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Wastewater Feasibility Study

WASTEWATER FEASIBILITY STUDY

ROBERT SINSKEY VINEYARDS

6320 Silverado Trail

Napa, California, 94558

APN 031-230-017

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LIST OF ENCLOSURES

- Enclosure A: Overall Site Plan
- Enclosure B: As-Builts
- Enclosure C: 1998 Robert Sinskey Vineyards Design Report

PROJECT OVERVIEW & SITE DESCRIPTION

Robert Sinskey Vineyards, located at 6320 Silverado Trail in Napa, CA (APN 031-230-017), is applying for a use permit modification to UP# P09-00480-MOD to increase the number of full-time employees to 35 (previously 10), part-time employees to 7 (previously 5), and adding 125 by-appointment tasting room visitors to their 132 public visitors per day (257 total tasting room visitors per day). Up to 75 of these 257 tasting room visitors may have pairings during their tasting. There are no proposed changes to the approved wine production of 143,000 gallons per year. The winery site is located in an agricultural area of Silverado Trail and on an 11.8-acre parcel that includes 5.1 acres of vineyards. The winery, tasting room, and vineyards are located on this parcel. The winery property is not located in the 100-year floodplain. The existing winery and hospitality facility is located at the base of the surrounding hill that the vineyard is occupying. Due to this hill, the parcel has slopes ranging from substantially flat to upwards of 55%, with most of the hillside having slopes greater than 20%. Please refer to Enclosure A for an Overall Site Plan showing the general layout of the project components.

Summit Engineering has prepared the following Wastewater Feasibility Study (WWFS) to assess the feasibility of treatment and disposal for the increased sanitary sewer (SS) flows associated with the proposed increase in employees and visitation and the existing marketing events. This WWFS is a replacement of PR Design & Engineering Inc's WWFS that was included in the March 29, 2019 submittal.

WINERY PROCESS WASTEWATER SYSTEM

No changes are proposed to the existing PW system, as the facility is not proposing any increase to the permitted wine production capacity.

SANITARY SEWAGE TREATMENT AND DISPOSAL SYSTEM

OVERVIEW

Separate systems are used for sanitary sewage and process wastewater treatment. The existing SS treatment system was approved via permit E14-00245. Refer to Enclosure B for the as-built wastewater disposal system plans of the SS treatment and system. Domestic wastewater from the winery flows via gravity into a 6,000-gallon septic tank which is followed by three parallel Advantex AX-20 treatment pods. Combined, the three AX-20 units were designed to process up to 2,271 gallons per day (gpd). Treated SS is then disposed of in a 1,440 lineal-foot (LF) pressure distribution (PD) system. The existing PD system was constructed in soil with an evaluated percolation rate of 0.657 gallons per square foot per day (gal/SF/day) and a sidewall loading rate of 3 SF/LF (refer to Ted Walker's 1998 report in Enclosure C). This PD design results in a maximum disposal capacity of 2,838 gpd, which makes the pretreatment equipment the limiting factor in the treatment system capacity.

The existing SS capacity of 2,271 gpd is capable of accommodating the additional flows associated with increased employees, increased tasting room visitation, and catered events. The existing system is discussed in greater detail in the subsequent sections of this wastewater feasibility study.

SANITARY SEWAGE CHARACTERISTICS

SS will consist primarily of wastewater generated from restrooms and tasting room facilities. Typical SS characteristics are summarized on the following page.

<u>Characteristic</u>	<u>Units</u>	<u>Raw Wastewater¹ Range</u>
BOD ₅	mg/L	110 - 220
Grease	mg/L	50-100
Total Suspended Solids (TSS)	mg/L	100 - 220
Volatile Suspended Solids	mg/L	80 - 165
Total Dissolved Solids (TDS)	mg/L	250 - 500
Nitrogen	mg/L	20 - 40
Nitrate	mg/L	0
Phosphorous	mg/L	4 - 8
Alkalinity (CaCO ₃)	mg/L	50 - 100
Chloride	mg/L	30 - 50
Sulfate	mg/L	20 - 30

¹Typical composition of untreated domestic wastewater, Metcalf & Eddy, "Wastewater Engineering, Third Edition", 1991

SANITARY SEWAGE DESIGN FLOWS

Sanitary sewage at Robert Sinskey Vineyards will consist of typical wastewater generated from restrooms, tasting room, and hospitality functions. The estimated daily flows associated with the proposed increase in employees, visitation and events are summarized on the following page.

Daily Tasting w/o Events							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Total					=	1,626	gal/day
Daily Tasting w/ 5 days/week Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Event Guests w/ Pairings	50	x	6	gpcd	=	300	gal/day
Total					=	1,926	gal/day
Daily Tasting w/ Every-Other-Week Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Event Guests w/ Catered Dinners	50	x	10	gpcd	=	500	gal/day
Total					=	2,126	gal/day
Daily Tasting w/ Monthly Marketing Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Event Guests w/ Pairings	80	x	6	gpcd	=	480	gal/day
Total					=	2,106	gal/day
Daily Tasting w/ Biannual Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Event Guests w/o Pairings	150	x	3	gpcd	=	450	gal/day
Total					=	2,076	gal/day
ASSUMPTIONS							
1) From the conditions of approval for UPVMM #P11-00441-VMM, up to 75 of the tasting visitors are allowed pairings with their wine.							
2) Food service is excluded for the biannual event. All other events may have food services as detailed in the conditions of approval for UPVMM #P11-00441-VMM							

The peak flow scenario is the “every-other-week event”, with 50 attendees, that occurs 28 times per year and yields an estimated SS flow of 2,126 gpd.

SITE EVALUATION RESULTS

The existing PD system sizing was based on a site evaluation performed on March 20, 1998 by Ted Walker, PR Design & Engineering Inc., and Napa County. During the evaluation, a total of eight soil profile test pits were excavated and recorded southwest of the of the winery and parking lot. Ted Walker's accepted percolation rate estimate of the soils was 20 minutes per inch (MPI), or 0.657 gal/SF/day (Enclosure C). The existing PD system and 200% reserve area that resulted from this site evaluation can be seen on the 2016 As-built drawings by PR Design & Engineering Inc (Enclosure B).

SANITARY SEWAGE CONVEYANCE, TREATMENT AND DISPOSAL

Pretreatment and Subsurface Soil Disposal

The existing winery SS treatment and disposal system has the components described below (refer to Enclosures B for the As-Builts).

- 1) Gravity Collection System – The existing gravity collection system is assumed to provide low maintenance and no infiltration or exfiltration. Piping is assumed to be compatible with sanitary sewage and satisfy Uniform Plumbing Code and local requirements.
- 2) Septic Tanks with Effluent Filter – The existing septic tank for the winery (6,000 gallons) is capable of handling the increased SS flows in accordance with the Uniform Plumbing Code (UPC) formula as shown below:

Uniform Plumbing Code Method:

$$Volume = 1,125 + 0.75 \times Max\ Flow\ Rate$$

$$Volume = 1,125 + 0.75 \times 2,126\ gpd$$

$$Volume = 2,720\ gallons$$

Also, the 6,000-gallon septic tank is estimated to provide up to 2.82 days of retention time for the peak flow (experienced for one consecutive day every other week) and 3.69 days of retention time for average flows. Removal of solids in the septic tank will help to reduce BOD loads on the system and minimize the frequency of sludge removal in aerobic systems. An effluent filter will also be provided on the outlet of the septic tank to remove additional suspended solids which do not settle out in the tank.

- 3) Advantex AX-20 Units – Three existing Advantex AX-20 units provide treatment for up to 2,271 gpd. The three parallel units are assumed to continue to produce effluent with BOD and TSS concentrations less than 20 mg/L because the peak flow rate does not exceed the maximum design flow rate (2,271 gpd). The AX-20 units treat wastewater using a textile fabric-packed bed filter before being pumped into the subsurface PD via the existing dosing tank.
- 4) Pressure Distribution System – The existing subsurface PD field will continue to be utilized for effluent disposal. In 2016, the PD system was reduced to 1,440 LF of installed trench. Using a 3 SF/LF sidewall factor, this system covers approximately 4,320 SF.

The original PD sizing was based on the MPI to gal/SF/day conversion set by Napa County in 1998. The accepted observation from Ted Walker's site evaluation was 20 MPI, or 0.657 gal/SF/day. Using this application rate, along with the installed PD trench, and the 3 SF/LF sidewall, the capacity of the PD system is estimated as follows:

$$\text{Capacity} \left(\frac{\text{gal}}{\text{day}} \right) = \text{Application Rate} \left(\frac{\text{gal}}{\text{SF} * \text{day}} \right) * \text{PD Trench (LF)} * \text{Sidewall} \left(\frac{\text{SF}}{\text{LF}} \right)$$

$$\text{Capacity} \left(\frac{\text{gal}}{\text{day}} \right) = 0.657 \frac{\text{gal}}{\text{SF} * \text{day}} * 1,440 \text{ LF} * 3 \frac{\text{SF}}{\text{LF}}$$

$$\text{Capacity} \left(\frac{\text{gal}}{\text{day}} \right) = 2,838$$

Using this estimate, the PD system is the least limiting factor in the SS treatment system. Additionally, the 200% reserve area is already established and could be converted if required.

OTHER CONSIDERATIONS

ODOR CONTROL

There should be no noxious odors from a properly designed and operated treatment system. See Alternative Courses of Action for operation alternatives.

GROUNDWATER CONTAMINATION

The nearest existing or proposed water well to the SS treatment and disposal systems is approximately 100 feet. No disposal of wastewater effluent will occur within 100 feet of any existing or proposed wells.

PROTECTION

Exposed wastewater treatment facilities should be posted with appropriate warning signs. The treatment areas are protected to restrict access and potential damage to the system.

ALTERNATIVE COURSES OF ACTION

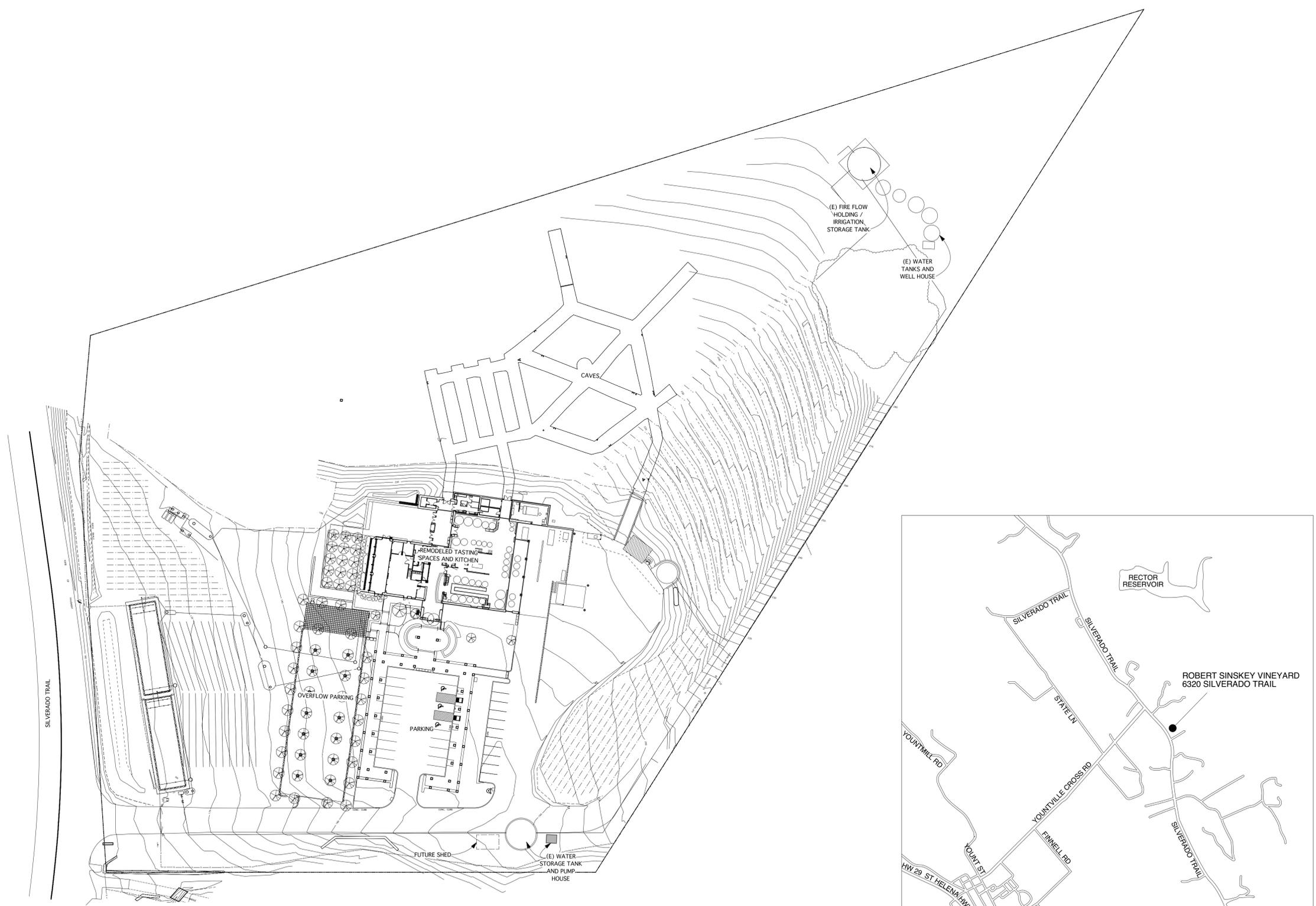
For the SS system, should there be any unforeseen operational difficulties, the following additional courses of action would be available if necessary:

- Pumping and truck transfer of treated and diluted wastewater to an approved treatment plant or land disposal site would be used as additional courses of action
- Primary and reserve area expansion to accommodate additional SS disposal
- Additional treatment of SS for land disposal

Robert Sinskey Vineyards
Wastewater Feasibility Study
November 5, 2019

SUMMIT ENGINEERING, INC.
Project No.: 2019156

**ENCLOSURE A
OVERALL SITE PLAN**



1 EXISTING SITE PLAN
A0.1 1" = 50'-0"



2 VICINITY MAP
A0.1 N.T.S.

Where:
Well A = Well 1
Well B = Well 2
Well C = Well 3

WELL D

WELL C

WELL B

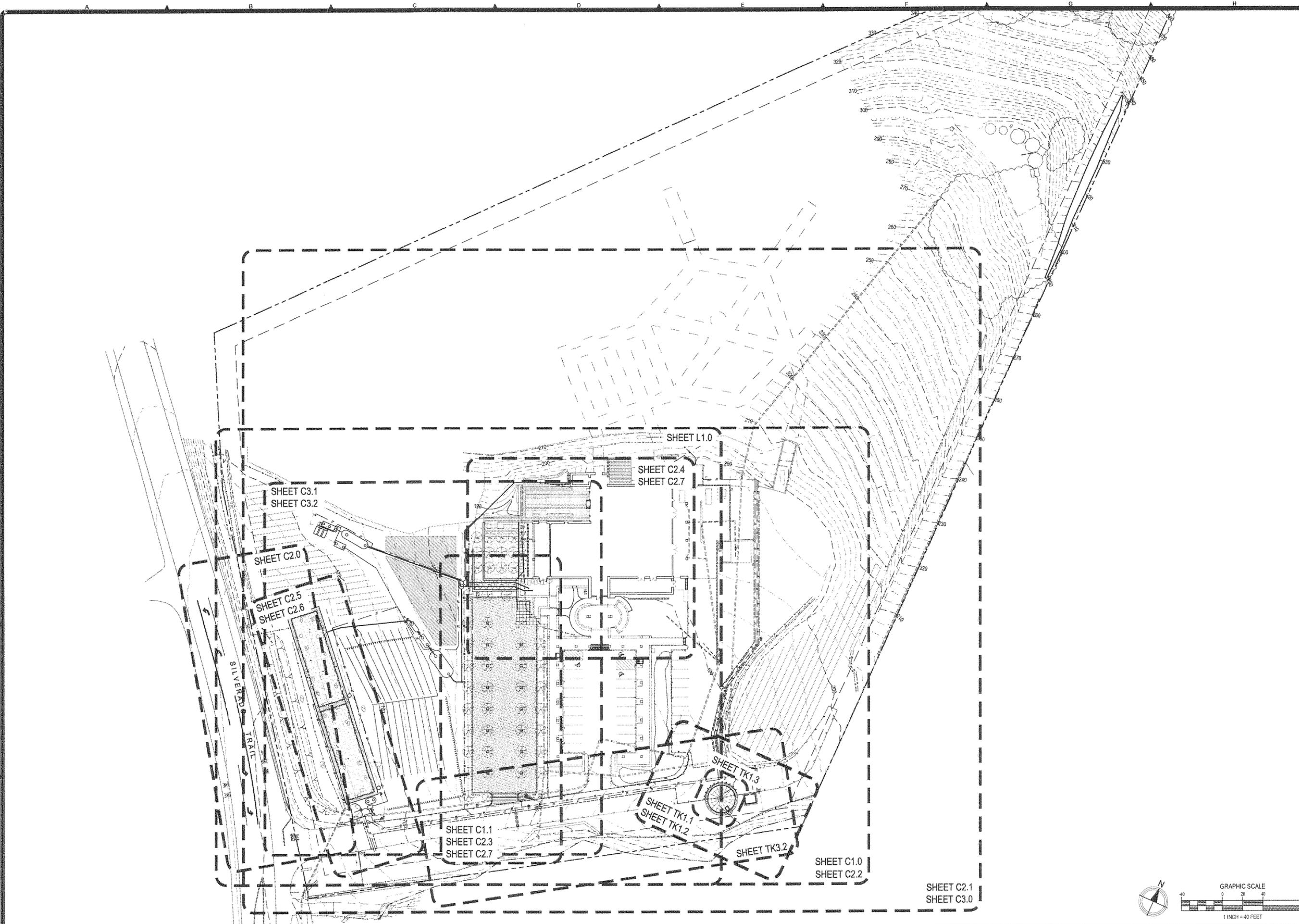
WELL A



Robert Sinskey Vineyards
Wastewater Feasibility Study
November 5, 2019

SUMMIT ENGINEERING, INC.
Project No.: 2019156

**ENCLOSURE B
AS-BUILTS**



BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

REV	DATE	DESCRIPTION	APPROVED	DATE
1	07/27/16			

WINERY RENOVATION FOR
ROBERT SINSEY VINEYARDS
 6320 SILVERADO TRAIL
 NAPA, CA 94558

P&R DESIGN & ENGINEERING INC.
 8931 North Lake Blvd, P.O. Box 1847
 High Branch, CA 94528
 Tel: 530-940-4500 Fax: 530-940-4501
 www.prdet.com

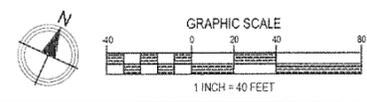


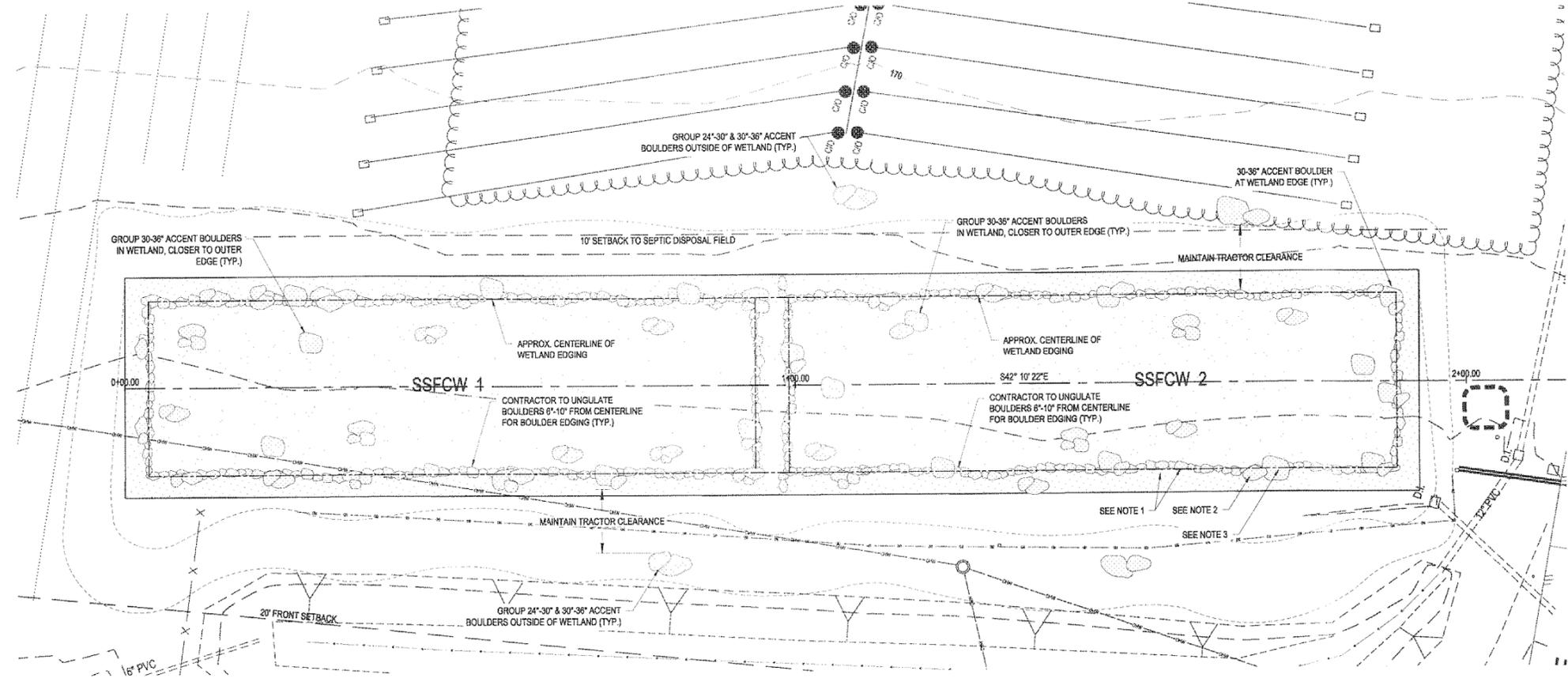
ROBERT SINSEY VINEYARDS
 6320 SILVERADO TRAIL
 NAPA, CA 94558

INDEX SHEET
 APN: 031-230-017

G2.0

AS-BUILT



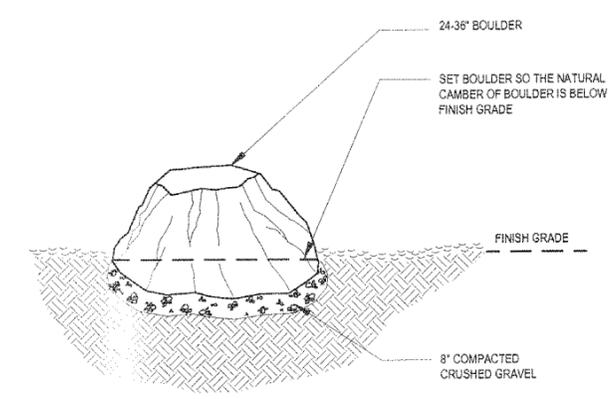


- NOTES:
1. BOULDER EDGING: 20% OF BOULDERS PLACED AT WETLAND EDGE SHALL BE 9"-11" DIA.; 60% SHALL BE 12"-15" DIA. AND 20% SHALL BE 16"-18" DIA.
 2. ACCENT BOULDER: 24"-30" DIA. (TYP.)
 3. ACCENT BOULDER: 30"-36" DIA. (TYP.)



SSFCW BOULDER PLACEMENT

SCALE: 1"=10'



ACCENT BOULDER DETAIL

NOT TO SCALE

BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

REV	DATE	DESCRIPTION

DRWN: MJD, JRL
 PRJ ENG: ATR
 DATE: 02/21/16
 SCALE: 1"=10'
 HORIZONTAL:
 VERTICAL:
 FILE: P-SINSEY016

WINERY RENOVATION FOR
ROBERT SINSEY VINEYARDS
 6320 SILVERADO TRAIL
 NAPA, CA 94558

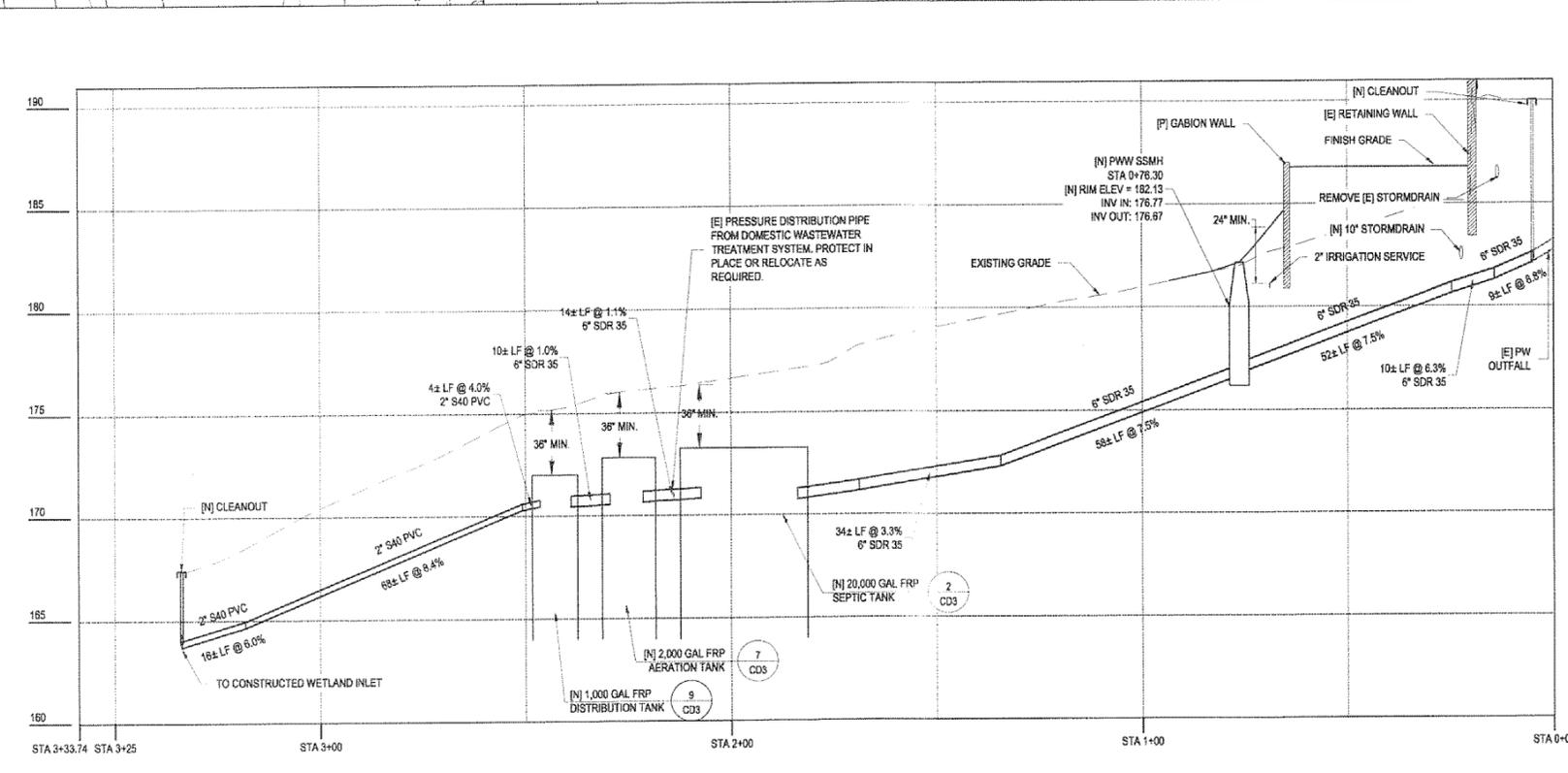
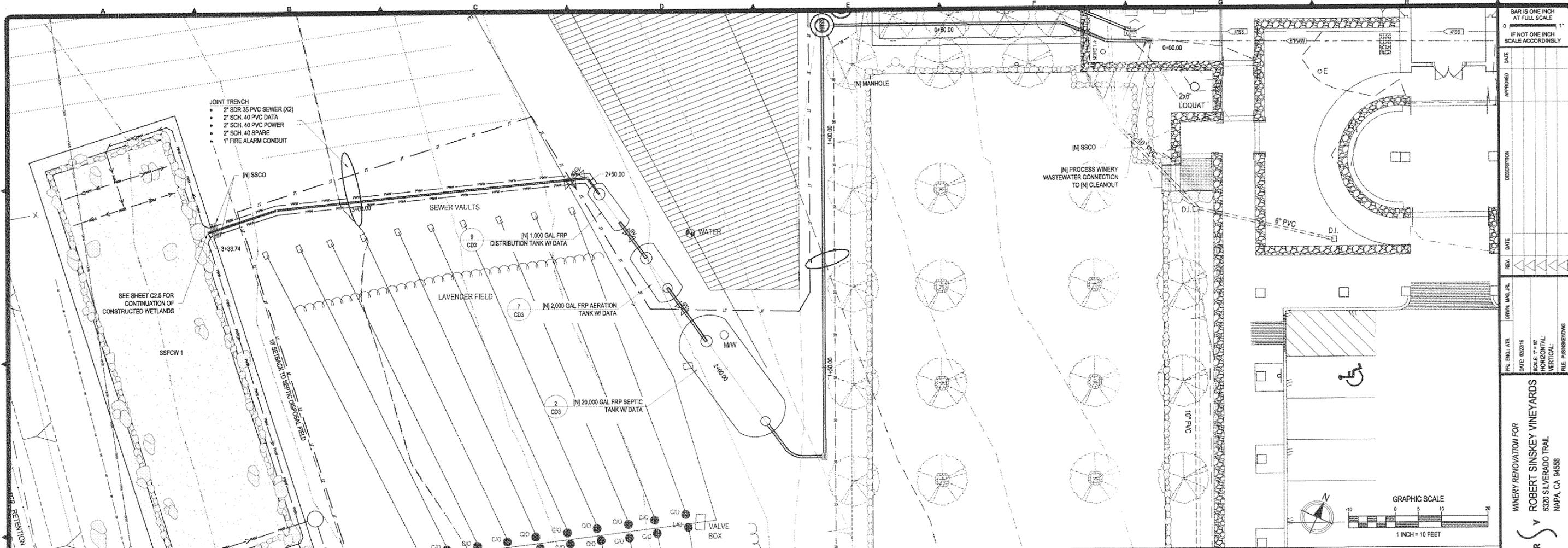
JR
 J.R. DESIGN & ENGINEERING, INC.
 8921 North Lake Blvd., P.O. Box 1847
 Kings Beach, California 94143-1847
 Tel: 530-546-4500 Fax: 530-452-2074
 www.jrdei.com



ROBERT SINSEY VINEYARDS
 6320 SILVERADO TRAIL
SSFCW BOULDER PLACEMENT
 APN: 031-230-017
 NAPA COUNTY

C2.6

AS-BUILT



BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REV.	DESCRIPTION

DATE: 02/28/16
SCALE: 1" = 10'
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

WINERY RENOVATION FOR
ROBERT SINISKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

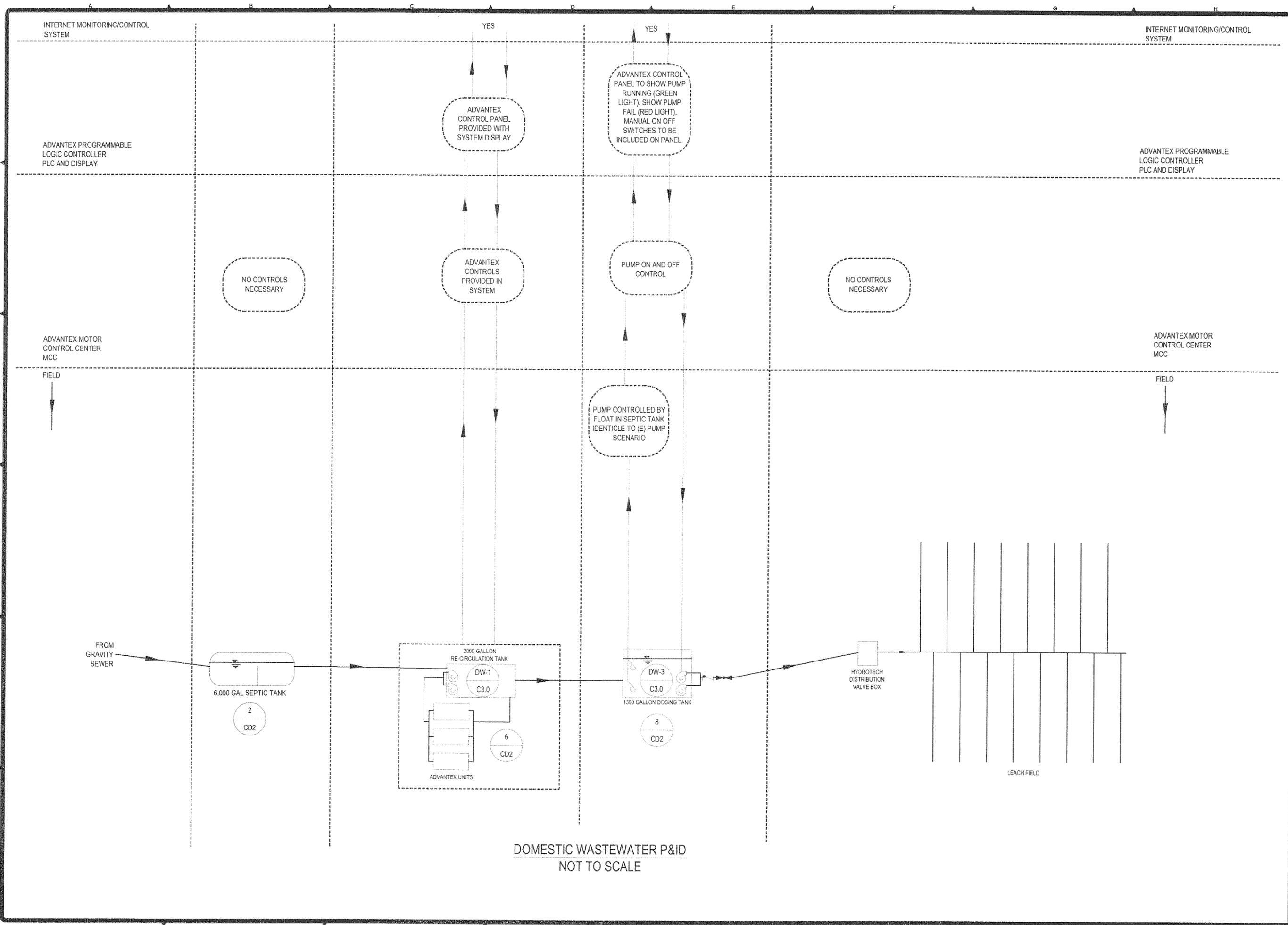
P.R. DESIGN & ENGINEERING, INC.
9631 North Lake Blvd, P.O. Box 1847
Kings Beach, California 94943-1847
Tel: 530-546-4500 Fax: 530-453-2074
www.prdesi.com

REGISTERED PROFESSIONAL ENGINEER
C69609
STATE OF CALIFORNIA

ROBERT SINISKEY VINEYARDS
PROPOSED PROCESS
WINERY WASTEWATER PLAN
APN: 031-230-017
NAPA COUNTY
NAPA, CA 94558

C3.2

AS-BUILT



DOMESTIC WASTEWATER P&ID
NOT TO SCALE

BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

REV	DATE	DESCRIPTION

PROJ. DIR. ATR DATE: 02/27/18
SCALE: HORIZONTAL
VERTICAL: FILE P/SINSEY/018

WINERY RENOVATION FOR
ROBERT SINSEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

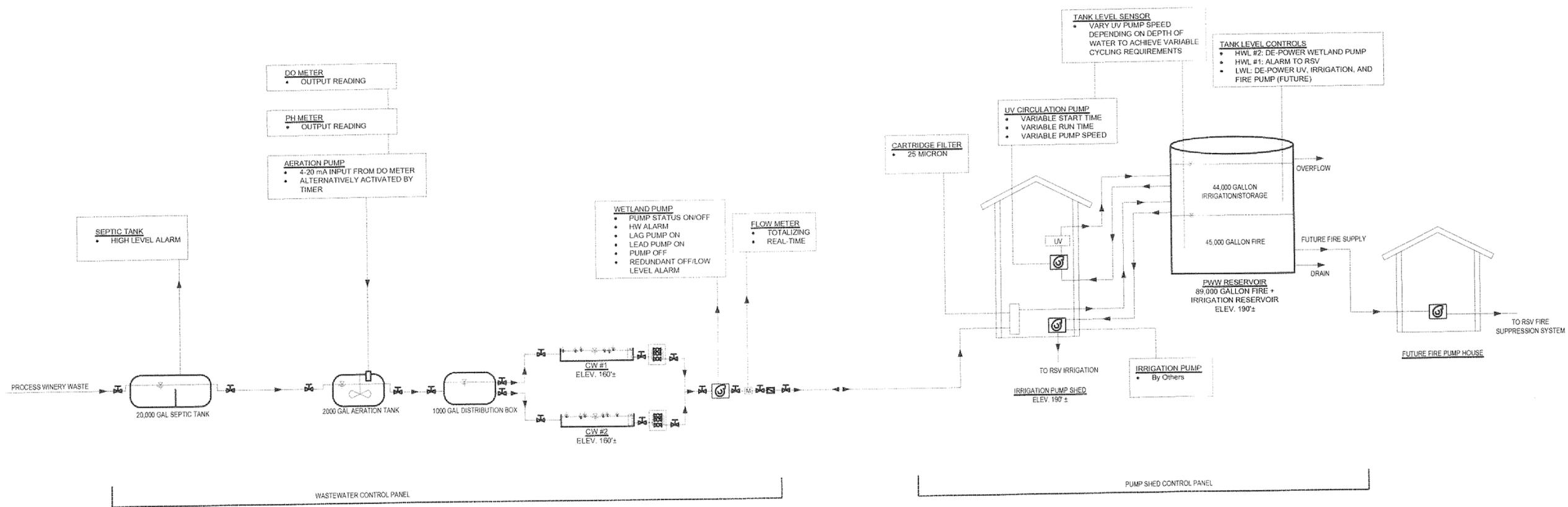
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www.prdesi.com

PROFESSIONAL ENGINEER
C68694
CIVIL
STATE OF CALIFORNIA

ROBERT SINSEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558
APN: 031-230-017

C3.3

AS-BUILT



BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

REV.	DATE	DESCRIPTION
1		
2		
3		
4		
5		

DATE: 08/2018
SCALE: HORIZONTAL: 1"=100'
VERTICAL: 1"=10'
FILE: P38362YDWS

WINERY RENOVATION FOR
ROBERT SINKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

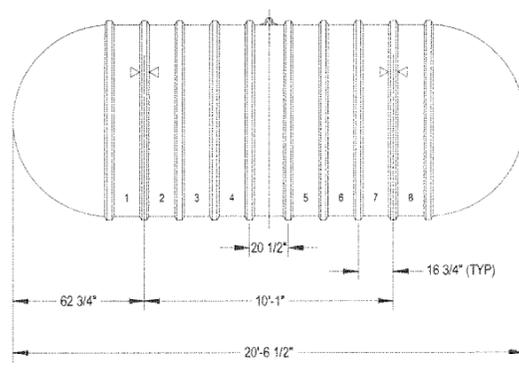
P-R DESIGN & ENGINEERING INC.
8931 North Lake Blvd, P.O. Box 1847
King Beach, California 94943-1847
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www.prdoi.com



ROBERT SINKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558
P&ID: PROCESS WINERY WASTEWATER
APN: 031-230-017
NAPA COUNTY

C3.4 & C3.5

AS-BUILT

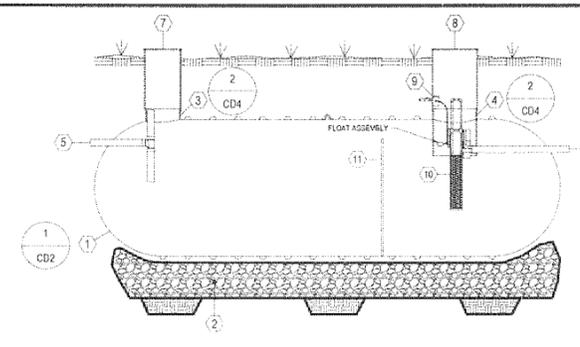


XERXES CORPORATION

TITLE: 6" DIA. SINGLE-WALL CAP, 6,000 GALLONS

DATE: 8-08 DPK NO: S10-873.02

DWW - 6000 GALLON FIBERGLASS TANK



NO.	DESCRIPTION
1	XERXES SINGLE WALL FRP TANK
2	12" BACKFILL BEDDING CONFORMING TO ASTM C-33
3	24" FRP OPENING
4	30" FRP OPENING
5	4" SCH. 40 PVC INLET PIPE STUB W/ BANTARY TEE - INVERT ELEVATION AND STUB LOCATION PER PLAN
6	4" SCH. 40 PVC OUTLET STRAIGHT PIPE STUB - INVERT ELEVATION AND STUB LOCATION PER PLAN
7	24" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4CD3)
8	30" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4CD3)
9	PVC SPLICE BOX W/ CORD GRIPS
10	BIOTUBE FILTER (SLIDE RAIL) W/ HIGH LEVEL CONTROL FLOAT ASSEMBLY - ORENCO MODEL # FT200-30 OR APPROVED EQUIV.
11	3/4" HIGH SOLID BAFFLE WALL LOCATED AT POINT IN WHICH INLET AREA IS 20% OF THE TOTAL VOLUME

WASTEWATER

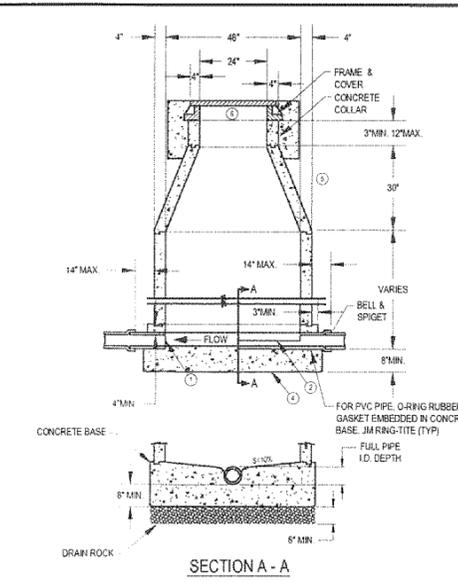
This drawing is for illustrative purposes only. Consult with an engineer for specific applications.

XERXES CORPORATION

TITLE: SMALL COMMERCIAL SEPTIC TANK GRAVITY SYSTEM WITH EFFLUENT FILTER

DATE: 5-00 DPK NO: S20-201-00

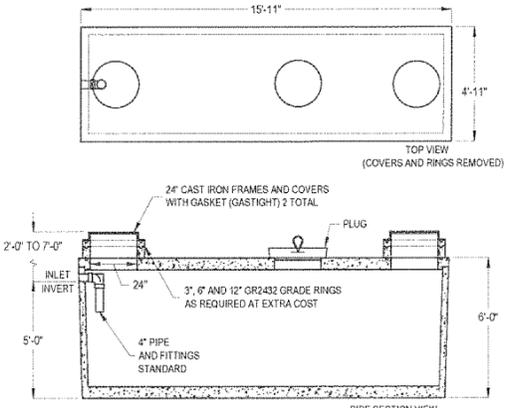
DWW - 6000 GALLON SEPTIC TANK



- NOTES:**
- PIPE MAY STOP AT INSIDE FACE OF MH.
 - IF PIPE IS LAID CONTINUOUS, TOP HALF SHALL BE CUT AWAY BEFORE BASE IS POURED, & BASE SHALL BE FORMED CLEANLY TO CUT SURFACE AS SHOWN ON SEC. A-A.
 - PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478.
 - FOR CAST-IN-PLACE BASES, CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
 - CLASS 2 BACKFILL AT 90% R.C. IN ALL STREETS, CLASS 3 @ 80% R.C. IN OTHER AREAS.
 - CHIMNEY SEAL REQUIRED FOR ALL MANHOLES.
 - SET MANHOLE COVER 2" BELOW GRADE IN PAVED AREAS, 2" BELOW GRADE IN UNPAVED TRAFFIC AREAS, AND 5" ABOVE GRADE IN UNPAVED NON-TRAFFIC AREAS.
 - PRECAST MANHOLE SECTIONS SHALL BE JOINED WITH FLEXIBLE GASKET MATERIAL "RAM-NET" (TYP).
 - EXTERIOR SURFACE COATED WITH WATER-PROOFING AGENT, THOMPSON'S H.D. WATER SEAL (TYP).
 - PRIOR TO BACKFILLING, ALL MANHOLES SHALL BE VACUUM TESTED.

SECTION A - A

DWW - TYPE 'A' 48" CONCRETE SEWER MANHOLE



2000 GALLON COMMERCIAL SEPTIC TANK

JENSEN MODEL JP2000EE-ST OR EQUIVALENT LISTED BY UPC *

NOTE: CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR INSTALLATION OF ALL UNDERGROUND DWW AND PWW STORAGE TANKS PER THE SPECIFICATIONS.

OPERATING CAPACITY: 2,000 GALLONS.

DESIGN LOAD: H-20 TRAFFIC WITH DRY SOIL CONDITIONS (WATER LEVEL BELOW TANK) AND 1'-6" EARTH COVER.

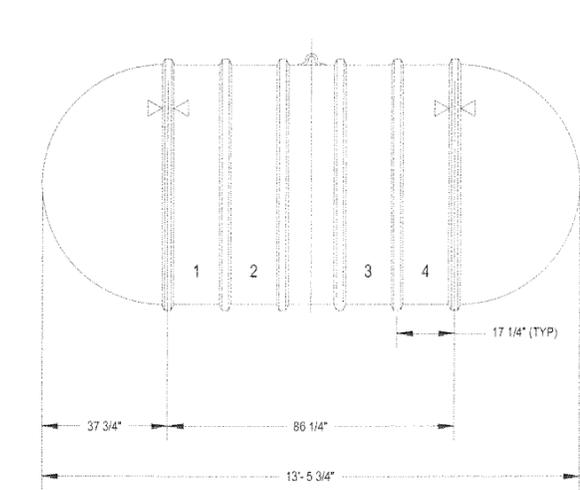
SUITABLE SUB-BASE BEDDED WITH GRANULAR MATERIAL SHALL BE PREPARED TO HANDLE ANTICIPATED LOADS.

FOR COMPLETE DESIGN AND PRODUCT INFORMATION CONTACT JENSEN PRECAST.

12" BACKFILL BEDDING SHALL CONFORM TO ASTM C-33

MINIMUM EXCAVATION
5'-11" x 16'-11"
x REQ'D DEPTH

DWW - 2000 GALLON SEPTIC TANK



XERXES CORPORATION

TITLE: 6" DIA. SINGLE-WALL CAP, 2,000 GALLONS

DATE: 8-08 DPK NO: S10-864.02

NOTE: CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR INSTALLATION OF ALL UNDERGROUND DWW AND PWW STORAGE TANKS PER THE SPECIFICATIONS.

PWW - 2000 GALLON FIBERGLASS TANK

Advantex® - AX20 System for Q_{pd} = 2,271 gpd (max.)

Design Notes
(Based on light commercial effluent.)

Expected Flows

- Q_{max} = 5,525 gpd
- Q_{avg} = 2,271 gpd

Expected Influent Quality

Grease & Oil: 20 mg/L
BOD: 250 mg/L
TSS: 200 mg/L

Typical Effluent Quality

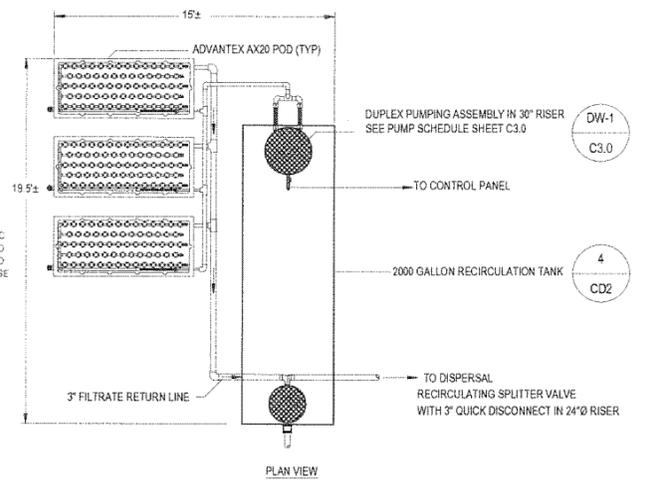
BOD: < 20 mg/L
TSS: < 20 mg/L

GENERAL NOTES:

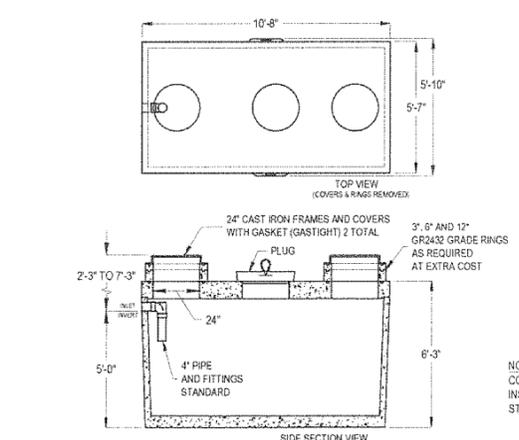
CONSULT WITH ORENCO SYSTEMS, INC. FOR APPLICATIONS WHERE EXPECTED INFLUENT QUALITY AND/OR TARGETED TREATMENT GOALS VARY FROM THOSE STATED ABOVE.

FOR ENGINEER DRAWING AND INFORMATION CONTACT ORENCO SYSTEMS, INC.

FOR INSTRUCTIONS ON MAXIMIZING NITROGEN REDUCTION, CONTACT ORENCO SYSTEMS ENGINEERING.



DWW - 2000 GALLON ADVANTEX SYSTEM



1500 GALLON COMMERCIAL DOSING TANK

JENSEN MODEL JP1500EE-ST OR EQUIVALENT LISTED BY UPC *

NOTE: CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR INSTALLATION OF ALL UNDERGROUND DWW AND PWW STORAGE TANKS PER THE SPECIFICATIONS.

OPERATING CAPACITY: 1,500 GALLONS.

DESIGN LOAD: H-20 TRAFFIC WITH DRY SOIL CONDITIONS (WATER LEVEL BELOW TANK) AND 1'-6" EARTH COVER.

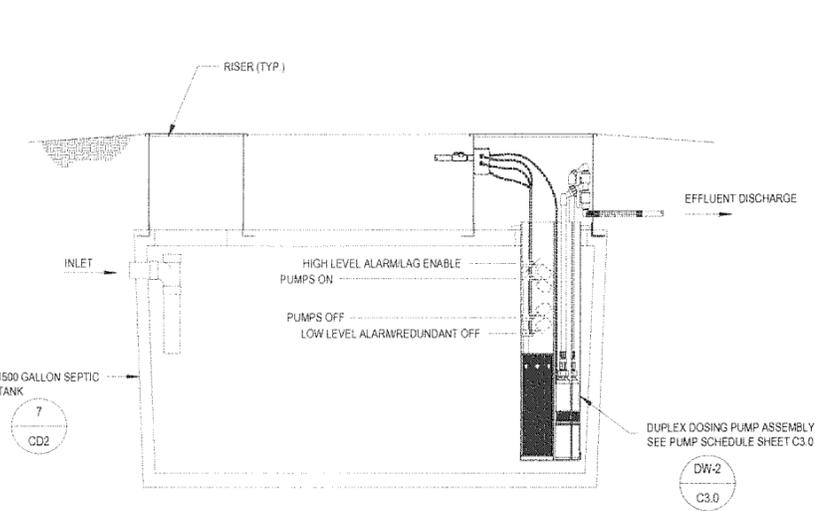
SUITABLE SUB-BASE BEDDED WITH GRANULAR MATERIAL SHALL BE PREPARED TO HANDLE ANTICIPATED LOADS.

FOR COMPLETE DESIGN AND PRODUCT INFORMATION CONTACT JENSEN PRECAST.

12" BACKFILL BEDDING SHALL CONFORM TO ASTM C-33

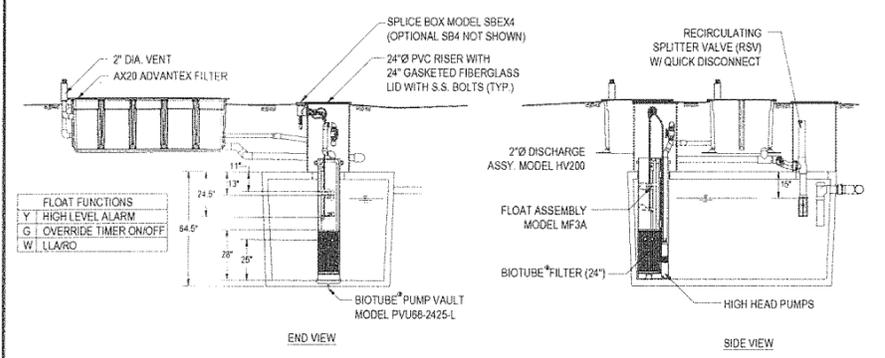
MINIMUM EXCAVATION
6'-10" x 11'-8"
x REQ'D DEPTH

DWW - 1500 GALLON DOSING TANK



NOTE: CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR INSTALLATION OF ALL UNDERGROUND DWW AND PWW STORAGE TANKS PER THE SPECIFICATIONS.

DWW - 1500 GALLON DOSING TANK PUMP ASSEMBLY



FLOAT FUNCTIONS

Y	HIGH LEVEL ALARM
G	OVERRIDE TIMER ON/OFF
W	LL/ARO

NOTE: CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR INSTALLATION OF ALL UNDERGROUND DWW AND PWW STORAGE TANKS PER THE SPECIFICATIONS.

DWW - 2000 GALLON ADVANTEX SYSTEM

BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

APPROVED: _____ DATE: _____

REV: _____ DATE: _____

DRW: _____

SCALE: HORIZONTAL VERTICAL

FILE: P200REV.DWG

WINERY RENOVATION FOR
ROBERT SINISKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

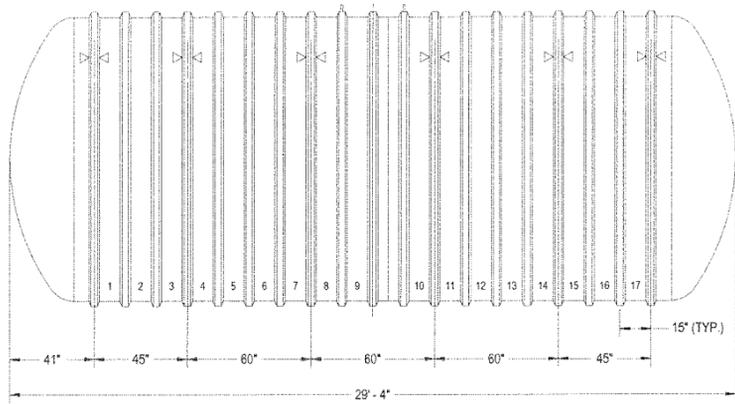
PR DESIGN & ENGINEERING, INC.
8099 North Lake Blvd, Box 862
Kato, Bunch, California 94552-9674
Tel: 930-546-4900 Fax: 930-542-9674
www.prdesi.com

REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
C69699
07/29/2017

6320 SILVERADO TRAIL
CONSTRUCTION DETAILS
APN: 031-230-017
NAPA COUNTY

CD2

AS-BUILT

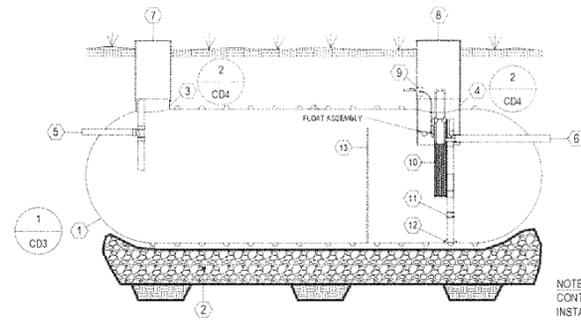


NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR
INSTALLATION OF ALL UNDERGROUND DWW AND PWW
STORAGE TANKS PER THE SPECIFICATIONS.

XERXES CORPORATION

TITLE: 12" DIA. S.W.T.
CAP. 20,000 GALLONS

DATE: 8-05 DR. NO.: S10-895.01



NO.	DESCRIPTION
1	XERXES SINGLE WALL FRP TANK
2	12" BACKFILL BEDDING CONFORMING TO ASTM C-33
3	24" FRP OPENING
4	30" FRP OPENING
5	4" SCH. 40 PVC INLET PIPE STUB W/ SANITARY TEE - INVERT ELEVATION AND STUB LOCATION PER PLAN
6	4" SCH. 40 PVC OUTLET STRAIGHT PIPE STUB - INVERT ELEVATION AND STUB LOCATION PER PLAN
7	24" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4/CD3)
8	30" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4/CD3)
9	PVC SPLICE BOX W/ CORD GRIPS
10	80/TUBE FILTER (SLIDE RAIL) W/ HIGH LEVEL CONTROL FLOAT ASSEMBLY - (OR BICO MODEL 4 FT 1586-X) OR APPROVED EQUIV.
11	FLEXIBLE CONNECTOR
12	BASE MOUNT BRACKET
13	34" HIGH SOLID BUFILE WALL LOCATED AT POINT IN WHICH INLET AREA IS 2/3 OF THE TOTAL VOLUME

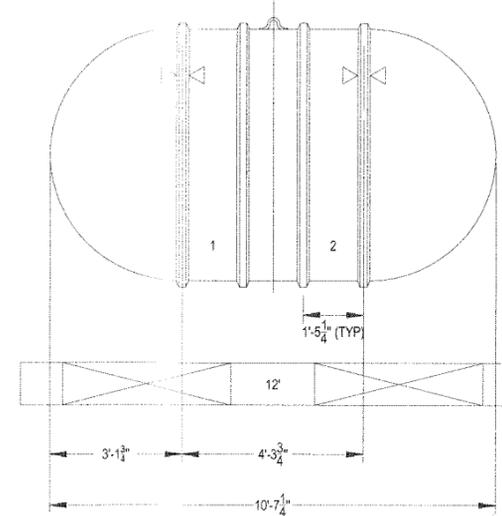
NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR
INSTALLATION OF ALL UNDERGROUND DWW AND PWW
STORAGE TANKS PER THE SPECIFICATIONS.

WASTEWATER

XERXES CORPORATION

TITLE: SMALL COMMERCIAL SEPTIC TANK
GRAVITY SYSTEM WITH
EFFLUENT FILTER

DATE: 5-00 DR. NO.: S20-201-00



NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR
INSTALLATION OF ALL UNDERGROUND DWW AND PWW
STORAGE TANKS PER THE SPECIFICATIONS.

XERXES CORPORATION

TITLE: 6" DIA. SINGLE-WALL
CAP. 1,500 GALLONS

PWW - 20,000 GALLON FIBERGLASS TANK

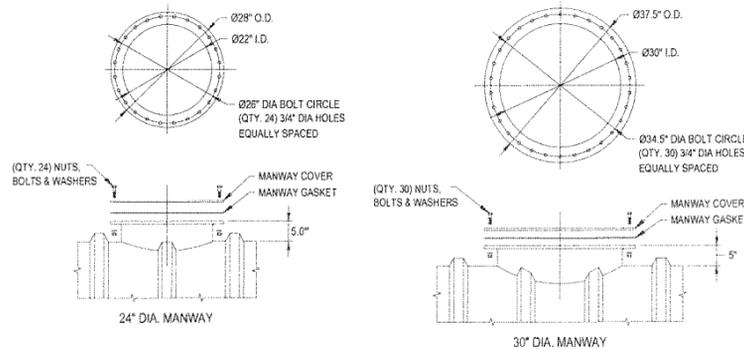
NO SCALE 1

PWW - 20,000 GALLON SEPTIC TANK

NO SCALE 2

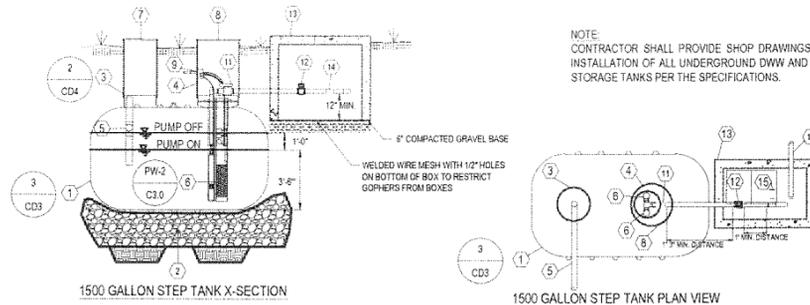
PWW - 1500 GALLON FIBERGLASS TANK

NO SCALE 3



FRP BOLTED AND GASKETED MANWAY

NO SCALE 4

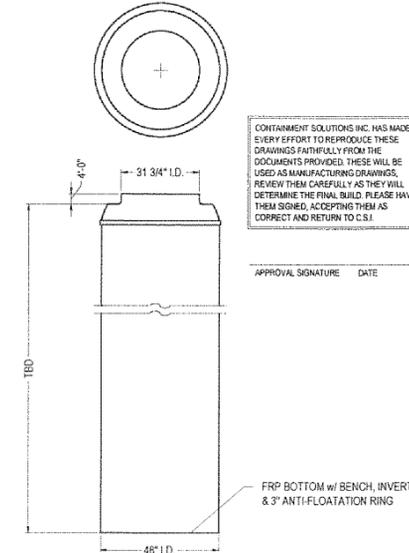


NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR
INSTALLATION OF ALL UNDERGROUND DWW AND PWW
STORAGE TANKS PER THE SPECIFICATIONS.

NO.	DESCRIPTION
1	XERXES SINGLE WALL FRP TANK
2	12" BACKFILL BEDDING CONFORMING TO ASTM C-33
3	24" FRP OPENING
4	30" FRP OPENING W/ INTERNAL FLANGE
5	4" SCH. 40 PVC INLET PIPE STUB W/ SANITARY TEE - INVERT ELEVATION AND STUB LOCATION PER PLAN
6	2-SUSPENDED EFFLUENT PUMP W/ FILTER & LEVEL CONTROL FLOAT ASSEMBLY - SEE PUMP SCHEDULE SHEET C3.0
7	PUMP TO BE SET TO THE FOLLOWING PARAMETERS: FLOW RATE 40 GPM, TDH=170 FT
8	24" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4/CD3)
9	30" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4/CD3)
10	PVC SPLICE BOX W/ CORD GRIPS
11	3" EFFLUENT DISCHARGE - INVERT ELEVATION AND OUTLET LOCATION PER PLAN
12	3" THROTTLING VALVE ON PUMP DISCHARGE
13	3" MAGNETIC FLOW METER
14	36" 40" JENSEN PRECAST BOX W/ 120" LID & 6" GRAVEL BASE W/ 1/2" HOLE WELDED WIRE MESH BOTTOM TO RESTRICT GOPHERS
15	3" PWW TEE FOR FUTURE CONNECTION
16	3" GATE VALVE W/ BLIND FLANGE

PWW - 1500 GALLON FIBERGLASS STEP TANK

NO SCALE 5

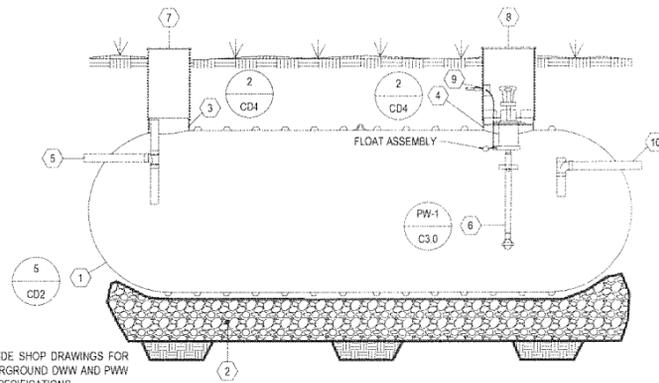


CONTAINMENT SOLUTIONS INC. HAS MADE
EVERY EFFORT TO REPRODUCE THESE
DRAWINGS FAITHFULLY FROM THE
DOCUMENTS PROVIDED. THESE WILL BE
USED AS MANUFACTURING DRAWINGS.
REVIEW THEM CAREFULLY AS THEY WILL
DETERMINE THE FINAL BUILD. PLEASE HAVE
THEM SIGNED, ACCEPTING THEM AS
CORRECT AND RETURN TO C.S.I.

APPROVAL SIGNATURE DATE

PWW FIBERGLASS MANHOLE

NO SCALE 6

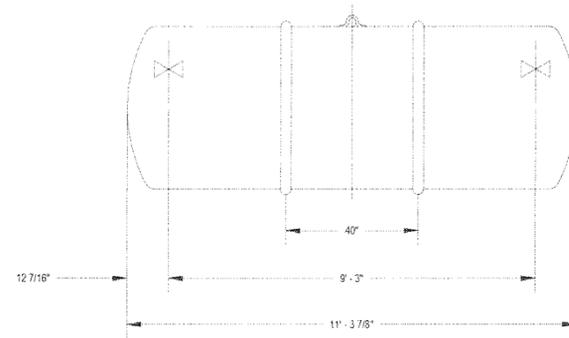


NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR
INSTALLATION OF ALL UNDERGROUND DWW AND PWW
STORAGE TANKS PER THE SPECIFICATIONS.

NO.	DESCRIPTION
1	XERXES SINGLE WALL FRP TANK
2	12" BACKFILL BEDDING CONFORMING TO ASTM C-33
3	24" FRP OPENING
4	30" FRP OPENING W/ INTERNAL FLANGE
5	4" SCH. 40 PVC INLET PIPE STUB W/ SANITARY TEE - INVERT ELEVATION AND STUB LOCATION PER PLAN
6	AERATION PUMP - SEE PUMP SCHEDULE SHEET C3.0
7	24" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4/CD3)
8	30" RIBBED PVC RISER W/ FRP LID (SEE DETAIL 4/CD3)
9	PVC SPLICE BOX W/ CORD GRIPS
10	4" SCH. 40 PVC OUTLET STRAIGHT PIPE STUB - INVERT ELEVATION AND STUB LOCATION PER PLAN

PWW - 2000 GALLON FIBERGLASS AERATION TANK

NO SCALE 7



NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR
INSTALLATION OF ALL UNDERGROUND DWW AND PWW
STORAGE TANKS PER THE SPECIFICATIONS.

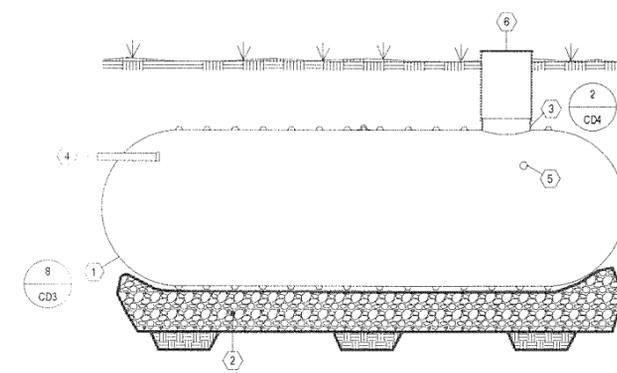
XERXES CORPORATION

TITLE: 4" DIA. SINGLE-WALL
CAP. 1,000 GALLONS

DATE: 5-08 DR. NO.: S10-881.02

PWW - 1000 GALLON FIBERGLASS TANK

NO SCALE 8



NO.	DESCRIPTION
1	XERXES SINGLE WALL FRP TANK
2	12" BACKFILL BEDDING CONFORMING TO ASTM C-33
3	30" FRP OPENING (SEE DETAIL 4/CD3)
4	4" SCH. 40 PVC INLET STRAIGHT PIPE STUB - INVERT ELEVATION AND STUB LOCATION PER PLAN
5	2" SCH. 40 PVC OUTLET PIPE STUBS W/ SANITARY TEE - BOTH OUTLETS AT SAME ELEVATION PER PLAN, STUB LOCATIONS PER PLAN
6	30" RIBBED PVC RISER W/ FRP LID

PWW - 1000 GALLON FIBERGLASS DISTRIBUTION BOX

NO SCALE 9

BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

APPROVED: _____ DATE: _____

DESCRIPTION: _____

REV: _____ DATE: _____

DRW. NO. JAL

SCALE: HORIZONTAL: _____ VERTICAL: _____

FILE: PWSR1010

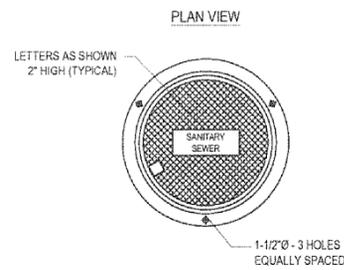
WINERY RENOVATION FOR
ROBERT SINKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

PR DESIGN & ENGINEERING INC.
895 North Lake Blvd. P.O. Box 1847
Napa, CA 94558
Tel: 930-546-1800 Fax: 930-452-0274
www.prdna.com

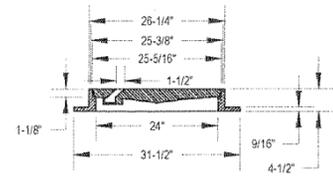
REGISTERED PROFESSIONAL ENGINEER
No. C68694
Exp. 12-31-17
CIVIL
STATE OF CALIFORNIA

6320 SILVERADO TRAIL
ROBERT SINKEY VINEYARDS
CONSTRUCTION DETAILS
APN: 031-230-017
NAPA COUNTY NAPA, CA 94558

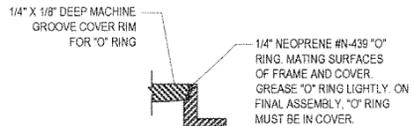
CD3



SECTION VIEW



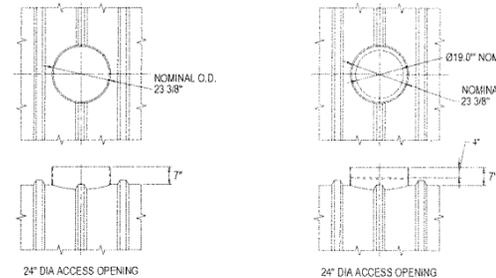
TAPERED FRAME AND COVER DETAIL



MANHOLE FRAME AND COVER

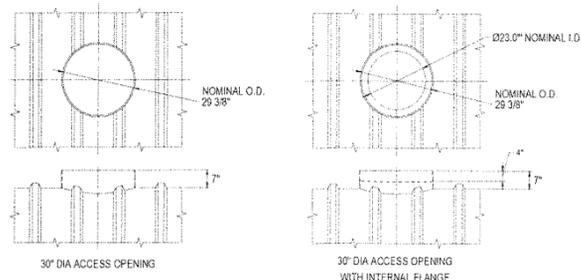
NO SCALE 1

NOTE: A 24" DIA. ACCESS OPENING IS ALWAYS CENTERED ON A RIB.



24" DIA. ACCESS OPENING

NOTE: A 30" DIA. ACCESS OPENING IS ALWAYS CENTERED ON A FLAT.



30" DIA. ACCESS OPENING

NOTE: A 30" DIA. ACCESS OPENING IS ALWAYS CENTERED ON A FLAT.

30" DIA. ACCESS OPENING WITH INTERNAL FLANGE

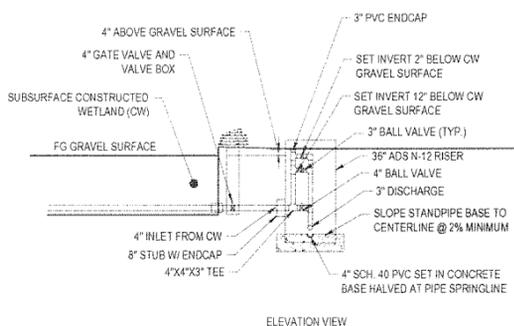
XERXES CORPORATION

TITLE: 24" & 30" ACCESS OPENINGS

DATE: 9-05 DR. NO. S11-388.00

24" AND 30" SEPTIC TANK ACCESS OPENINGS

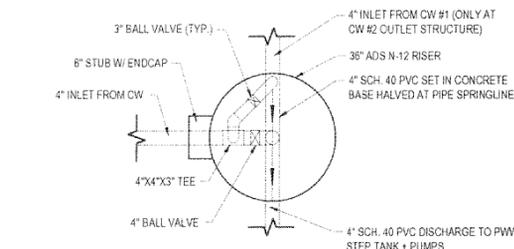
NO SCALE 2



ELEVATION VIEW

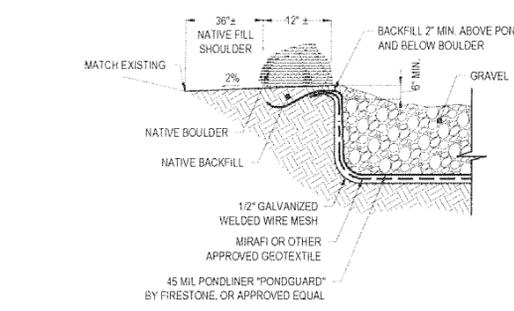
WETLAND CONTROL

NO SCALE 3



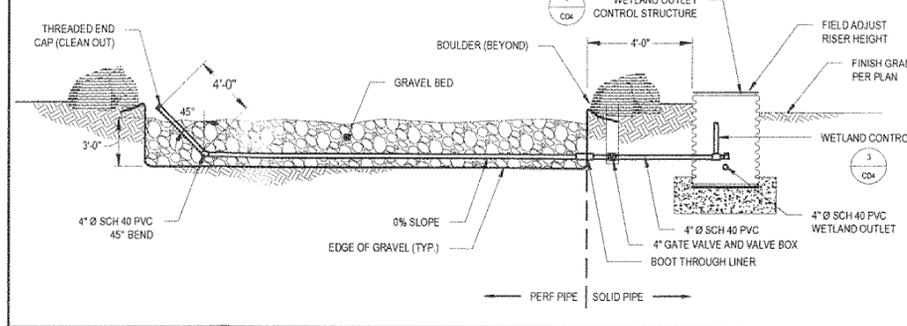
OUTLET STRUCTURE PLAN

NO SCALE 5



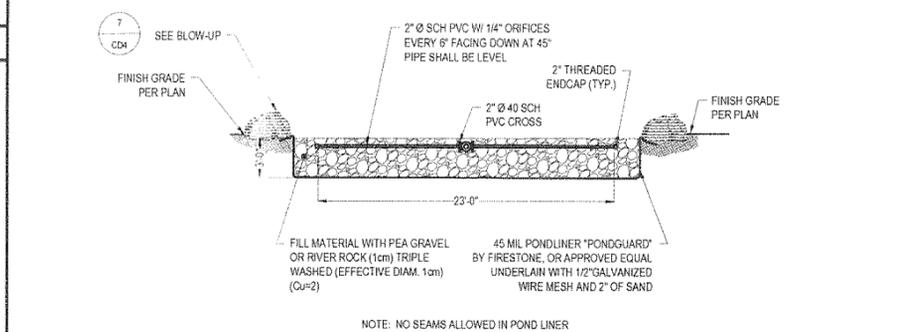
WETLAND EDGE + LINER

NO SCALE 7



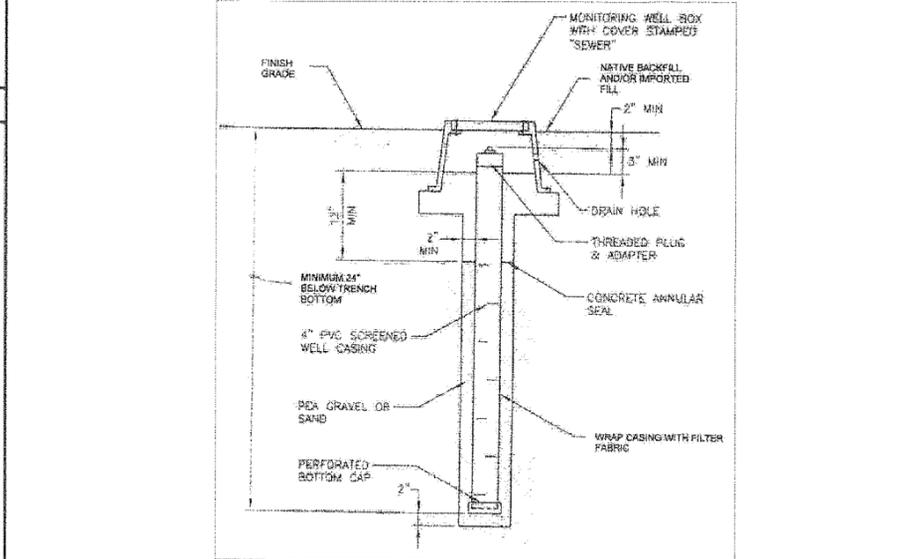
SECTION A-A: WETLAND OUTLET

NO SCALE 4



WETLAND INLET

NO SCALE 6

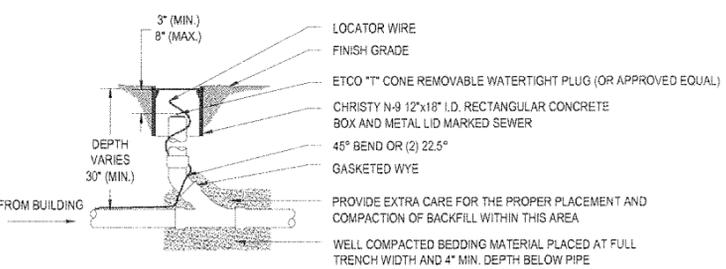


NAPA COUNTY MONITORING WELL

NO SCALE 8

ADS 36" N-12 RISER

NO SCALE 9

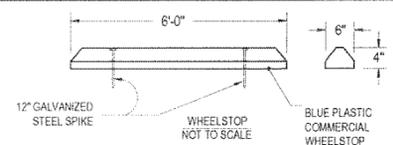


SANITARY SEWER CLEANOUT

NO SCALE 10

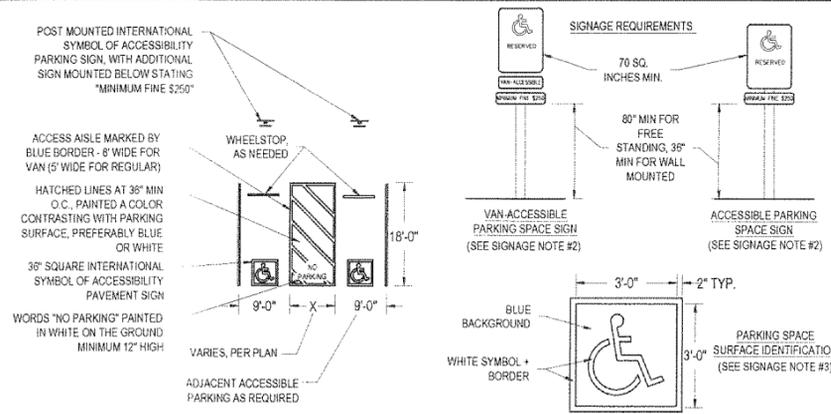
GENERAL NOTES

1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED AS NEAR AS PRACTICAL TO A PRIMARY ENTRANCE
2. ACCESSIBLE SPACE MUST PERMIT USE OF EITHER CAR DOORS.
3. BUMPERS ARE REQUIRED WHEN NO CURB OR BARRIER IS PROVIDED WHICH WILL PREVENT ENCROACHMENT OF CARS OVER WALKWAYS.
4. WHEELCHAIR USERS MUST NOT BE FORCED TO GO BEHIND PARKED CARS OTHER THAN THEIR OWN.
5. SURFACE SLOPES OF PARKING AREAS FOR THE DISABLED SHOULD BE MINIMAL BUT ARE REQUIRED NOT TO EXCEED 1/2 INCH PER FOOT (2%) IN ANY DIRECTION.
6. RAMPS SHALL NOT ENCROACH INTO ANY PARKING SPACE.
7. ACCESSIBLE PARKING SPACES SHALL BE IN ACCORDANCE WITH CBC SECTION 1129B. SURFACE SLOPES SHALL BE THE MINIMUM POSSIBLE AND SHALL NOT EXCEED ONE UNIT VERTICAL AND 50 UNITS HORIZONTAL (2% SLOPE). TRANSITIONS FROM RAMPS SHALL BE FLUSH AND FREE OF ABRUPT CHANGE.
8. EACH PARKING SPACE IS REQUIRED TO BE AT LEAST 18' LONG. WHEN MORE THAN 1 SPACE IS REQUIRED, 2 SPACES CAN BE PROVIDED WITHIN A 23' WIDE AREA, 26' WIDE IF AREA IS VAN-ACCESSIBLE.



SIGNAGE NOTES

1. EACH PARKING SPACE SHALL HAVE A REFLECTORIZED PORCELAIN ENAMELED STEEL SIGN PERMANENTLY POSTED IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE. THE SIGN SHALL NOT BE SMALLER THAN 70 SQUARE INCHES.
2. FREE STANDING SIGNS TO BE LOCATED AT INTERIOR END OF PARKING SPACE MOUNTED A MINIMUM OF 60" ABOVE FINISH GRADE. WALL MOUNTED SIGNS TO BE LOCATED AT INTERIOR END OF PARKING SPACE MOUNTED A MINIMUM OF 38" ABOVE FINISH GRADE. SIGNS IDENTIFYING ACCESSIBLE PARKING SPACES SHALL BE LOCATED SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THAT SPACE.
3. SURFACE IDENTIFICATION IN ACCESSIBLE SPACES TO BE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY IN PAINTED WHITE WITH A BLUE BACKGROUND 3 FEET SQUARE.
4. ALL SIGNAGE MUST COMPLY WITH CALIFORNIA BUILDING CODE SECTION 1117B.5 AND 1129B.4



ACCESSIBLE PARKING

NO SCALE 11

BAR IS ONE INCH AT FULL SCALE

IF NOT ONE INCH SCALE ACCORDINGLY

APR 02 2015

DATE: 02/20/15

SCALE: HORIZONTAL: 1"=10'-0" VERTICAL: 1"=4'-0"

FILE: P:\PROJECTS\DWG

WINERY RENOVATION FOR

ROBERT SINISKEY VINEYARDS

6320 SILVERADO TRAIL

NAPA, CA 94558

PR DESIGN & ENGINEERING INC.

8031 North Lake Blvd, P.O. Box 1047

King Beach, California 94943-1047

Tel: 530-546-4500 Fax: 530-452-2074

www.prdel.com

REGISTERED PROFESSIONAL ENGINEER

C69609

STATE OF CALIFORNIA

CIVIL

6320 SILVERADO TRAIL

NAPA, CA 94558

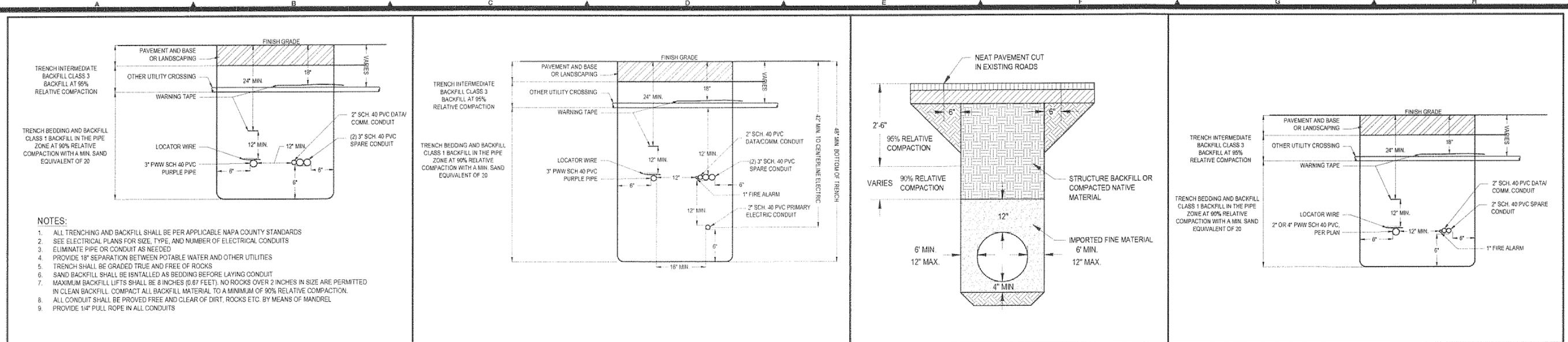
CONSTRUCTION DETAILS

APN: 031-230-017

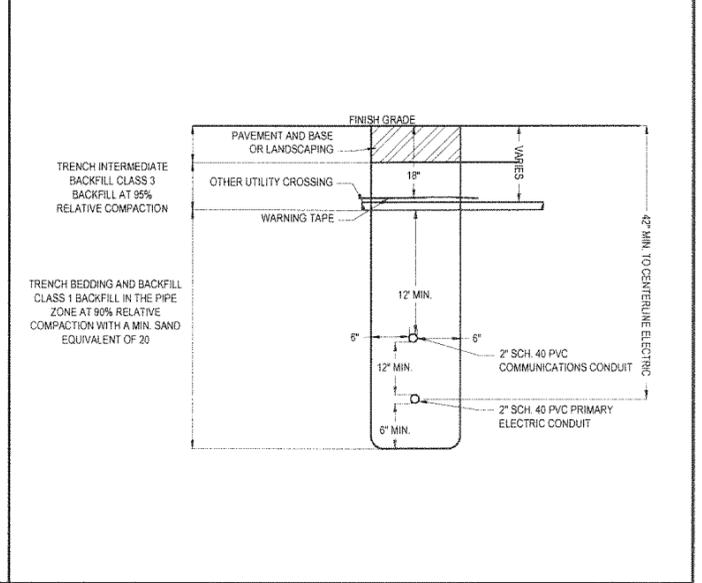
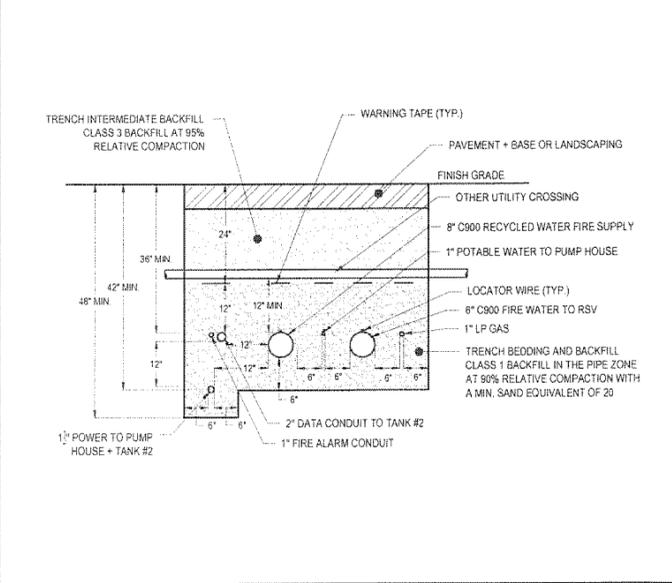
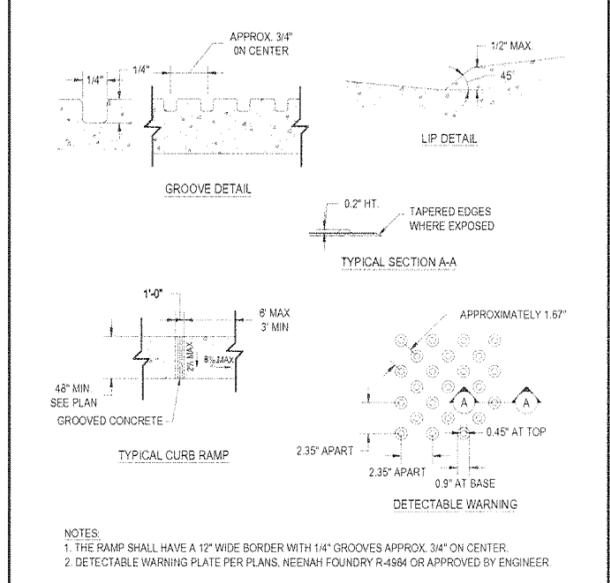
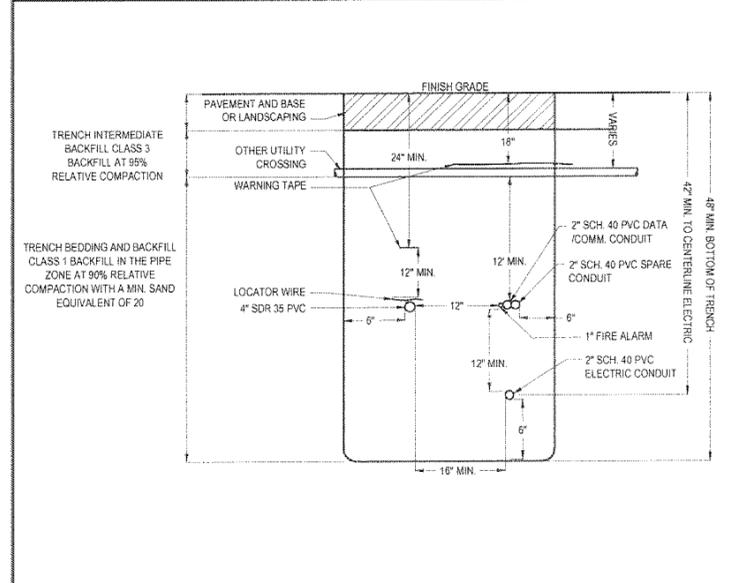
NAPA COUNTY

CD4

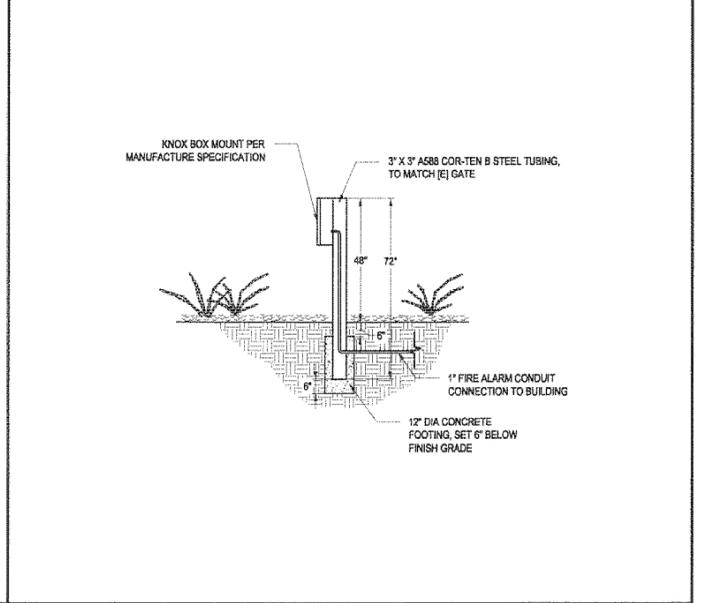
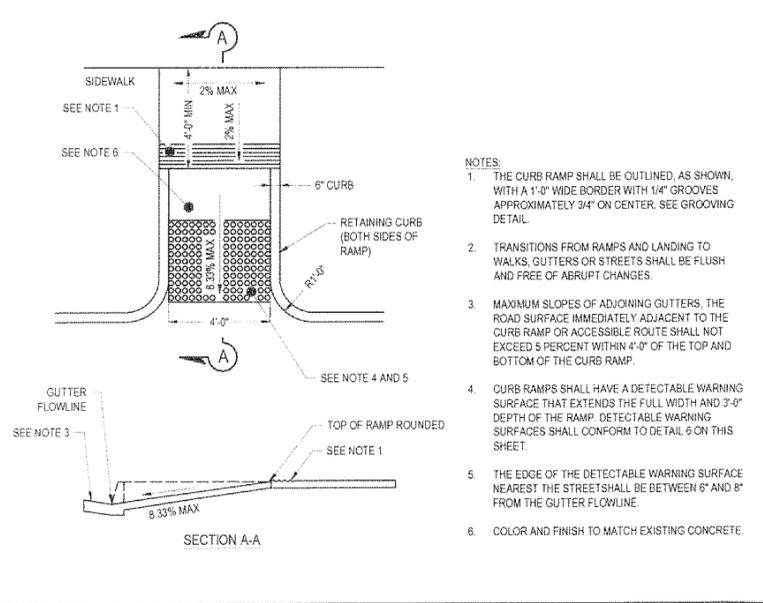
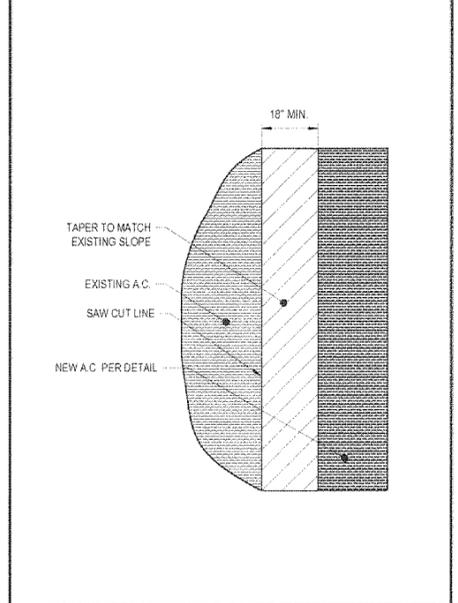
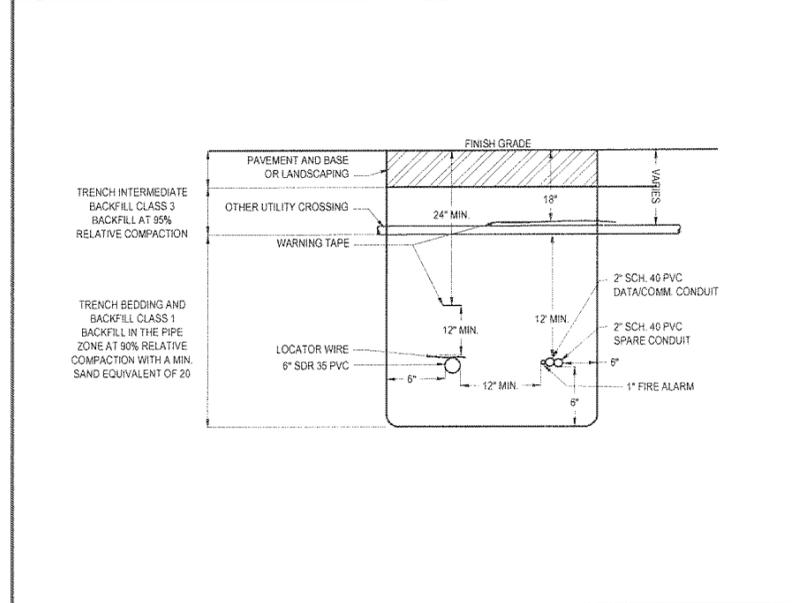
AS-BUILT



JOINT TRENCH A NO SCALE 1 JOINT TRENCH B NO SCALE 2 TRENCH EXCAVATION + BACKFILL NO SCALE 3 JOINT TRENCH C NO SCALE 4



JOINT TRENCH D NO SCALE 5 DETECTABLE WARNING NO SCALE 6 JOINT TRENCH E NO SCALE 7 JOINT TRENCH F NO SCALE 8



JOINT TRENCH G NO SCALE 9 A.C. SAWCUT NO SCALE 10 CURB RAMP NO SCALE 11 KNOX BOX MOUNTING POST NO SCALE 12

BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE: _____ APPROVED: _____
DESCRIPTION: _____
DATE: _____ REV: _____
DRAWN: MAR. JR. DATE: 02/21/15
SCALE: HORIZONTAL: _____ VERTICAL: _____
FILE: P:\SINKEY\DWG

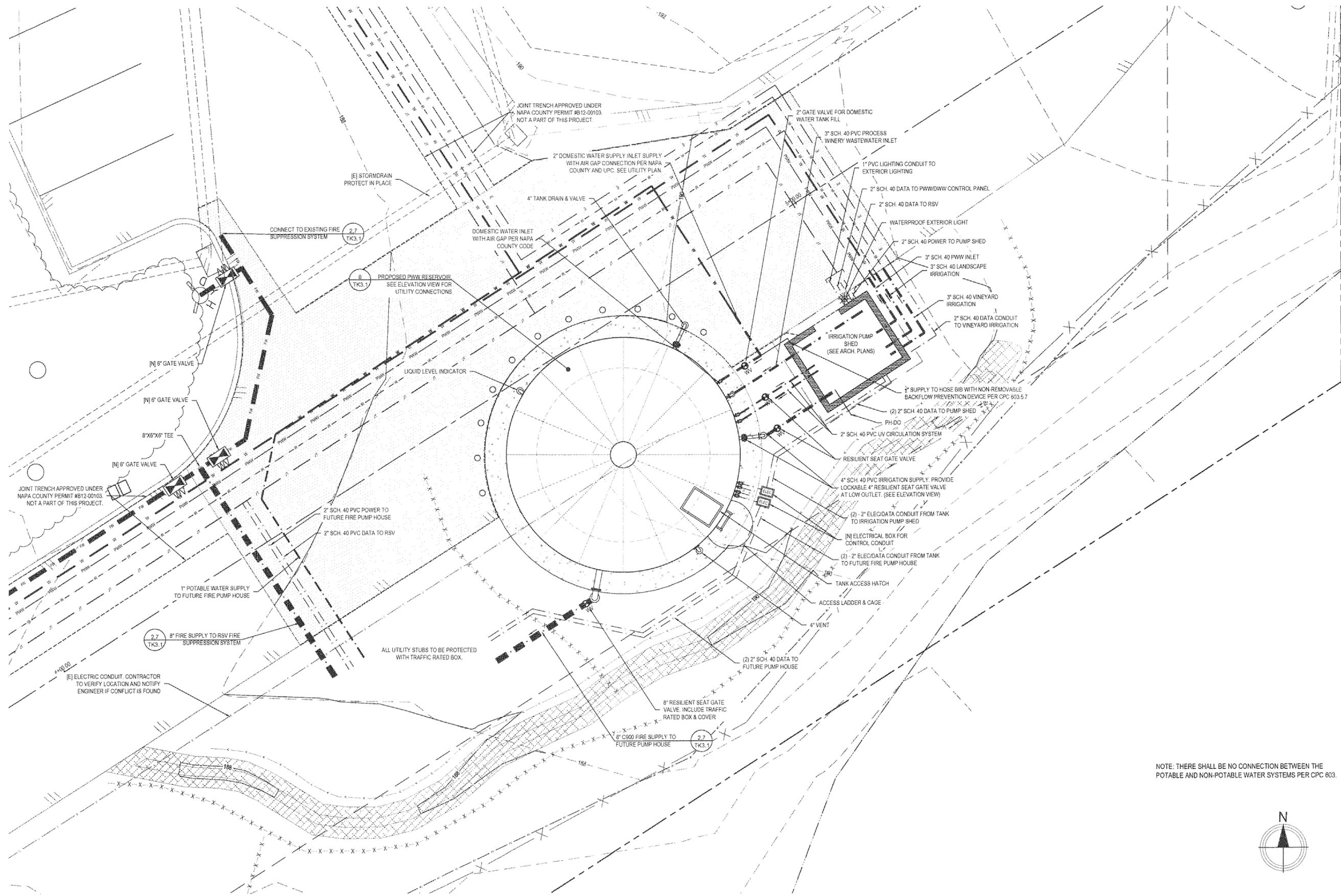
WINERY RENOVATION FOR
ROBERT SINKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

PR DESIGN & ENGINEERING INC.
800 North Lake Blvd., P.O. Box 1847
Napa, CA 94558
Tel: 530-546-4500 Fax: 530-453-2074
www.prdetail.com

REGISTERED PROFESSIONAL ENGINEER
No. C69694
Exp. 09-30-17
CIVIL
STATE OF CALIFORNIA

6320 SILVERADO TRAIL
ROBERT SINKEY VINEYARDS
CONSTRUCTION DETAILS
APN: 031-230-017
NAPA COUNTY
NAPA, CA 94558

CD5
AS-BUILT



JOINT TRENCH APPROVED UNDER
NAPA COUNTY PERMIT #B12-00103
NOT A PART OF THIS PROJECT

CONNECT TO EXISTING FIRE
SUPPRESSION SYSTEM

PROPOSED PWW RESERVOIR
SEE ELEVATION VIEW FOR
UTILITY CONNECTIONS

DOMESTIC WATER INLET
WITH AIR GAP PER NAPA
COUNTY CODE

2" GATE VALVE FOR DOMESTIC
WATER TANK FILL

3" SCH. 40 PVC PROCESS
WINERY WASTEWATER INLET

1" PVC LIGHTING CONDUIT TO
EXTERIOR LIGHTING

2" SCH. 40 DATA TO PWW/WW CONTROL PANEL

2" SCH. 40 DATA TO RSV

WATERPROOF EXTERIOR LIGHT

2" SCH. 40 POWER TO PUMP SHED

3" SCH. 40 PWW INLET

3" SCH. 40 LANDSCAPE
IRRIGATION

3" SCH. 40 VINEYARD
IRRIGATION

2" SCH. 40 DATA CONDUIT
TO VINEYARD IRRIGATION

IRRIGATION PUMP
SHED
(SEE ARCH. PLANS)

2" SUPPLY TO HOSE BIB WITH NON-REMOVABLE
BACKFLOW PREVENTION DEVICE PER CPC 603.5.7

(2) 2" SCH. 40 DATA TO PUMP SHED

PH.DD

2" SCH. 40 PVC UV CIRCULATION SYSTEM

RESILIENT SEAT GATE VALVE

4" SCH. 40 PVC IRRIGATION SUPPLY. PROVIDE
LOCKABLE 4" RESILIENT SEAT GATE VALVE
AT LOW OUTLET. (SEE ELEVATION VIEW)

(2) 2" ELEC/DATA CONDUIT FROM TANK
TO IRRIGATION PUMP SHED

(M) ELECTRICAL BOX FOR
CONTROL CONDUIT

(2) 2" ELEC/DATA CONDUIT FROM TANK
TO FUTURE FIRE PUMP HOUSE

TANK ACCESS HATCH

ACCESS LADDER & CAGE

4" VENT

(2) 2" SCH. 40 DATA TO
FUTURE PUMP HOUSE

8" RESILIENT SEAT GATE
VALVE. INCLUDE TRAFFIC
RATED BOX & COVER

8" C900 FIRE SUPPLY TO
FUTURE PUMP HOUSE

2" SCH. 40 PVC POWER TO
FUTURE FIRE PUMP HOUSE

2" SCH. 40 PVC DATA TO RSV

1" POTABLE WATER SUPPLY
TO FUTURE FIRE PUMP HOUSE

8" FIRE SUPPLY TO RSV FIRE
SUPPRESSION SYSTEM

(E) ELECTRIC CONDUIT. CONTRACTOR
TO VERIFY LOCATION AND NOTIFY
ENGINEER IF CONFLICT IS FOUND

ALL UTILITY STUBS TO BE PROTECTED
WITH TRAFFIC RATED BOX.

(E) STORMDRAIN
PROTECT IN PLACE

(M) 6" GATE VALVE

(M) 6" GATE VALVE

8" X 6" X 6" TEE

(M) 6" GATE VALVE

JOINT TRENCH APPROVED UNDER
NAPA COUNTY PERMIT #B12-00103
NOT A PART OF THIS PROJECT

NOTE: THERE SHALL BE NO CONNECTION BETWEEN THE
POTABLE AND NON-POTABLE WATER SYSTEMS PER CPC 603.



UTILITY PLAN

1 INCH = 5 FEET

BAR IS ONE INCH
AT FULL SCALE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	APPROVED	DESCRIPTION

PROJ. ENG. ATR
DATE: 02/21/16

SCALE:
HORIZONTAL:
VERTICAL:
FILE: P38282.DWG

WINERY RENOVATION FOR
ROBERT SINKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

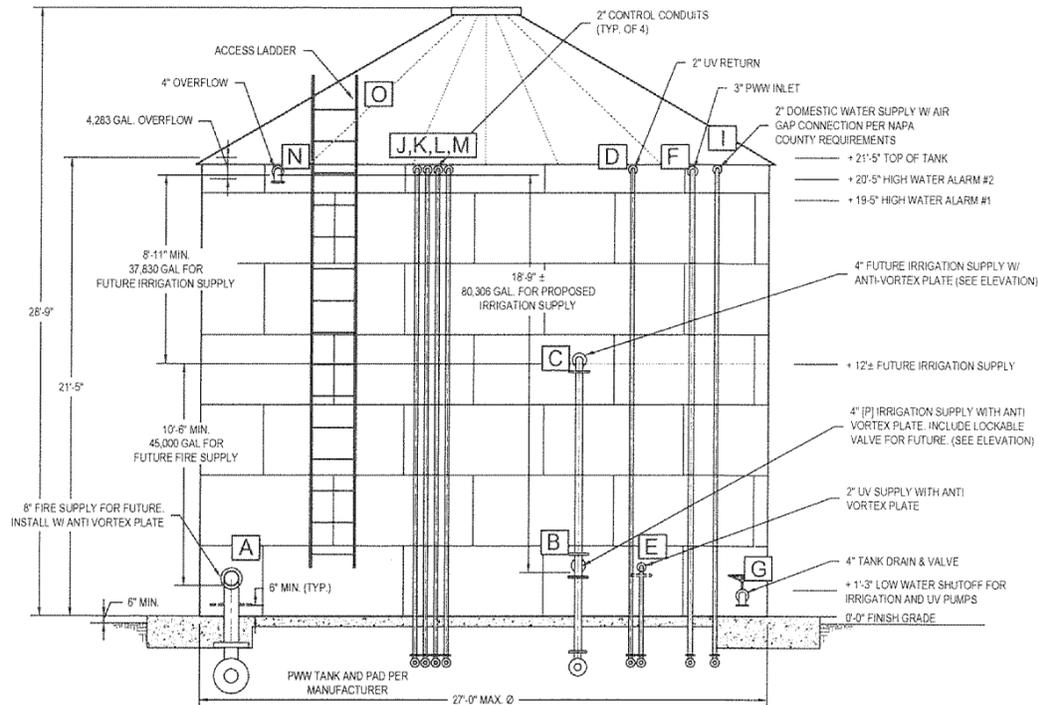
DR DESIGN & ENGINEERING INC.
8921 North Lake Blvd, P.O. Box 1947
Kings Beach, California 94949-1947
Tel 530-546-4500 Fax 530-432-2074
www.prdai.com

REGISTERED PROFESSIONAL ENGINEER
No. C68899
12/29/17
CIVIL
STATE OF CALIFORNIA

ROBERT SINKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

UTILITY PLAN
APN: 031-230-017
NAPA COUNTY

TK1.2
AS-BUILT



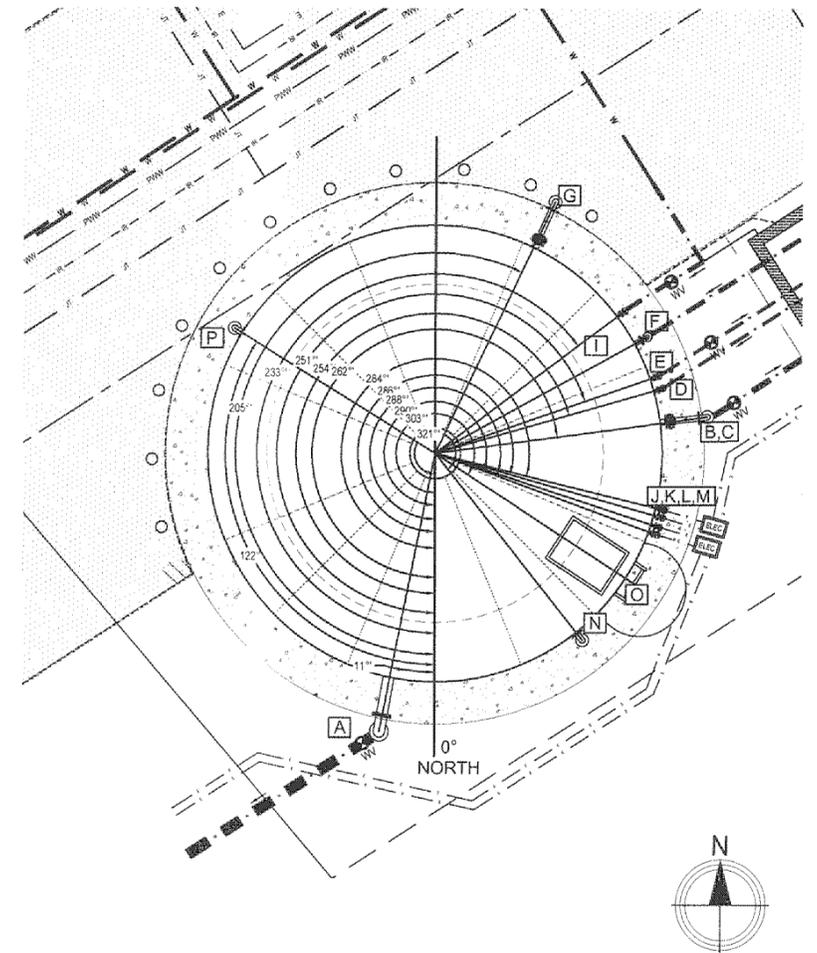
- NOTES:
1. ANTI VORTEX PLATES TO BE MIN. 6" ABOVE BOTTOM OF TANK
 2. EXTERIOR PIPE SHALL CARBON STEEL OR APPROVED EQUAL
 3. HIGH WATER ALARM #1 TO ALERT OWNER OF TANK HIGH WATER VIA AUDIBLE & VISIBLE ALARM
 4. HIGH WATER ALARM #2 TO DE-POWER WETLAND PUMP TO AVOID TANK OVERFLOW
 5. IRRIGATION AND UV SUPPLY SHALL BE LOCATED ABOVE THE FIRE PROTECTION SUPPLY LEVEL OF THE TANK.
 6. SEE DETAIL 1/TK3.2 FOR ANTI-VORTEX PLATE

- | | |
|---|---|
| A | 18" ON CENTER |
| B | 24" ON CENTER (MUST BE ABOVE FIRE SUPPLY) |
| C | 12" ON CENTER (10.5' ABOVE FIRE SUPPLY) |
| D | AS HIGH AS POSSIBLE |
| E | 24" ON CENTER (MUST BE ABOVE FIRE SUPPLY) |
| F | AS HIGH AS POSSIBLE |
| G | AS LOW AS POSSIBLE |
| H | OMIT |
| I | AS HIGH AS POSSIBLE, PROVIDE AIR GAP PER NAPA CO. |
| J | ABOVE ALL WET PENETRATIONS |
| K | ABOVE ALL WET PENETRATIONS |
| L | ABOVE ALL WET PENETRATIONS |
| M | ABOVE ALL WET PENETRATIONS |
| N | 2" BELOW INLET |
| O | AS REQUIRED |
| P | AS REQUIRED |
| Q | AS REQUIRED |

NOTE:
IRRIGATION AND UV SUPPLY SHALL BE LOCATED ABOVE
FIRE SUPPLY PER NAPA COUNTY FIRE DEPARTMENT.

TANK CONNECTION ELEVATION

1/4 INCH = 1 FEET



NOTE:
A PERMANENT MARK INDICATING THE 0 DEGREE (0°)
LOCATION ON THE SLAB SHALL BE MADE BY A SURVEYOR
LICENSED IN THE STATE OF CALIFORNIA PRIOR TO
INSTALLATION

TANK CONNECTION PLAN

1 INCH = 5 FEET

BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	
APPROVED	
DESCRIPTION	
DATE	
REV.	
DRAWN BY	JRL
FILE #	17/25/REV/DWG
SCALE	HORIZONTAL
SCALE	VERTICAL

WINERY RENOVATION FOR
ROBERT SINSEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

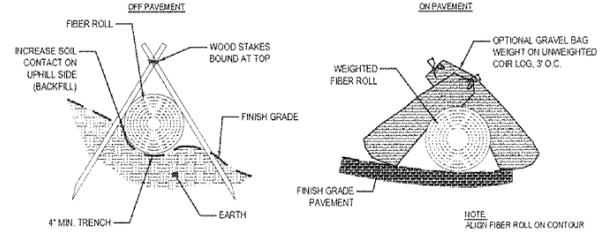
P-R DESIGN & ENGINEERING INC.
893 North Lake Blvd, P.O. Box 1847
King Beach, California 94924-0847
Tel: 530-540-4500 Fax: 530-540-0274
www.p-rdesign.com

REGISTERED PROFESSIONAL ENGINEER
No. C69689
EXPIRES 12/31/20-17
CIVIL
STATE OF CALIFORNIA

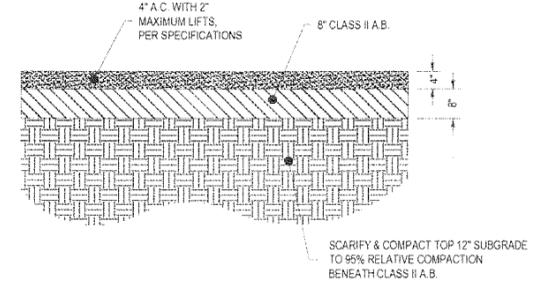
6320 SILVERADO TRAIL
ROBERT SINSEY VINEYARDS
TANK CONNECTION PLAN & ELEVATION
NAPA COUNTY
APN: 031-230-017
NAPA, CA 94558

TK1.3

AS-BUILT



FIBER ROLL



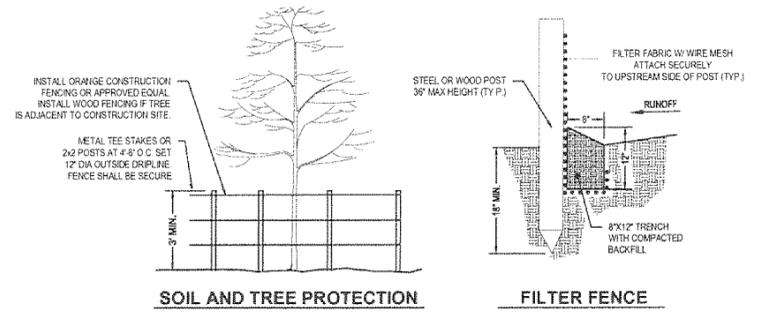
AC PAVEMENT

REQUIRED BEARING AREA - TOTAL SQUARE FEET PER CONCRETE RESTRAINT

TYPE OF FITTING	90° BEND	45° BEND	11.25° OR 22.5° BEND	TEE OR DEAD END	TEE W/PLUG	CROSS W/PLUG	CROSS W/PLUGS
4"	2	1	1	2	2	2	2
6"	4	2	1	3	4	4	4
8"	7	4	2	5	7	7	7
10"	12	6	3	8	12	12	12
12"	16	10	5	12	16	16	16

THRUST BLOCK SCHEDULE

- NOTES:
- JOINTS & FACE OF PLUGS, NUTS AND BOLTS TO BE KEPT CLEAR OF CONCRETE.
 - BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL.
 - THRUST BLOCKS TO BE CONSTRUCTED OF CLASS "B" CONCRETE.
 - STRAPS TO BE #4 REBAR EMBEDDED IN THRUST BLOCK TO A DEPTH EQUAL TO 3/4 OF PIPE DIAMETER. STRAP BEND EQUALS 1/2 PIPE DIAMETER.
 - AREAS GIVEN ARE FOR TEST PRESSURE OF 150 PSF AND SOIL BEARING PRESSURE OF 2,000 PSF. INSTALLATIONS USING HIGHER TEST ADJUSTMENT OF THRUST BLOCK SIZES, SUBJECT TO APPROVAL BY THE DISTRICT ENGINEER.
 - SEE DETAIL "W-2FH" FOR THRUST BLOCK REQUIREMENTS AT FIRE HYDRANT

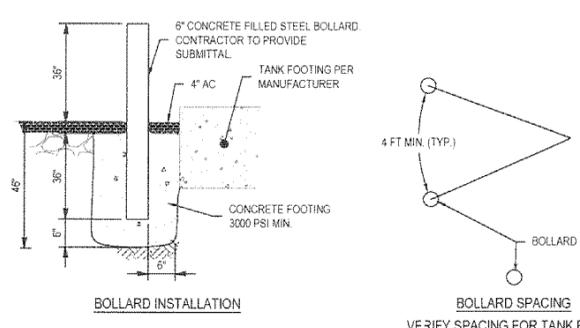


SOIL AND TREE PROTECTION

FILTER FENCE

- NOTES:
- THE CONTRACTOR SHALL INSPECT AND REPAIR ALL BMPs BEFORE AND AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY
 - THE CONTRACTOR SHALL NOT NAIL OR SCREW INTO PROTECTED TREE
 - REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF SITE AND CAN BE PERMANENTLY STABILIZED
 - LOCATE STOCKPILES AWAY FROM DRAINAGE COURSES ON PAVEMENT
 - COVER ALL STOCKPILES WITH 6 MIL PLASTIC, CANVAS TARP OR SIMILAR TO PREVENT WIND AND RAIN EROSION
 - FILTER FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY

TEMPORARY EROSION CONTROL



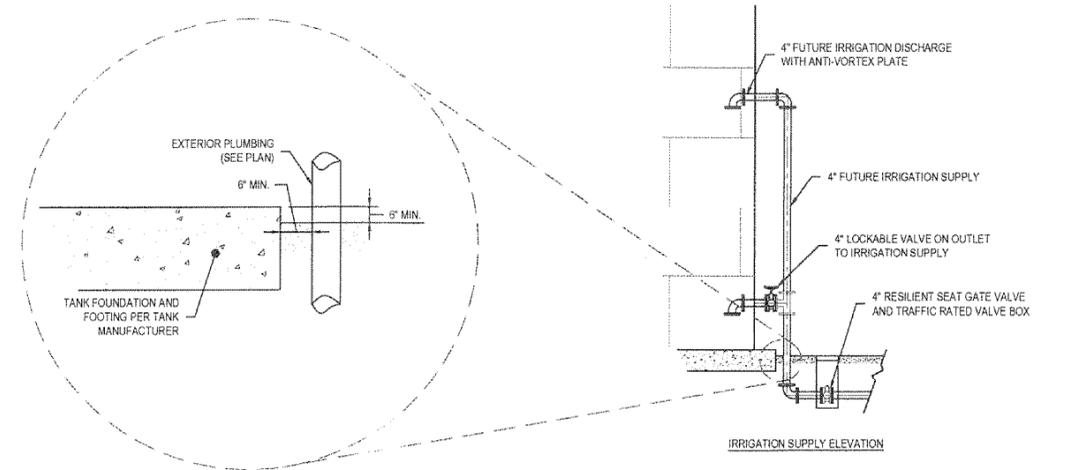
BOLLARD INSTALLATION

BOLLARD SPACING

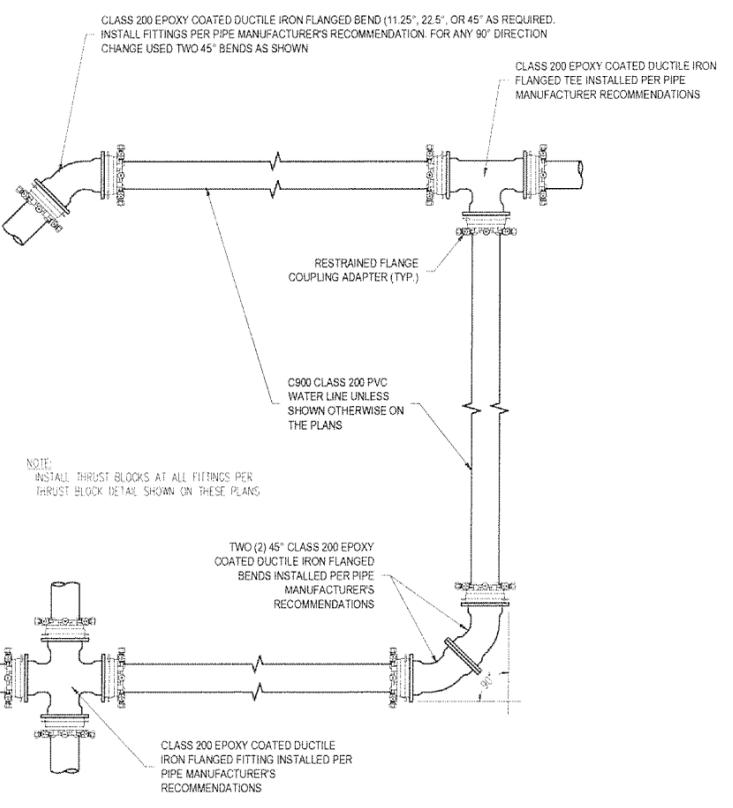
VERIFY SPACING FOR TANK FOOTING

BOLLARD INSTALLATION

NOT TO SCALE 4

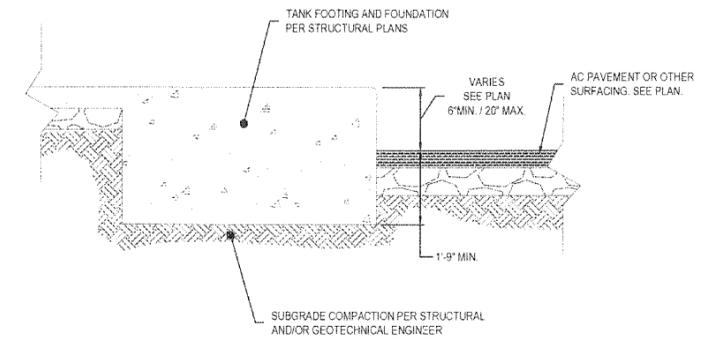


IRRIGATION SUPPLY ELEVATION



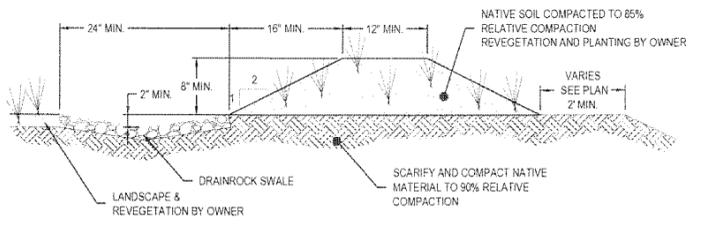
RESTRAINED FITTINGS

NOT TO SCALE 2



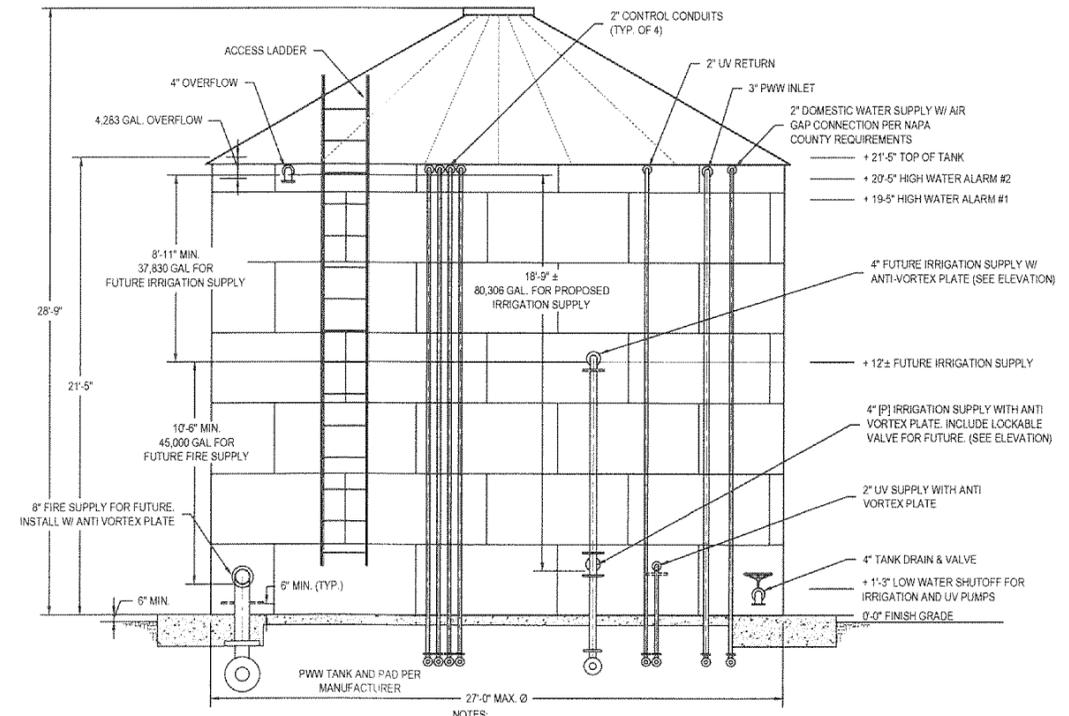
TANK FOOTING

NOT TO SCALE 5



VEGETATED BERM

NOT TO SCALE 6



NOTES:

- ANTI VORTEX PLATES TO BE MIN. 6" ABOVE BOTTOM OF TANK
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- HIGH WATER ALARM #1 TO ALERT OWNER OF TANK HIGH WATER VIA AUDIBLE & VISIBLE ALARM
- HIGH WATER ALARM #2 TO DE-POWER WETLAND PUMP TO AVOID TANK OVERFLOW
- IRRIGATION AND UV SUPPLY SHALL BE LOCATED ABOVE THE FIRE PROTECTION SUPPLY LEVEL OF THE TANK
- SEE DETAIL 1/TK3.2 FOR ANTI-VORTEX PLATE

TANK ELEVATION

NOT TO SCALE 8

BAR IS ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE: _____
APPROVED: _____
DESCRIPTION: _____
DATE: _____
REV: _____

PROJ. ENG. ATR DATE: 02/21/18
DRAWN: MAR. JRL
SCALE: HORIZONTAL: _____ VERTICAL: _____
FILE: P:\BARRINGTON

WINERY RENOVATION FOR
ROBERT SINCKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558

CDR DESIGN & ENGINEERING INC.
8091 North Lake Blvd., P.O. Box 1847
King Beach, California 94543-1847
Tel: 530-546-4500 Fax: 530-456-2072
www.cdrinc.com

REGISTERED PROFESSIONAL ENGINEER
No. 60959
CIVIL
STATE OF CALIFORNIA

ROBERT SINCKEY VINEYARDS 6320 SILVERADO TRAIL NAPA, CA 94558
DETAILS
APN: 031-230-017
NAPA COUNTY

TK3.1
AS-BUILT

Robert Sinskey Vineyards
Wastewater Feasibility Study
November 5, 2019

SUMMIT ENGINEERING, INC.
Project No.: 2019156

ENCLOSURE C
1998 ROBERT SINSKEY VINEYARDS DESIGN REPORT

THEODORE J. WALKER
REGISTERED ENVIRONMENTAL HEALTH SPECIALIST
2280 PLEASANT HILL ROAD
SEBASTOPOL, CA. 95472
(707) 829-6854

July 30, 1998

Ruben Oropeza and Chris Secheli, REHS
Napa County Environmental Health Management Department :
1195 Third Street, Room 101
Napa, California. 94559-3082

Re: SINSKEY VINEYARDS, 6320 SILVERADO TRAIL, AP# 31-230-17

Dear Ruben and Chris:

For the last six months, I have been working with Jeff Virnig of Robert Sinskey Vineyards on evaluating the long term function of the Wisconsin Mound System that was designed and installed when the facility was built. My evaluation of the Mound System revealed that a clogging mat has developed at the Gravel/Sand interface within the mound system. My work for Sinskey Vineyards has been to monitor the wastewater system and provide any needed improvements to prolong the life expectancy of the domestic and winery wastewater systems.

We have tracked the wastewater flows since January 1998, and the wastewater flows are within design limits for the disposal system.. I have also taken several wastewater samples of the winery waste that is being applied to the mound system. The results all of which have demonstrated that the winery wastewater strength is high in terms of BOD, Soluble BOD, Suspended Solids and low pH. The domestic wastewater flows appear to be within design limits. This is the cause of the clogging mat in the mound.

Since January 1998, I have had the septic tanks pumped several times in order to provide fresh cultures and samples of the domestic and winery waste and to reduce Settable Solids from migrating into the sump chamber. The tanks have been pump on 1-20-98 and 2-1-98 by Dependable Septic Systems (see attached).

Since January 1998, we have had the old large solids pumps disconnected and taken out of service. These large pumps were improperly designed and installed for this type of wastewater application. These pumps literally pumped everything (liquid and solids) from the sump into the mound system (in extremely large volumes). They had a history of problems ranging from breakdown to loss of prime to breakdown. The electrical components were all placed underground in the pump vault, and deteriorated from the gasses inside the vault unit. The pump vault design is inferior.

As such, I had P and R Septic Systems install a Standard Submersible Effluent Pump in line, which now feeds the mound system on smaller doses, over extended periods of time. This has been a major improvement in the way the mound system has improved in disposal.

On March 20, 1998, I had P and R Septic systems excavate soil profile holes downhill of the mound system. On this day, Ruben came by and made a cursory review of the soil profile holes. The purpose of the soil profile holes was to evaluate the potential to facilitate a septic system upgrades. There were eight profile holes excavated for review. Generally speaking, the holes indicated acceptable soil conditions for a potential Shallow Pressure Distribution Type System, in the area located within 160 lineal feet of the existing driveway. Further north, the permeable soils became shallow and indicated that area would be acceptable for a Wisconsin At-Grade Type System.

In reviewing the soil profile logs, I estimated soil percolation rate for the proposed trench bottom at 1-3 inches/hour. If I were to use a 2,000 gallon per day metered wastewater flow rate from the combined domestic and winery wastewater system, we see that with a three foot trench depth, and a sidewall loading rate of 3 gallons per square feet per day (using 18 inches of gravel below trench bottom); we would need a estimated disposal trench system (STPD) of:

$$\frac{2,000 \text{ gal/day}}{3 \text{ sq.ft./lineal feet} \times .657 \text{ gals/sq.ft./day}} = 1014 \text{ lineal feet would be needed}$$

In this case, there easily sufficient room to install the needed lineal footage to provide resting for the Mound System and dispose of wastewater into a STPD System. In using up to 75 lineal foot runs the Pressure Distribution Line in each direction from the Pressure Manifold, we will use a minimum of twelve manifold assemblies, with 7 foot spacing on center. The lines must follow contour. The plans (attached) indicate that at least 1,680 lineal feet will be installed (we could install more). And there is still adequate room for expansion area if needed (In the mound, to the west of the STPD Field, and between the road and the STPD System).

NOTE: The area for these Pressure Distribution Lines in located in a vineyard area, downhill of the mound system. At my direction, the vine rows were removed so that a installation could take place.

SEPTIC TANK CAPACITY

Currently, there are three 1500 gallon septic tanks. Two for the winery wastewater system, and one for the domestic system. The anticipated peak flow from the winery waste is 1500 gallons per day and 500 gallons per day from domestic waste. The 3000 gallons septic tank capacity for the winery waste is insufficient retention capacity. As such, we will be increasing the tank capacity for a 5 day holding period, the total septic tank capacity should be a minimum of 7,500 gallons.

Therefore, we will add a 7,500 gallon septic tank in line after the existing winery tank system. After this new tank, there will be a 1,500 gallon Zabel Effluent Filter Tank, with up to six, Zabel Industries double stack, A-100 Effluent Filters. The effluent filters will assist in preventing suspended solids from entering the disposal system. The wastewater from the effluent filters will then go to a 1,500 gallon sump with a pump, which will take wastewater to two Aggregate Tank Filters. The added tank capacity for the winery waste will now be (1,500 + 1,500 + Former Sump Unit + 7,500 new tank + 1500 gallon Zabel Tank + 2(1500 gallon gravel filters) = **17,500 gallons of holding capacity.** This is a major improvement in the overall design and use of the system.

GRAVEL FILTERS

Here, wastewater will be pressurized into two 1,500 gallon septic tanks (filled with a combinations of peagravel, birdseye gravel, and a 6 inch layer of coarse sand). Wastewater will be pressurized over the aggregate where Suspended Solids will accumulate), then filtered wastewater will trickle vertically down, then leave the tank, then go into the sump chamber, which will then go to the STPD leachlines.

IAPMO Approved septic tanks will be used. However, the baffle and original lid will not be installed. A 4 inch perforated pipe will be placed at the bottom of the unit, where it will collect wastewater and exit the unit. There will 20 inches of 4-6 inch diameter hard/clean rock over the collections system. There will be 12 inches of 3/8 inch peagravel placed above the larger rock. Then 12 inches of birdseye double washed gravel will be place next. Then 6 inches of a coarse double washed #16 sand. Then 6 inches of peagravel. Then a Pressure Distribution Network, with 1.25 inch PVC Lines (spaced 20 inches on center) with a Orifice Shield over the 3/16th inch holes (spaced 12 inches on center).

A monitoring well to the bottom will be installed to watch for any sign of ponding. If ponding occurs, the higher overflow pipe will take the wastewater into the large sump for the STPD System, or the gravel can be removed and taken to a landfill and replaced on a As Needed Basis. This set up will not permit any surfacing of wastewater if clogging occurs.

A metal non-corrosive swing type lid will be placed on top of the Gravel Filter for inspection and servicing needs. The Gravel Filter Tank will sit about 9 inches above finished grade.

NEW SUMPS

A new sump tank (3,000 gallons) in which to place the pump float and alarm system. NOTE: The newly installed pump (that was installed for the mound system) system will be relocated sufficient for this new sump installation and will now transport wastewater into the STPD System. Sinskey Vineyards will have an extra pump on hand, in case of failure or breakdown of any pump.

Another sump (1500 gallons) will be installed after the Zabel Filter Tank, and will dose wastewater into the Gravel Filter. The dose setting will be 150 gallons per dose, and will dose on demand.

A third sump (1500 gallons) will also be installed. This sump will take domestic wastewater into the mound, after it is reconstructed next year under Phase 2. *The pump size will be determined in the future.*

All sumps will be equipped with high alarm floats, dose counters, and redundant switches. The sump/pump for the large STPD system will be dosed with an Orenco Intermittent Timer that will apply wastewater over a 24 hour clock. Each leachline will be dosed approximately 1-2 times per day.

EFFLUENT FILTRATION OF WASTEWATER

As I have mentioned, the winery waste will be pre-treated (throughout the Zabel Filter Tank and Gravel Filters) before disposing subsurface. In this case, we are installing Zabel A-100 Double Stack Effluent filters in the existing system at: 1) the outlet side of the existing 1500 gallon domestic septic tank, and 2) the outlet side of the second 1500 gallon winery waste tank (before they enter the large existing sump).

A 1500 gallon septic tank will be modified into a Zabel Effluent Filter Tank. (I used this design at Carneros Creek Winery and Crestwood Convalescent Hospital the last few years with great success). Here, a 1500 gallon septic tank will be fitted with six Zabel A-100 Double Stack Effluent Filters. Wastewater enter the Filter Tank through the inlet, and go only leave the tank through the Zable Filters. The tank will be modified by removing the baffle wall and lid. Gravel will be placed inside the unit and a metal swinging lid for the new top.

DISPOSAL OF WASTEWATER

The wastewater will be combined into the new sump/pump unit, then pressure dosed into the drainfield. We call this Pressure Distribution System. It will use an Orenco six zone Hydrotech Valve. So a series of two lines will be dosed at any given time, in sequence in the order of lines: (1&3, 2 &4, 5&7, 6&8, 9&11, and 10 &12).

Page 2

PROPOSED WASTEWATER DISPOSAL IMPROVEMENTS

The improvements to the wastewater disposal system will be performed in two phases. Briefly, they are:

Phase 1:

- 1) Separate the domestic waste from winery waste. Install effluent filters in existing tank units (domestic and winery). Convert the existing sump unit to a settling tank, and remove the pump, electrical, etc. and install two Zabel Filters. The winery waste will gravity flow to a new 7,500 gallon septic tank, then a 1,500 gallon Zabel Filter Tank, then will go into a 1,500 gallon sump, which will pump to two 1,500 gallon Gravel Filters, which will then go to the new 3,000 gallon sump, which will then go to a new STPD Drainfield.
- 2) In Phase 1, the domestic waste will combine into the 1,500 gallon sump which will dose the gravel filters. In a year, the domestic waste will then be placed into a 1,500 Second Pump System, which will take wastewater into the Mound System after the mound has been renovated.

Phase 2:

- 1) After the STPD System is installed and placed into operation, the mound system will be allowed to dry out, allowing the Bio-Mat of clogging layers to decompose. In the summer of 1999, the mound system will be reconstructed by: removing the existing gravel bed and distribution network (this method of mound renovation has been encouraged by the University of Wisconsin and has been performed throughout the country). A new gravel bed will be installed and a new distribution network will be installed with all plastic valves piping and soil cover (the old gravel will be disposed of at a Class 1 Landfill). When completed, the domestic waste will be pumped into the reconstructed mound system and the winery waste will remain online with the STPD System.

CONSTRUCTION

Please review attached construction notes for STPD Systems. P and R Septic Systems of Napa will be performing all work as shown on these plans and under my direction. There may be a few small items that may be modified by the contractor, but any changes will have to be approved by the designer. All Napa County Code requirements and inspections will be called for in this installation. Any changes will be shown on As-Built plans.

PUMP REQUIREMENTS

With the use of a Hydrotech Valve (six zone) the gallons per minute (GPM) are minor. This system will rotate the Hydrotech Valve with six zones. Each Zone will dose STPD lines. The maximum length of line per zone is calculated at:

140 lineal feet max. run/line X 2 lines = 280 lineal ft. X 12 inches/ft = 3360 lineal inches divided by hole spacing of 30 inches on center, or 112 orifices. The orifice size is 3/16th inch holes that use .754 gpm/hole, therefore the required flow is 84.5 say 85 gpm. There are only minor losses in this distribution system since the pump will go to a higher elevation, then back down to a lower elevation (there is not an elevation head loss). The minor losses are through the Hydrotech Valve and a few bends, elbows, and valves. The estimated head loss throughout this network is 15 THD. At 85 gpm and 15 THD, the existing pump will achieve the 60 inch high squirt test for the system.

The Hydrotech valve will be placed higher than the highest leachline. The valve will sit in a Orenco PVC Riser (above ground), where it can be inspected on a regular basis.

Page 4

SUMMARY

Sinskey Vineyards has invested a lot of time, money, resources and research into the concept of extending the Like Expectancy of the domestic and winery wastewater disposal systems. The item outline in this proposal will significantly improve these conditions. We wish to pull the Septic Permit necessary to start this work immediately, before the crush season begins.

Should you have any questions, please contact me at 829-6854.

Yours truly,



Theodore J. Walker
Registered Environmental Health Specialist #4323

Robert Sinskey Vineyards
Wastewater Feasibility Study
November 5, 2019

SUMMIT ENGINEERING, INC.
Project No.: 2019156

Contact:
Gina Giacone
gina@summit-sr.com
(707) 636-9162

SUMMIT 

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Santa Rosa, CA 95403
707 527-0775
sfo@summit-sr.com