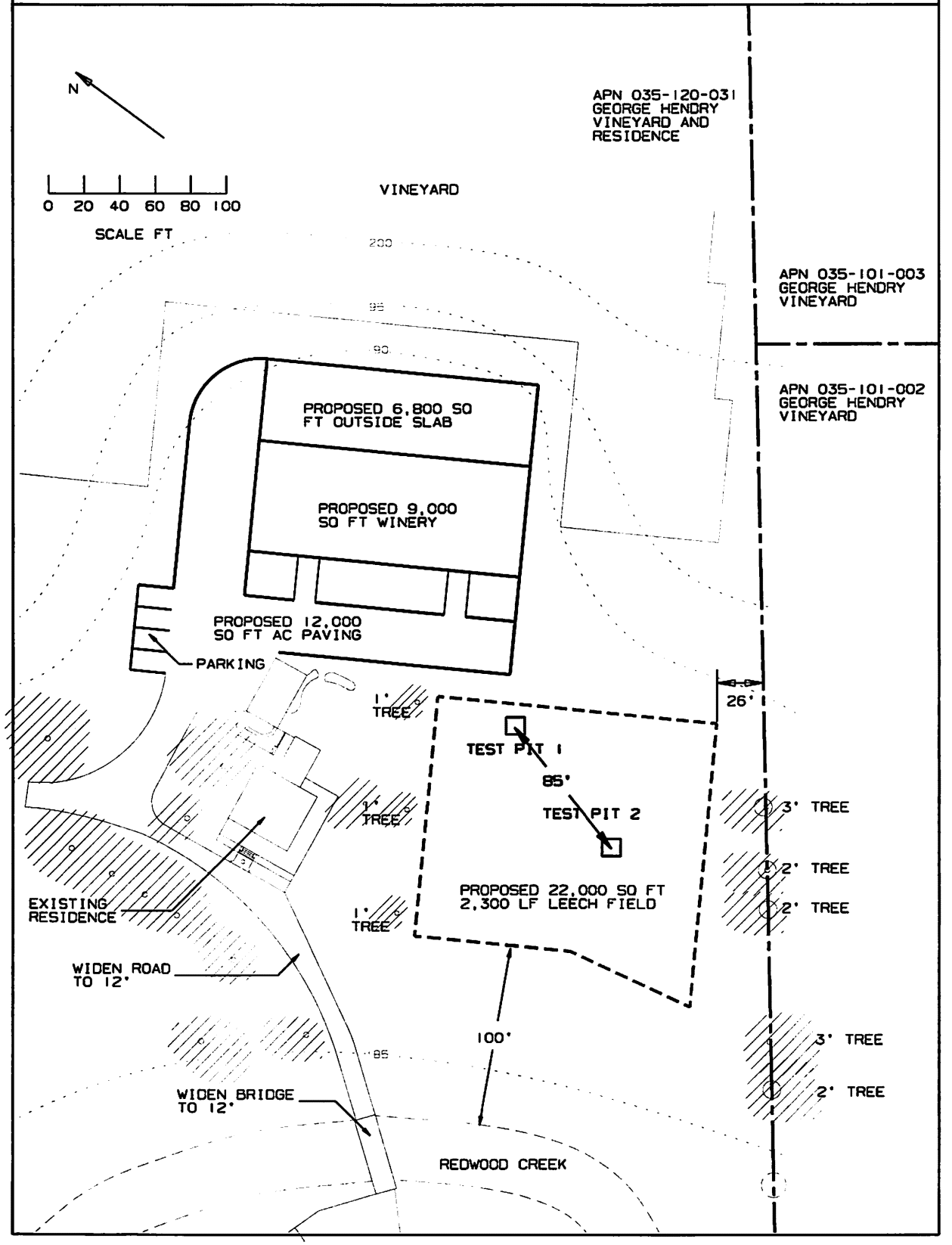
Roots: ______
Color: bright / dull
Water Table: ______
Dug: easy / hard / dusty / smear
Acceptable Soil To: ______

HOLE #6 — EST. PERC

____ to ______ ____
____ to ______ ____
____ to ______ ____

Roots: ______
Color: bright / dull
Water Table: ______
Dug: easy / hard / dusty / smear
Acceptable Soil To: ______

HENDRY RANCH WINERY - GEORGE O. HENDRY
PLOT PLAN B
APN 035-120-031 DATE OF DRAWING 3/18/98



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: 035-120-031
(County Use Only) Reviewed by: Date:

PLEASE PRINT OR TYPE ALL INFORMATION

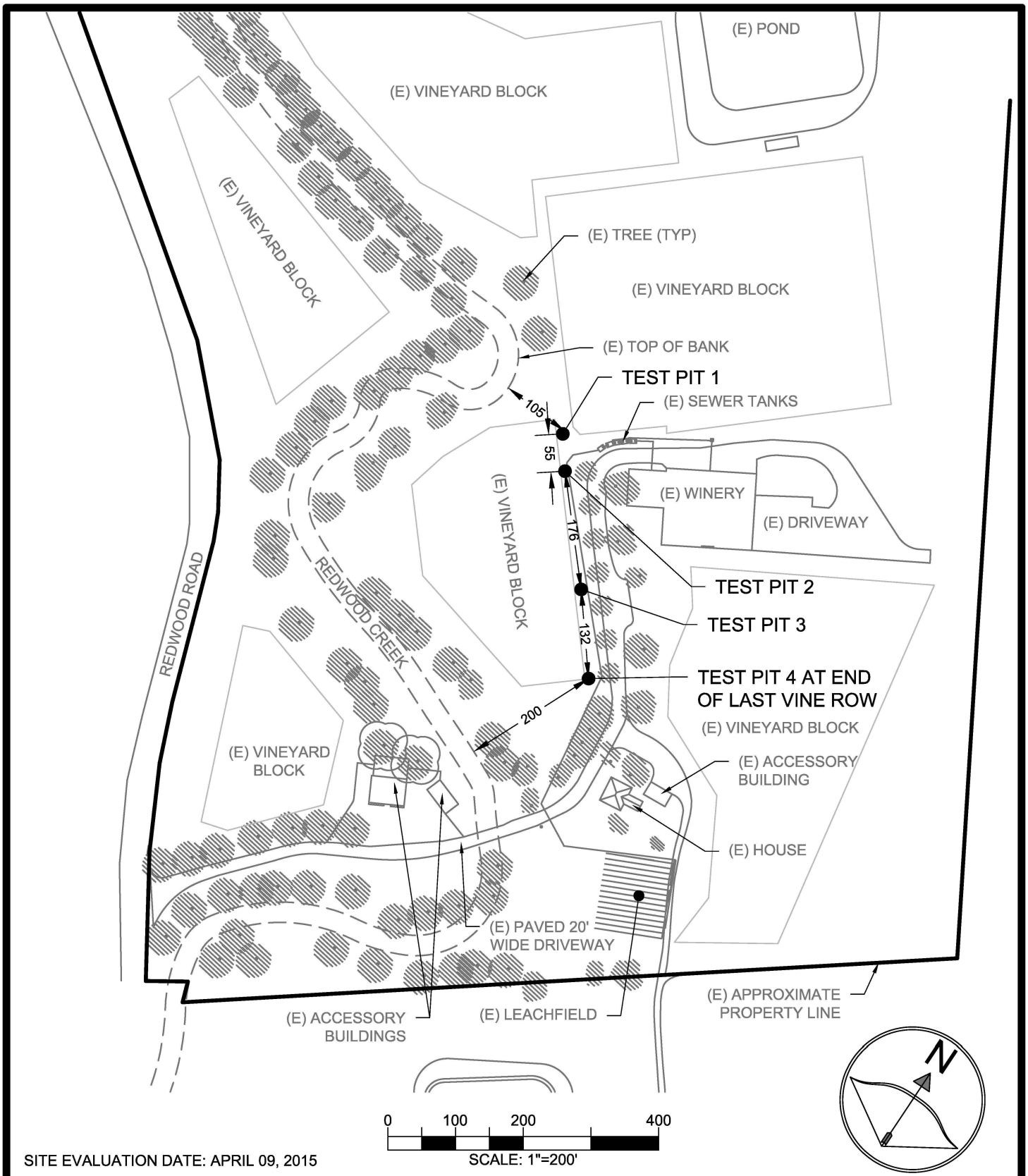
Property Owner Hendry Winery	☐ New Construction ☐ Addition ☐ Remodel ☐ Relocation ■ Other: Winery Domestic Waste
Property Owner Mailing Address SAME AS SITE ADDRESS	☐ Residential - # of Bedrooms: Design Flow :
City State Zip Napa CA 94558	■ Commercial – Type: Sanitary Waste: 270 gpd Process Waste: gpd
Site Address/Location 3104 Redwood Road	☐ Other: Sanitary Waste: gpd Process Waste: gpd

Evaluation Conducted By:

Company Name CMP CIVIL ENGINEERING & LAND SURVEYING	Evaluator's Name Cameron Pridmore	Signature (Civil Engineer, R.E.H.S., Geologist, Soil Scientist)
Mailing Address: 1607 Capell Valley Road		Telephone Number (707) 815-0988
City State Zip Napa CA 94558		Date Evaluation Conducted April, 9th, 2015

Primary Area	**Expansion Area**
Acceptable Soil Depth: 66 in. Test pit #'s: 1 & 2	Acceptable Soil Depth: 60 in. Test pit #'s 3 & 4
Soil Application Rate (gal. /sq. ft. /day): 0.33 (with recommended system)	Soil Application Rate (gal. /sq. ft. /day): 0.33 (with recommended system)
System Type(s) Recommended: Infiltrator Chambers	System Type(s) Recommended: Infiltrator Chambers
Slope: < 5% Distance to nearest water source: > 100' ft.	Slope: <5 %. Distance to nearest water source: > 100 ft.
Hydrometer test performed? No ■ Yes ☐ (attach results)	Hydrometer test performed? No ■ Yes ☐ (attach results)
Bulk Density test performed? No ■ Yes ☐ (attach results)	Bulk Density test performed? No ■ Yes ☐ (attach results)
Groundwater Monitoring Performed? No ■ Yes ☐ (attach results)	Groundwater Monitoring Performed? No ■ Yes ☐ (attach results)

Site constraints/Recommendations:



SITE EVALUATION DATE: APRIL 09, 2015

TEST PIT MAP

SHEET: 3 OF 3

PROJECT INFO:

HENDRY WINERY
3104 REDWOOD ROAD
NAPA, CA 94558
APN: 035-120-031

PREPARED BY:

CAMERON PRIDMORE PE, PLS
1607 CAPELL VALLEY ROAD
NAPA, CA 94558
(707) 815-0988

P #: 00067 DATE: 04/20/15

CMP
CIVIL & LAND ENGINEERING & SURVEYING

Test Pit # 1

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-66		10	SCL	SG	S	VFRB	SS	MF	MF	NO

Test Pit # 2

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-66		10	SCL	SG	S	VFRB	SS	MF	MF	NO

Test Pit # 3

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-60		10-20	SCL	SG	S	VFRB	SS	CF	MF	NO

Test Pit # 4

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-48	G	25	SCL	SG	S	VFRB	SS	MF	MF	NO
48-60		60	SL	MAB	S	L	NS	FC	FC	NO

CMP Civil Engineering & Land Surveying Inc.
1607 Capell Valley Road
Napa, CA 94558
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Cameron@CMPEngineering.com
CMPEngineering.com

Statewide WDR Feasibility Calculations

for the

Hendry Winery

Located at:

3104 Redwood Road

Napa, CA 94558

Date: 1/5/2022

Project # 00067

Legend

Requires Input
Automatically Calculates
Important Value Automatically Calculate
Important Value Requires Input

Hit ctrl + alt + shift + F9 when finished to recalc all formulas

WDR Feasibility Calculations

Below are calculations supporting the feasibility of compliance under the Statewide General Waste Discharge Requirements for Winery Process Water for the 59,000 gallon Hendry Winery. These calculations are based on conservative post-treatment waste characteristics and loading rates in order to establish the probable maximum size of a future discharge area that meets the above said Waste Discharge Requirements. These calculations are conservative and for establishing feasibility only.

Winery Process Waste Characteristics

Process Waste Generated =	295000	gal/yr
Treated Effluent BOD =	300	mg/L
Treated Effluent Total Nitrogen =	50	mg/L

Loading Calculations

Hydraulic Loading		
Vineyard Irrigation Demand =	0.2	AF/ac/yr
Process Wastewater for Irrigation =	0.91	AF/yr
Vineyard Acres Req'd to dispose of PW =	**4.53**	acres
BOD Loading		
BOD Generated =	738	lb/yr
Number of Irrigation Cycles =	4	day/yr
BOD Loading Limit =	100	lb/ac/day
Vineyard Acres Req'd per BOD Limit =	**1.85**	acres
Nitrogen Uptake		
Total Nitrogen Generated =	123	lb/yr
Agronomic Nitrogen Rate for Vineyards =	20.6	lb/ac
Vineyard Acres Req'd per Nitrogen Uptake =	**5.96**	acres
Expected Maximum Application Area Req'd =	**5.96**	**acres**
Available Land Application Area =	**26.26**	**acres**