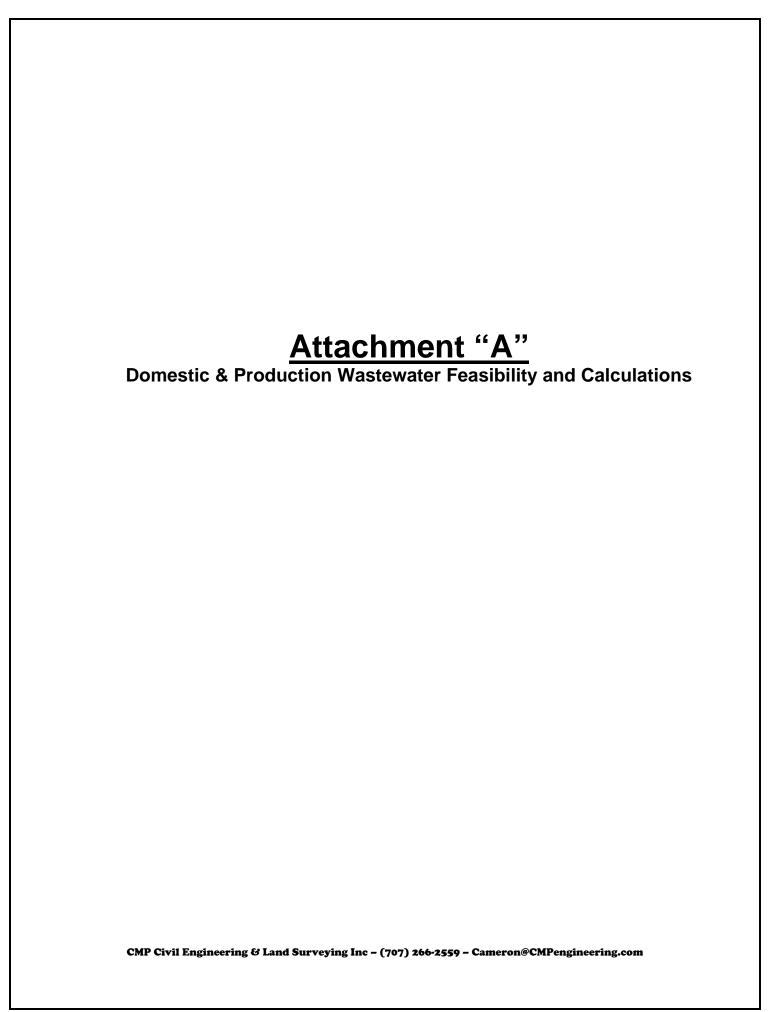
"N"

Wastewater Feasibility Report

Pridmore Property
General Plan Amendment P17-00135
Rezone P20-00223 and Use Permit P20-00222
Planning Commission Hearing May 15, 2024



Site Map

Please see the Use Permit Site Plan and Wastewater Plan which has been included with this submittal. The said map shows the existing wastewater system as well as the proposed improvement to the said wastewater system.

Existing Wastewater System Conditions

The existing school buildings are served by an existing conventional wastewater system which consists of a 1500 gallon septic tank and 600 feet of rock and pipe type leach field with a 30" deep trench. The existing wastewater system is functioning well and historically served the school without issue.

Existing Wastewater System Flows & Analysis

Given the above leach field data the existing leach trench nets an absorption area of 1 square foot per linear foot. Given that the soil has an infiltration rate of 1/3 gallon per square feet per day and the limiting layer is over 76" deep, this system can easily handle a peak flow of 600 gallons of wastewater per day. Please note that by today's standards the system is undersized for the historical schools calculated peak flow of 1869 gallons per day. By today's standards the existing system can handle a peak flow of 600 gallons per day, thus the existing system must be expanded to facilitate the proposed uses.

Proposed Wastewater Flows & Analysis

With respect to the wastewater system the proposed uses contributing to the peak flow are as follows: 4 full time employees at 15 gallons per day (60 gallons per day total), 4 single bedroom lodging units with low flow fixtures and no laundry machines at 106 gallons per bedroom per day (424 gallons per day total), 5 double bedroom lodging units with low flow fixtures and no laundry machines at 106 gallons per day (1060 gallons per day total), 1 caretaker unit at 120 gallons per day, large events of 150 people at 3 gallons per person (450 total gallons per large event), and lastly small events of 60 people at 3 gallons per person (180 total gallons per small event). Please note that the lodging units flow per bedroom was downgraded 14 gallons per day because no laundry machines are proposed in these units and a single high efficiency California approved energy star washing machine uses 14 gallons per load. Thus the lodging units flow was downgraded from 120 gallons per day to 106 gallons per day. It is likely that the flow per bedroom could have been downgraded further due to the transient nature of the tourist lodging, but it seemed prudent to stay conservative. Based on the above numbers the total maximum peak flow rate at full capacity (not including events) is 1664 gallons per day. The additional wastewater flows from small and large events will be addressed with temporary bathroom facilities, such as porta-potties. Thus the onsite system will need to be able to handle a peak flow of 1664 gallons per day. The existing leach field can handle 600 gallons per day thus the proposed leach field must be expanded to handle the additional 1064 gallons per day.

<u>Proposed Wastewater Improvements</u>

Based on the above analysis an additional 560 feet of leach field is proposed with a trench depth of 48 inches which nets an absorption area of 6 square feet per linear foot of trench.

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Given that the soil has an infiltration rate of 1/3 gallon per square feet per day this means that the proposed 560 feet of trench can handle a peak flow of 1120 gallons per day which is more than the required 1064 gallons per day. Prior to entering the leach field, wastewater will go to a centralized system of septic tanks with a total volume of 6000 gallons. This will net a hydraulic retention time of more than 3 days, at which point the treated effluent will pass into a 2000 gallon pump tank with a duplex pumping system. From the pump tank the treated effluent will be pumped out to the aforementioned proposed and existing leach field.

Summary and Conclusions

The proposed wastewater improvements coupled with the existing wastewater infrastructure will be more than enough to handle the wastewater flow produced by the proposed use.

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CMP Civil Engineering & Land Surveying 1607 Capell Valley Road Napa, CA 94558 (707) 815-0988 Cameron@CMPEngineering.com

CMPEngineering.com



Historical Wastewater Flow Calculations for the Capell School Lodging Project

Located at: 1191 Capell Valley Road Napa, CA 94558

Date: 7/22/2020

Project # 00055

Legend

Requires Input

Automatically Calculates

Important Value Automatically Calculate

Important Value Requires Input

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

Historical Waste Flow Summary

The subject property used to be a public school with a peak attendence of 90 students, 3 teachers, 2 part time aids and a part time grounds keeper. The calculated flows below are based on this.

Historical School Peak Domestic Waste Flow Calculations								
Historical Student Peak S	Historical Student Peak Student Domestic Waste Flows							
Estimated peak number of students attending =	90	#						
Peak wasteflow per student =	20.00	gal/day/st	:d					
Peak Student Waste Flow =	1800.00	gal/day						
Historical School Peak Employee Domestic Waste Flows								
Peak Employee Waste Flows								
Number of FT Employees =	3	#						
Number of PT Employees =	3	#						
FT employee daily domestic waste flow =	45.00	gal/day (1	5 g/p)					
PT employee daily domestic waste flow =	24.00	gal/day (8	3 g/p)					
Peak Employee Waste Flows =	69.00	gal/day						
Total Combined Domestic Waste Flows =	1869	gal/day						
Historical School Annual Waste Flow Volume Calculations								
Historical Student Aver	age Domes	stic Wast	e Flows					
Estimated peak number of students attending =	90	#						
Ave wasteflow per student =	10.00	gal/day/st	:d					
Ave Student Waste Flow =	900.00	gal/day						
Total Design Peak Domestic Waste Flows =	328500	gal/yr						
Historical Employee Ave	rage Dome	estic Was	ste Flow	S				
Peak Employee Waste Flows								
Number of FT Employees =	3	#]#					
Number of PT Employees =	2	#						
FT employee daily domestic waste flow =	22.50	gal/day (8	3 g/p)					
PT employee daily domestic waste flow =	8.00	gal/day (4	ł g/p)					
Total Dimestic Flow =	30.50	gal/day						
Total Design Peak Domestic Waste Flows =	11133	gal/yr						
Historical Average Eve	ent Domest	ic Waste	Flows					
Special Event Volumes	visitors	days/yr	flow/day	gallons				
Large Events =	200	4	5	4000				
Medium Events =	50	12	5	3000				
Other =			5	0				
Other 2 =			5	0				
Total Annual Event Visitor Waste Volume =	7000	gal/year						
Total Annual Waste Flow Volume =	346633	gal/yr	1.06	af				



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Proposed Wastewater Flow Calculations for the Capell School Lodging Project

Located at: 1191 Capell Valley Road Napa, CA 94558

Date: 7/22/2020

Project # 00055

Legend

Requires Input

Automatically Calculates

Important Value Automatically Calculate

Important Value Requires Input

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

Waste Flow Summary

The existing school wastewater system was under designed to handle a peak flow of 600 gallons per day of domestic wastewater. The proposed change in use will exceed this amount thus an additional wastewater system will be required. All proposed events will be serviced by portable toilets.

Peak Domestic Waste Flow Calculations								
Proposed Lodging Units Peak Domestic Waste Flows								
Total number of single bedroom lodging units =	4	lodging ur						
Total number of double bedroom lodging units =	5	lodging ur	nits					
Total number of single bedroom caretaker units =	1	caretaker						
Peak wasteflow per lodging bedrooms =	106.00	gal/day/br	•					
Peak wasteflow per care taker bedrooms =	120.00	gal/day/br						
Peak Lodging Units Domestic Waste Flow =	1604.00	gal/day						
Proposed Employee Pe	eak Domes	tic Waste	e Flows					
Peak Employee Waste Flows		_						
Number of FT Employees =	4	#						
Number of PT Employees =	0	#						
FT employee daily domestic waste flow =	60.00	gal/day (1	5 g/p)					
PT employee daily domestic waste flow =	0.00	gal/day (8	8 g/p)					
Peak Employee Waste Flows =	60.00	gal/day						
Total Combined Demostic Waste Flows -	1664	gol/dov						
Total Combined Domestic Waste Flows = 1664 gal/day								
Annual Waste Flow Volume Calculations Average Lodging Units Domestic Waste Flows								
Total number of single bedroom lodging units =	4	lodging ur						
Total number of double bedroom lodging units =	5	lodging ur						
Total number of single bedroom caretaker units =	1	caretaker	units					
Total bedroom (br) count =	15	br .,, "						
Average wasteflow per bedroom =	50.00	gal/day/br						
Total Design Peak Domestic Waste Flows =	750.00	gal/day						
Total Design Peak Domestic Waste Flows =	273750	gal/yr						
Average Employee	Domestic V	Vaste FI	ows					
Peak Employee Waste Flows	4	1,,,						
Number of FT Employees =	0	#						
Number of PT Employees = FT employee daily domestic waste flow =	30.00	# gol/dov/ (7	7 E a/p)					
PT employee daily domestic waste flow =	0.00	gal/day (7 gal/day (4						
Emplyee Domestic Flow =	30.00	gal/day (4	· g/p)					
Total Design Peak Domestic Waste Flows =	10950	gal/yr						
Average Event Do			V S					
Special Event Volumes	visitors	days/yr	flow/day	gallons				
Large Events =	150	6	3	2700				
Medium Events =	60	12	3	2160				
Other =			3	0				
Other 2 =		3 0						
Total Annual Event Visitor Waste Volume =	4860	gal/year						
Total Annual Waste Flow Volume =	289560	gal/yr	0.89	af				

Property Owner

SITE EVALUATION REPORT

Page 1 of 3

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 #: E18-00442					
APN: 032-130-026					
(County Use Only) Reviewed by:	Date:				

PLEASE PRINT OR TYPE ALL INFORMATION

Pridmore		Reserve Other:				
Property Owner Mailing Address 1305 Capell Valley RD		Residential - # of Bedrooms: Design Flow :				
City State CA	Zip 94558	Commercial – Ty	/pe:			
Site Address/Location 1283 Capell Valley RD, Napa	a Ca 94558	Sanitary Waste: 7 Other:	TBD gpd Proce	ess Waste: gpd		
		Sanitary Waste:	gpd	Process Waste:	gpd	
Evaluation Conducted By:						
Company Name CMP CIVIL ENGINEERING & LAND SURVEYING	Evaluator's Name Cameron Pridmore		Signature (Civil Eng	gineer, R.E.H.S. Geologist, Soil	Scientist)	
Mailing Address: 1607 Capell Valley Road			Telephone Numb (707) 815-0988	per		
City Napa	State Zip CA 945					
Primary Area		Expansion Area	<u>l</u>			
Acceptable Soil Depth: 76-84 in. Test p	oit #'s: 1, 2, & 3	Acceptable Soil Dept	h: 76-83 in. Tes	st pit #'s:4 & 5		
Soil Application Rate (gal. /sq. ft. /day): 0.3	33	Soil Application Rate	(gal. /sq. ft. /day): (0.33		
System Type(s) Recommended: Conve	entional	System Type(s) Reco	ommended: Cor	nventional		
Slope: 1 % Distance to nearest water	er source: >100 ft.	Slope: 1 %. Di	istance to nearest v	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:						

Test Pit # 1

PLEASE PRINT OR TYPE ALL INFORMATION

					C	onsistenc	e			
Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Side Wall	Ped	Wet	Pores	Roots	Mottling
0-84	ВОТ	10	CL	SAB	S	FRB	SS	CM	CF	NO

Test Pit # 2

					C	onsistenc	е			
Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Side Wall	Ped	Wet	Pores	Roots	Mottling
0-80	ВОТ	10	SCL	SAB	S	FRB	SS	CM	CF	NO
					·		·			

Test Pit # 3

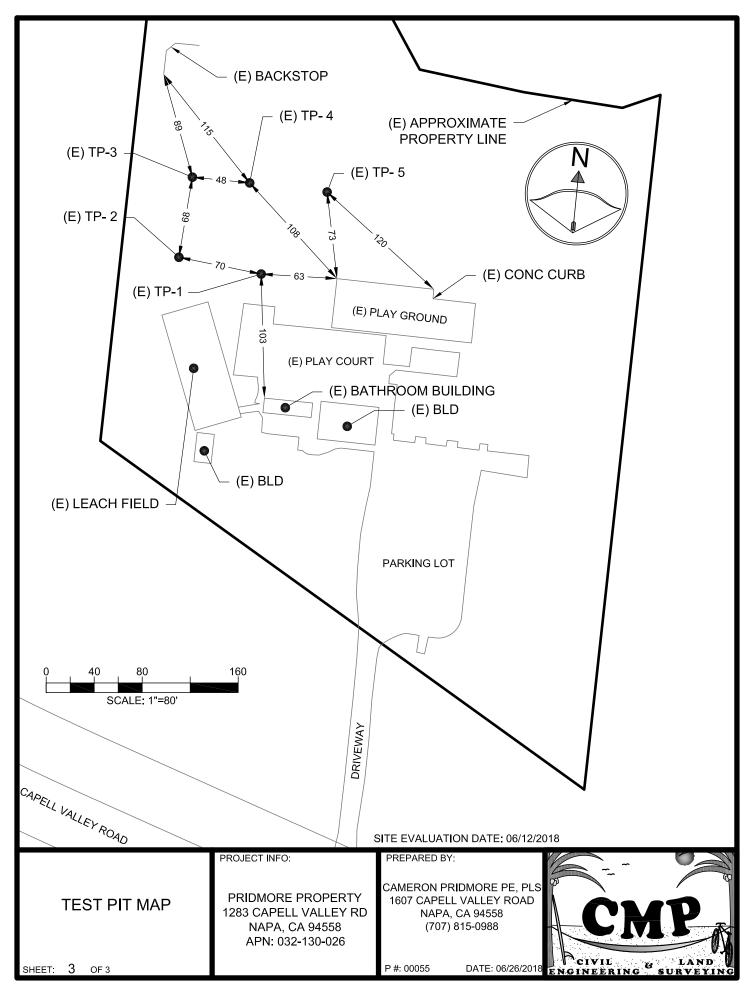
					C	onsistenc	е			
Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Side Wall	Ped	Wet	Pores	Roots	Mottling
0-76	вот	10	CL	SAB	S	FRB	SS	CM	CF	NO

Test Pit # 4

					C	onsistenc	е			
Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Side Wall	Ped	Wet	Pores	Roots	Mottling
0-83	ВОТ	10	CL	SAB	S	FRB	SS	CM	CF	NO

Test Pit # 5

					O	onsistenc	e			
Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Side Wall	Ped	Wet	Pores	Roots	Mottling
0-76	вот	10	CL	SAB	S	FRB	SS	CM	CF	NO



WASTEWATER PLAN

ABBREVIATIONS

EDGE OF TRAVELED WAY

END VERTICAL CURVE

FIRE HYDRANT

GRATE ELEVATION

INVERT ELEVATION

ORNAMENTAL TREE

PROPERTY LINE
PRIVATE STORM DRAIN ESMT

UTILITY JUNCTION POLE

FIELD INLET

HIGH POINT

REINFORCED CONCRETE PIPE RELATIVE DENSITY

REQUIRED

SLOPE

SQUARE FEET

SSLAT SANITARY SEWER LATERAL

TOP OF WALL

WM WATER METER

PROPERTY LINES:

THE PROPERTY LINES SHOWN HEREON ARE BASED ON PRELIMINARY

SURVEY DATA, AND ARE FOR REFERENCE ONLY. THIS IS NOT A

BOUNDARY SURVEY MAP AND SHOULD NOT BE USED AS SUCH.

VERTICAL CURVE INTERSECTION WLAT WATER SERVICE LATERAL

UNDER GROUND ELECTRICAL

ASPHALT CONCRETE

AIR RELIEF VALVE

BEGINNING POINT

DUCTILE IRON PIPE

END CURB RETURN

EDGE OF PAVEMENT

UNAUTHORIZED CHANGES & USES:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE

THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND

FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF

MUST BE APPROVED BY THE DESIGNER OF THESE PLANS.

END CURVE

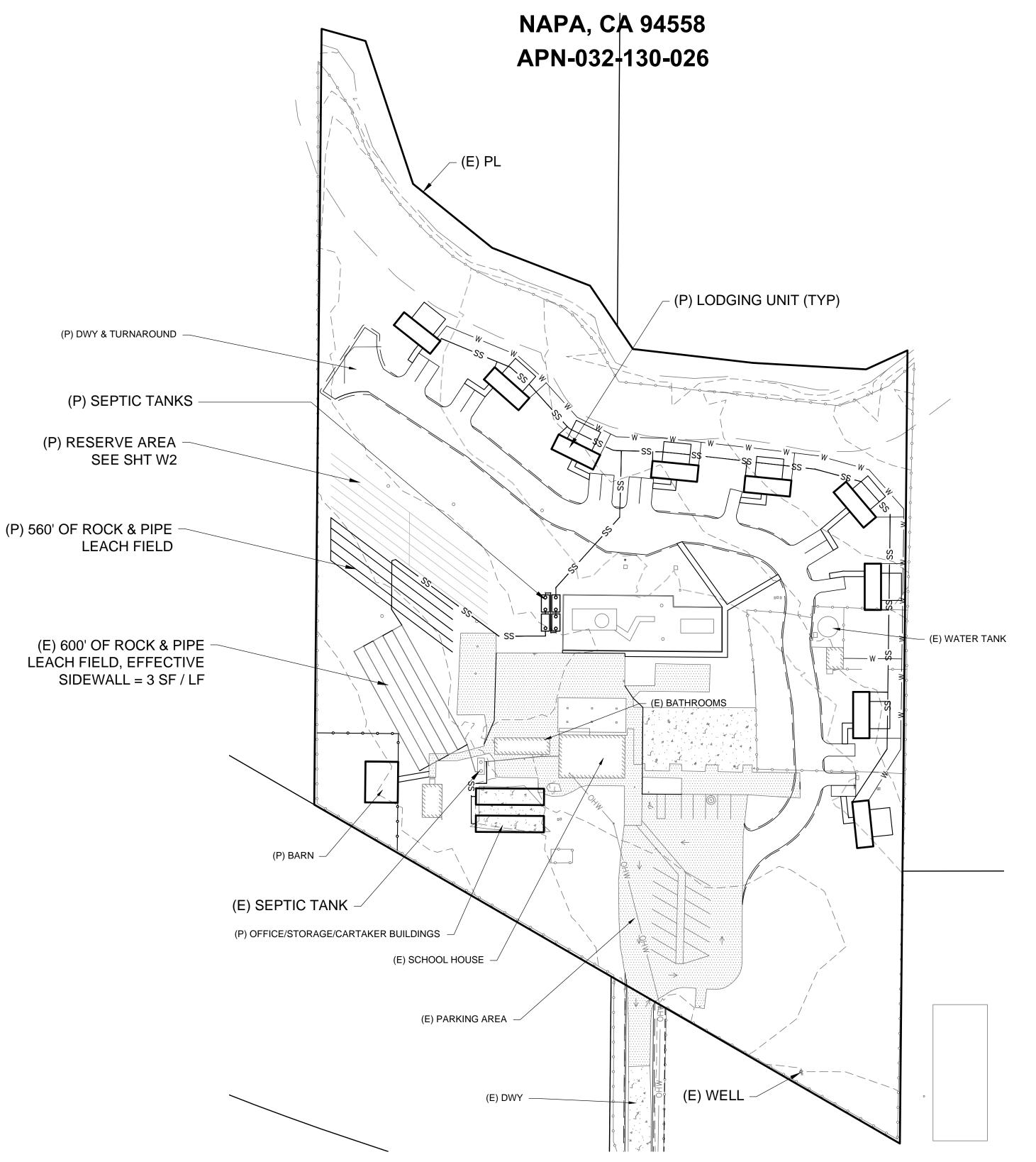
BEGIN VERTICAL CURVE

BEGIN CURVE

FOR

THE PRIDMORE PROPERTY (FORMALLY CAPELL VALLEY SCHOOL)

LOCATED AT
1191 CAPELL VALLEY ROAD



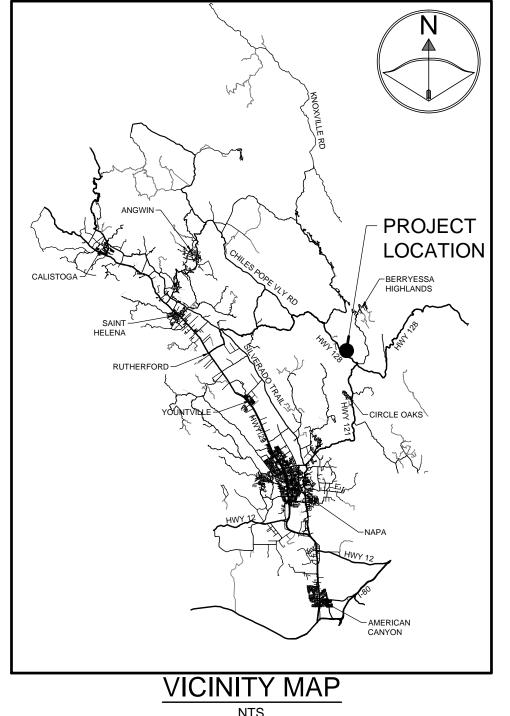
HORIZONTAL & VERTICAL DATUM:

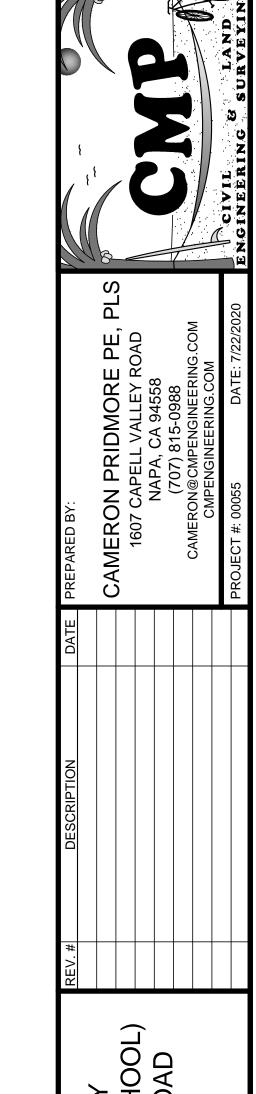
THE HORZ. AND VERT. DATUM ARE ASSUMED

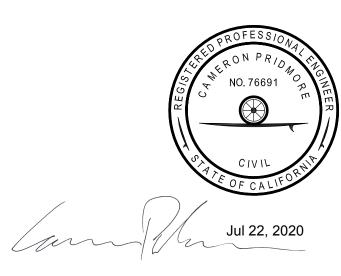
THE SURVEY INFORMATION IS BASED ON A FIELD SURVEY

PERFORMED BY CMP CIVIL ENGINEERING AND LAND SURVEYING IN

MARCH OF 2017 CONTOURS ARE AS FOLLOWS: MAJOR = 5' MINOR = 1'.







SHEET INDEX

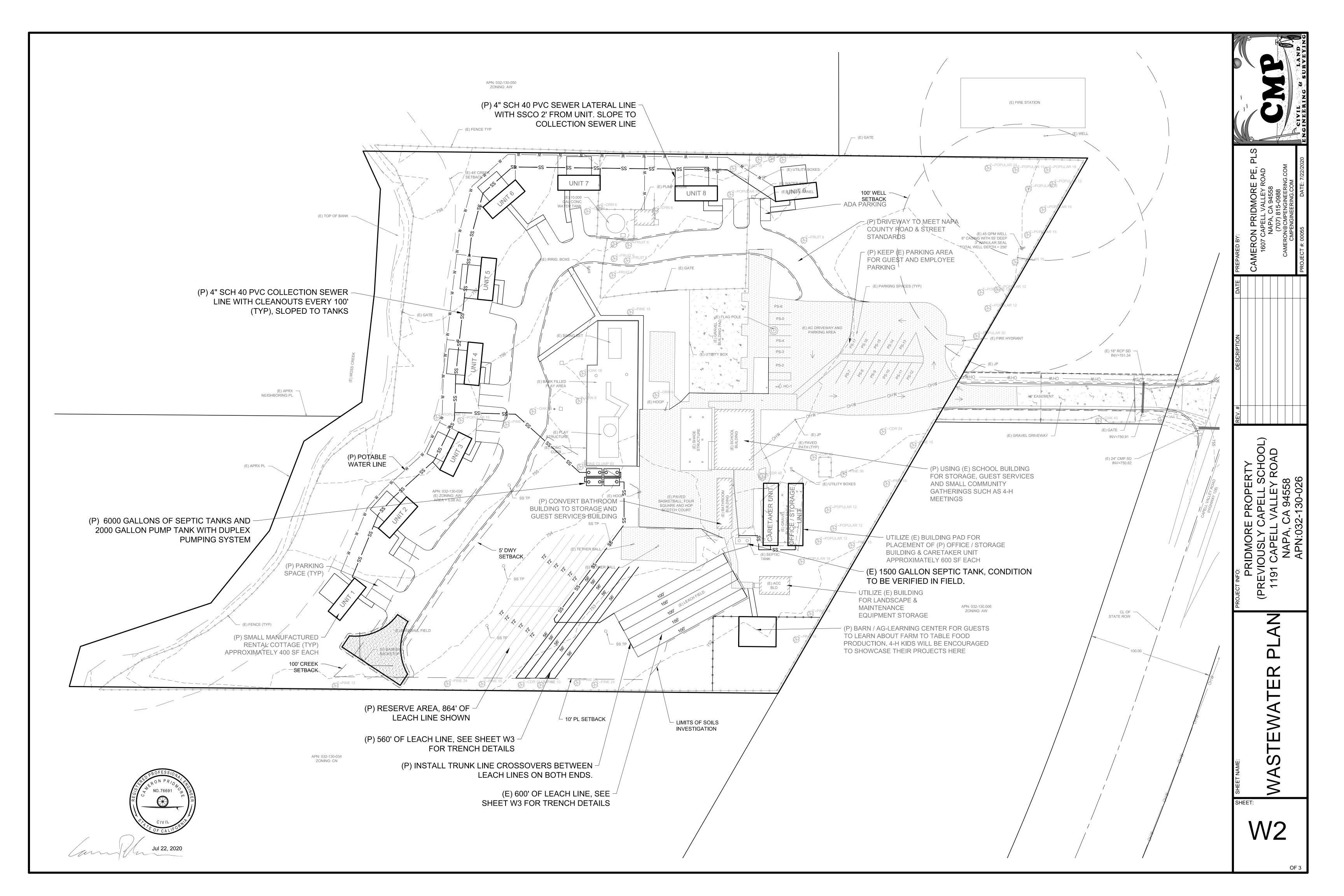
<u>SHT. #</u>	DESCRIPTIO
W1	TITLE
W2	WASTEWATE

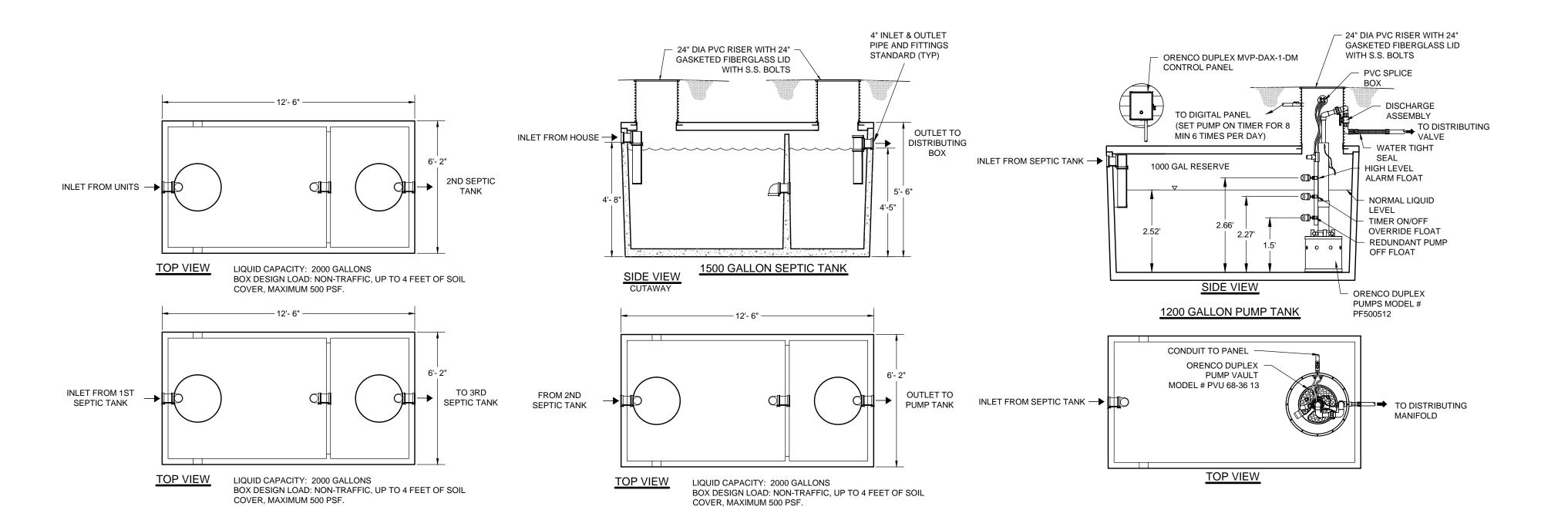
W2 WASTEWATER PLAN
W3 NOTES & DETAILS

SHEET NAME:

W1

OF 3





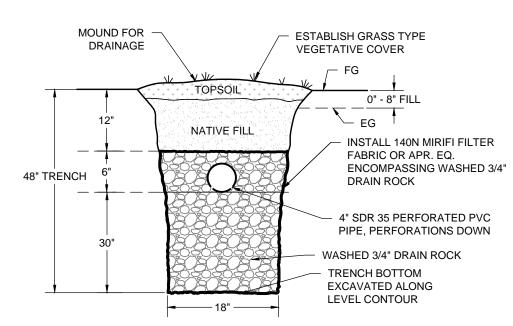
FOR COMPLETE DESIGN AND PRODUCT INFORMATION CONTACT

SEPTIC TANK DETAIL

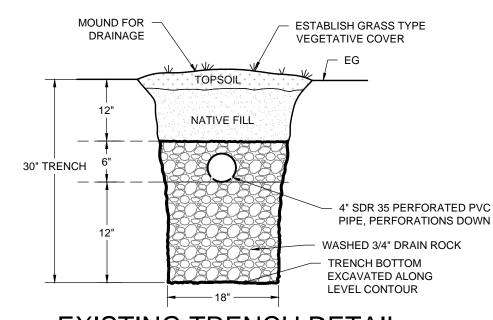
SELVAGE SEPTIC TANK

NO SCALE

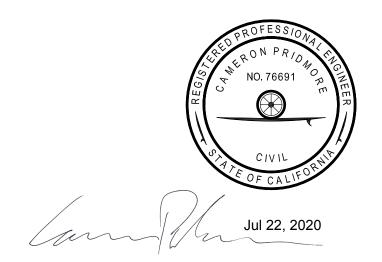
SELVAGE CONCRETE PRODUCTS INC.

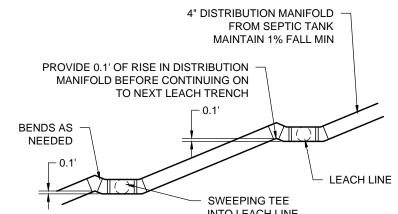


PROPOSED TRENCH DETAIL NO SCALE



EXISTING TRENCH DETAIL





EXISTING PRIMARY STANDARD WASTEWATER CALCULATIONS 1. SOIL TYPE IS SAND CLAY LOAM TO CLAY LOAM WITH STRONG ANGULAR BLOCKY STRUCTURE

- BASED ON SOIL TYPE THE INFILTRATION RATE = $\underline{1/3}$ GAL/SF/DAY USING THE EXISTING TRENCH DETAIL THE NET ABSORPTION AREA PER LINEAR FOOT OF
- TRENCH = 3 SF/LF

 THE TOTAL LENGTH OF THE EXISTING LEACH LINES IS 600 LF.

 THE TOTAL PEAK FLOW THE EXISTING LEACH LINES CAN HANDLE IS =1/3 X 3 X 600 = 600
- GAL/DAY
 THE PROPOSED PROJECT WILL HAVE A PEAK FLOW OF 1712 GAL/DAY OF THIS, 600 GAL/DAY
 WILL BE TREATED BY THE EXISTING LEACH FIELD AND THE REMAINING 1064 GAL/DAY WILL BE TREATED BY THE PROPOSED LEACH FIELD.

PROPOSED PRIMARY STANDARD WASTEWATER CALCULATIONS 1. SOIL TYPE IS SAND CLAY LOAM TO CLAY LOAM WITH STRONG ANGULAR BLOCKY STRUCTURE 2. BASED ON SOIL TYPE THE INFILTRATION RATE = 1/3 GAL/SF/DAY

- USING THE PROPOSED ROCK AND PIPE TRENCH DETAIL THE NET ABSORPTION AREA PER LINEAR FOOT OF TRENCH = $\underline{6}$
- SF/LF
 4. THE PEAK FLOW RATE TO BE TREATED BY THIS SYSTEM IS = 1064 GAL/DAY
 5. THE MINIMUM TOTAL LENGTH OF TRENCH REQUIRED TO TREAT THE EXPECTED EFFLUENT IS 1112 GAL/DAY / [(1/3 GAL/SF/DAY) X (6 SF/LF)] = 532 LF

- STANDARD RESERVE WASTEWATER CALCULATIONS

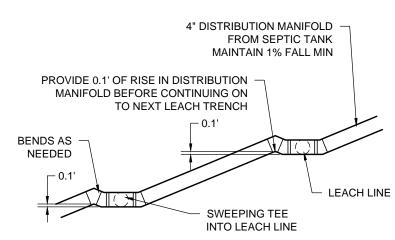
 1. SOIL TYPE IS SAND CLAY LOAM TO CLAY LOAM WITH STRONG ANGULAR BLOCKY STRUCTURE

 2. BASED ON SOIL TYPE THE INFILTRATION RATE = 1/3 GAL/SF/DAY

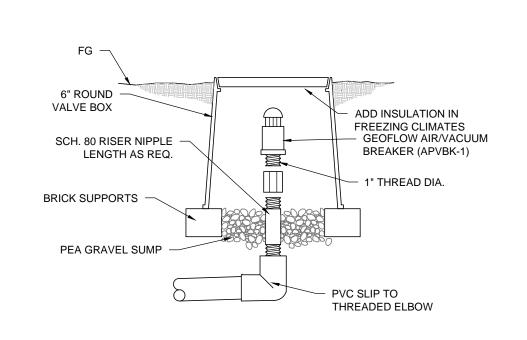
 3. USING THE PROSED ROCK AND PIPE TRENCH DETAIL THE NET ABSORPTION AREA PER LINEAR FOOT
- OF TRENCH = 6 SF/LF

 4. THE PEAK FLOW RATE TO BE TREATED BY THE RESERVE SYSTEM IS = 1664 GAL/DAY

 5. THE MINIMUM TOTAL LENGTH OF TRENCH REQUIRED TO TREAT THE EXPECTED EFFLUENT IS 1664 GAL/DAY / [(1/3 GAL/SF/DAY) X (6 SF/LF)] = **832 LF**



DISTRIBUTION MANIFOLD DETAIL



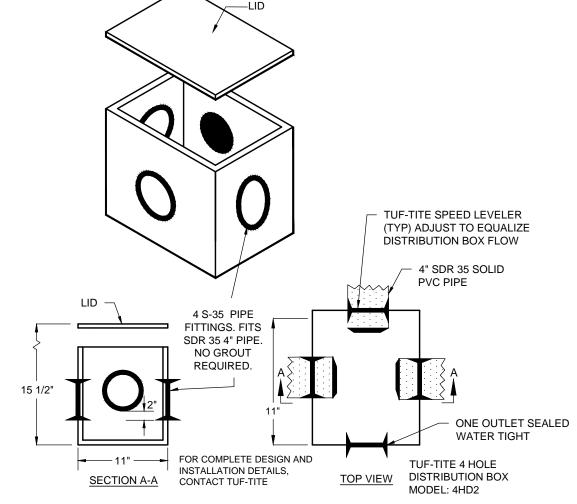
FOR COMPLETE DESIGN AND PRODUCT INFORMATION CONTACT SELVAGE CONCRETE PRODUCTS INC. AND ORENCO SYSTEMS INC.

PUMP TANK DETAIL

SELVAGE PUMP TANK

NO SCALE

GEOFLOW AIR-RELIEF VALVE (ARV)



TUF-TITE 4 HOLE

V SHEET:

OF 3