

A.M. BAIRD

ENGINEERING & SURVEYING, INC.

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CONSULTING - LAND DEVELOPMENT - DESIGN - SURVEYING

**SEPTIC DISPOSAL DESIGN
LOW PRESSURE PIPE DISTRIBUTION SYSTEM
ONSITE WASTEWATER TREATMENT**

**PRIMARY AND RESERVE FIELDS FOR A
PROPOSED 2-BEDROOM RESIDENCE**

PREPARED FOR:

Aurel Coza
634 & 644 Blueridge Road
Whitethorn, CA 95589
APNs: 110-251-037 & 110-251-038
Block 199 , Lots 31 & 32
Humboldt County

PREPARED BY:

ALLAN M. BAIRD, RCE 23681



December 27, 2023
Job# 23-6059



CONTENTS

Introduction.....	1
Site Description.....	1
Site Investigation	1
Soil Conditions.....	2
Groundwater	2
Design Results	2
Septic Tank.....	3
Pump / Dosing Tank.....	3
Force Main.....	3
Aggregate.....	4
Dispersal Fields	4
Effluent Pump.....	4
Effluent Pumping.....	4
Floats	6
Electrical.....	6
Observation Wells	6
References.....	7
Appendix.....	7
Design Summary	8
Topographic Map	9
Assessor’s Parcel Map.....	10
Site Plan.....	11
Soil Profile, Test Hole #1	12
Soil Texture, Test Hole #1.....	13
Soil Chart.....	14
Percolation Test Results	15
Pump Curve.....	16
Pump Data	17
Pump Performance	18
County of Humboldt Observation Well Detail.....	19
County of Humboldt Minimum Setbacks for Septic Tanks and Dispersal Fields.....	20



Building Official
County of Humboldt Building Department
3015 H Street
Eureka, California 95501

Environmental Health Official
County of Humboldt Department
of Environmental Health
100 "H" Street, Suite 100
Eureka, California 95501

RE: Design for a shallow pressurized Onsite Wastewater Treatment System (OWTS)
Client: Aurel Coza
Site Address: 634 & 644 Blueridge Road, Whitethorn, CA 95589
Site APN: 110-251-037 & 110-251-038
Site Coordinates, Parcel Centroid (WGS84): 40.0280 (latitude) , -124.0457 (longitude)

Introduction

Representatives from A.M. Baird Engineering performed a site investigation on March 30, 2023 at the above referenced parcel in the coastal community of Shelter Cove, California to collect requisite data to design a non-conventional on-site wastewater treatment system for a proposed two bedroom residence. Agents from the County of Humboldt Department of Environmental Health were present during the site visit. This report is furnished to satisfy criteria required by the County of Humboldt as outlined by Title VI, Division 1, Chapter 6, Section 612-2 of the Humboldt County Code.

Site Description

The coastal community of Shelter Cove is located on Point Delgada on the Pacific Ocean approximately 82 land miles south-southeast of Eureka, and approximately twenty-five road miles southwest of Garberville. The subject property is located in a moderate-instability area on the southerly slopes of the Coast Range Mountains approximately 1,360 feet in elevation above Mean Sea Level (MSL). The subject property is designated as Lots 37 and 38 of Block 199 of the Shelter Cove Subdivision and encompasses an aggregate area of approximately 0.55 acres along the west facing slope of Blue Ridge Road. The property is largely wooded with a clear view of the Pacific Ocean. Slopes on both parcels are in excess of 30% throughout most of the landscape with a flat area near the middle of the southernmost parcel (APN: 110-251-038). The southernmost parcel is the most buildable with respect to an onsite wastewater treatment system; however, the merger of both parcels is likely required to meet appropriate septic dispersal field sizing requirements and site spatial conditions. The lot is served by the Resort Improvement District of Shelter Cove for municipal water supply. The property is located approximately 3,600 feet west of the Alquist-Priolo Fault in the Coastal Zone of Shelter Cove. The parcel is approximately 6,800 feet east of the Shelter Cove Airport runway and is not located within an Airport Compatibility Safety Zone.

Site Investigation

During the site investigation, one trench, ten feet in depth, was excavated adjacent to the flat area near the middle of the parcel. Both specialists onsite agreed that the single sampling location would be representative of both the primary and reserve fields, as both fields will be in close proximity to the sampling location. The test hole revealed three distinct soil horizons within the examined depth. The first soil horizon was dark brown sandy loam from the existing grade to approximately



32 inches below grade. The second soil horizon was yellowish brown sandy clay loam mixed with small to medium sized angular rock from approximately 32 inches below grade to approximately 53 inches below grade. The third soil horizon was light yellowish brown sand clay loam mixed with small to medium sized angular rock from approximately 53 inches below grade to the bottom of the test hole. The second soil horizon appeared to be the most restrictive as field texturing showed a higher clay content than the other two. Field texturing was performed on site, no signs of groundwater were observed. Laboratory analyses were performed on a sample taken from approximately 48 inches below grade in the most restrictive layer; the results are appended.

Soil Conditions

Soil sampling at TH#1 revealed single-grain, Zone 2 dark brown sandy loam (Munsell color 10 YR 3/3) from approximately 0.5 feet in depth to approximately 2.75 feet in depth with a coarse content of approximately 25% consisting of gravel and small angular rock. The soil is loose when moist and non-sticky when wet with no plasticity. No soil mottling or oxidation was observed within the first 2.75 feet.

In the second soil horizon, the soil is single-grain, Zone 2 yellowish brown sandy clay loam (Munsell color 10 YR 5/6) from approximately 2.75 feet in depth to approximately 4.25 feet in depth with a coarse content of approximately 45% consisting of gravel and small angular rock. The soil is very friable when moist and slightly sticky when wet with slight plasticity. No soil mottling or oxidation was observed within the first 4.25 feet.

In the last soil horizon, the soil is single-grain, Zone 2 light yellowish brown sandy loam (Munsell color 10 YR 6/4) from approximately 4.25 feet in depth to the bottom of the test pit with a coarse content of approximately 45% consisting of gravel and small angular rock. The soil is very friable when moist and slightly sticky when wet with slight plasticity. No soil mottling or oxidation was observed in the test hole. The soil profile, textural analysis and soil chart are appended.

The steady-state percolation rate was found to be approximately 2.5 minutes per inch (see percolation test results, appended).

Groundwater

No groundwater, soil mottling or any redoximorphic features were observed during this soils investigation.

Design Results

An appropriate percolation rate for a standard gravity OWTS is between 5 minutes per inch and 60 minutes per inch; therefore, this site is unsuitable for a standard gravity OWTS due to the rapid percolation rate. A non-standard, low-pressure pipe (LPP) dosing system was selected as the appropriate method of wastewater treatment for this project. The non-standard LPP OWTS allows for a shallow trench depth; therefore, the leach lines can be placed closer together than those in a standard system. The non-standard LPP OWTS requires the use of a pump chamber, effluent pump and electrical appurtenances to achieve uniform discharge of effluent into a dispersal area. Because of the increased oversight and maintenance necessary, Humboldt County maintains an operating permit and inspection program for all non-standard OWTS. HCC Title VI Division 1



Chapter 6 sets forth requirements for the program. Upon installation of a non-standard OWTS, a property owner will receive notification of enrollment in the program. An inspection once every three years is required to maintain an operating permit to confirm proper operation.

Septic Tank

A 1,200-gallon minimum capacity septic tank will be required for septic waste storage for the proposed 2-bedroom residence with a loading rate of 300 gallons per day. It is recommended that all surface water drainage from surrounding structures be diverted away from the location of the septic tank.

Pump / Dosing Tank

A 500-gallon minimum capacity pump tank will be required for septic waste distribution for the proposed 2-bedroom residence with a loading rate of 300 gallons per day. All surface water drainage from surrounding structures should be diverted away from the location of the pump tank.

Force Main

A force main of SCH 40 PVC, 2.0 inches in diameter and approximately 10 feet in length will extend from the pump tank to the manifold connected to the primary absorption field.

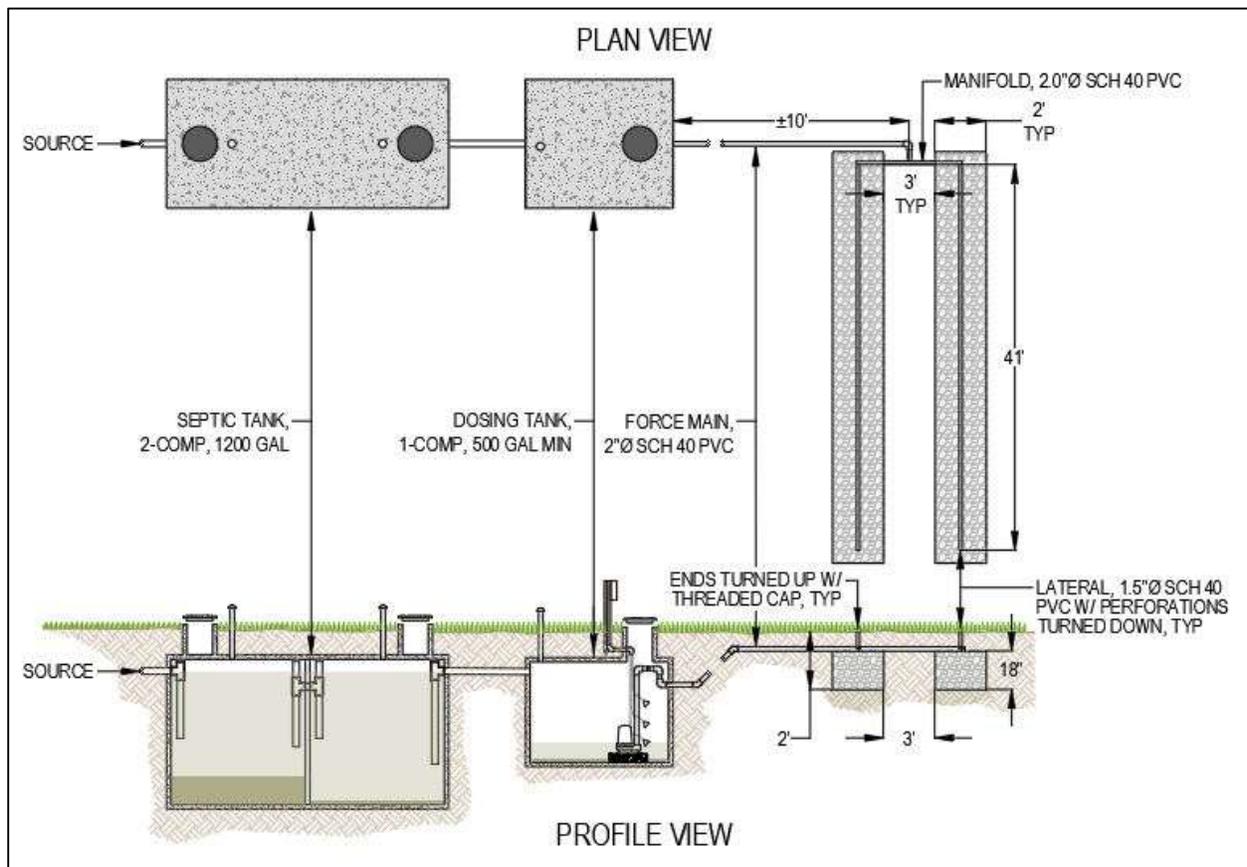


Figure 2: Low-pressure pipe dosing septic system.



Aggregate

The aggregate used for this project shall be washed pea gravel, D50=0.375-inches, or an approved equal by the engineer.

Dispersal Fields

Leach Lines: Leach line used for this project shall be SCH 40 PVC, 1.5 inches in diameter. Each leach line shall be perforated on one side with holes 5/32" in diameter, spaced 5 feet apart. The holes shall face down into the aggregate when each leach line is placed in the dispersal field. All non-threaded fittings shall be bonded using PVC primer and cement. The minimum required length of leach line to treat effluent from the proposed 2-bedroom residence is 82 feet; therefore, two leach lines 41 feet in length are recommended for this project. Leach lines should be placed parallel to contour lines and shall observe all setbacks listed in "Minimum Setbacks for Septic Tanks and Disposal Fields" (attached). Leach lines cannot be placed under driveways and must be set back at least 25 feet from any slope dropping over 30% and 10 feet from structural foundations and property lines. It is recommended that all surface water drainage from surrounding structures be diverted away from the location of the sewage disposal fields. The terminal end of each leach line shall be fitted with a clean-out with a screw on cap.

Primary and Reserve Dispersal Fields: Trenches shall be 2.0 feet deep with septic leach lines at a depth of 0.5 feet below grade spaced 5.0 feet apart on center with 1.5 feet of washed pea gravel below all leach lines. Both primary and reserve dispersal field designs consist of 2 laterals, each lateral is 41 feet in length, totaling 82 feet of leach line for each design.

Effluent Pump

This non-standard OWTS requires the use of a pump to convey effluent downhill, with an elevation drop of approximately 4 feet, through a force main, approximately ten feet in length to a manifold that feeds the proposed dispersal field. The force main and the manifold are PVC pipe, 2.0 inches in diameter. As the dispersal field is down gradient from the pump tank, the effluent pump must only provide enough head to overcome the friction losses in the system during the pumping cycle while producing 3 feet of head at the end of the pressurized system. Friction loss for the selected pipe size is approximately 2.6 ft per 100 feet of pipe flowing at 20 gallons per minute. Appurtenances account for approximately 39 feet of equivalent pipe length. The effluent pump must provide approximately 1.3 feet of hydraulic head flowing at 20 gallons per minute. The submersible effluent pump selected for this project is a Gould WE-03L, with 0.3 horsepower at 1750 rpm, or an appropriate alternative approved by the engineer (see attached sheets: Pump Curve, Pump Data, Pump Performance).

Effluent Pumping

The proposed system performance was evaluated with respect to pump performance and the proposed network flow rate. The recommended dosing volume for this system is 100 gallons, prompting three pumping cycles per day for the expected design load. The effluent pumping cycle must be set so the pump is efficiently employed, the floats are placed at a functional elevation, and enough volume is left in the pumping chamber for backflow in the event of system failure. The set-up of the float switches in the pumping chamber is as follows,



The functional elevation of each float is dependent on the dimensions of the particular pump tank selected for the project. The volume between the pump-on float and the pump-off float must equal the dosing volume. The volume between the high-water alarm float and the pump chamber inlet must provide at least an average day's design flow.

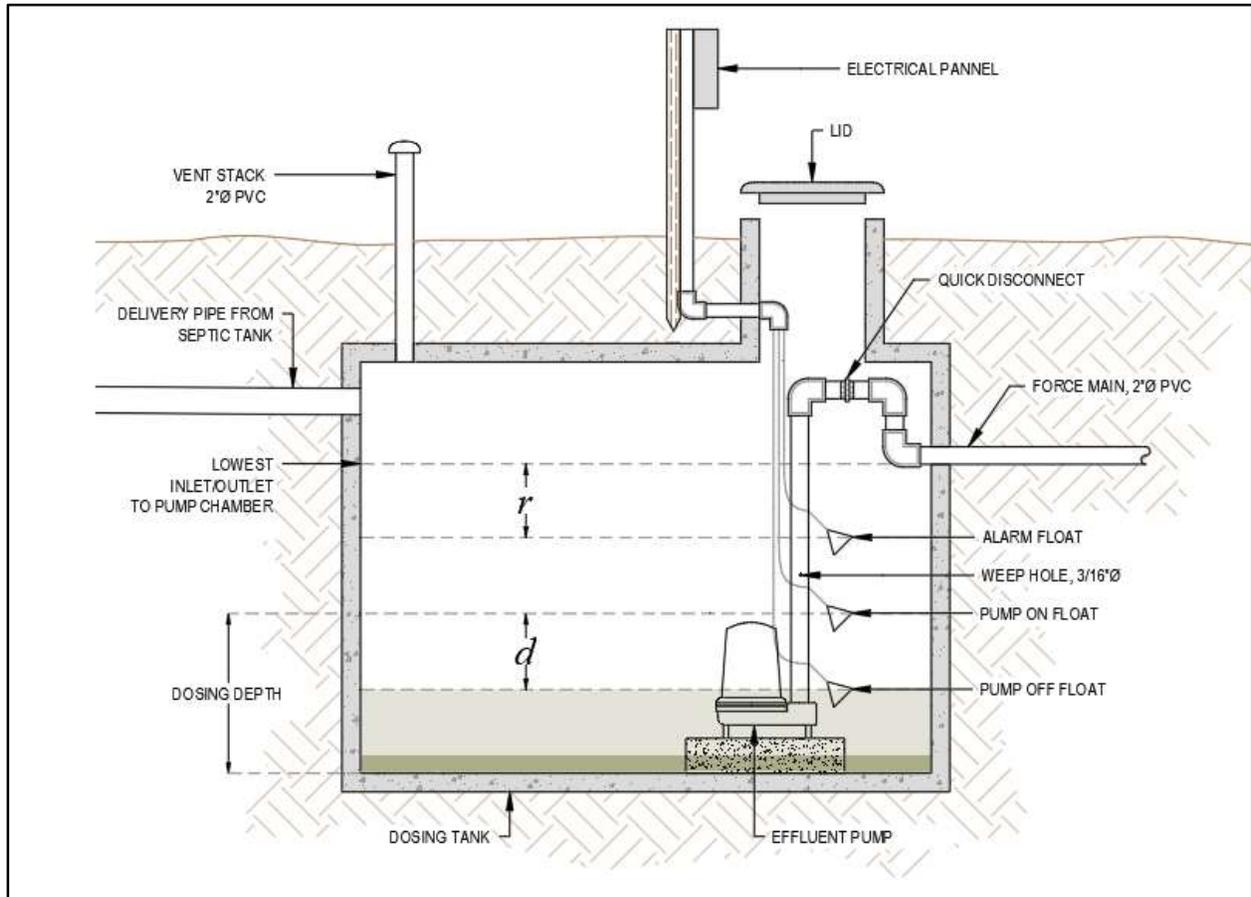


Figure 2: Dosing chamber for a low-pressure dosing septic system.

Equation (1) is used to calculate the distance between the pump-on float and pump-off float,

$$d = \frac{231 * D}{A} \quad (1)$$

Where,

- d = Distance between pump-on and pump-off floats (inches).
- 231 = Conversion, cubic inches per gallon.
- D = Dosing volume (gallons) = 100 gallons for this project.
- A = Cross-sectional area of the pumping chamber interior (square inches).

Equation (2) is used to calculate the distance between the high-water alarm switch and the pump chamber inlet,

$$r = \frac{231 * R}{A} \quad (2)$$



Where,

- r = Distance in between the pump chamber inlet and high-water alarm (inches).
231 = Conversion, cubic inches per gallon.
 R = Reserve capacity, one day's flow (gallons) = 300 gallons for this project.
 A = Cross-sectional area of the pumping chamber interior (square inches).

It is recommended that a small weeping hole (3/16-inches in diameter) be drilled in the supply line between the pump and the point where the supply line exits the tank in order to relieve standing effluent over the pump before it begins each pumping cycle.

Floats

Floats should be attached to a dedicated float tree that can be removed from the pump pit independent of the pump. Floats should not be hung from the discharge piping. Floats attached to trees with inappropriate straps that are prone to fatigue and failure in the pump pit environment can result in floats becoming detached and premature pump failure. Drilling through a dummy pipe and knotting the float wire on each side of the pipe provides a fail-safe attachment.

Electrical

An electrical panel should always be used. This provides for greater safety since it is not necessary for the entire electrical current energizing the pump to be fed through the floats. It also provides for easier troubleshooting of the system, allows emergency operation capability in the event of float failure and allows for the use of timed dosing to enhance a system's treatment and hydraulic performance. The high-level alarm float should be wired on a circuit separate from the pumping system.

Observation Wells

At least, three (3) permanent observation wells of a depth equal to the proposed leach trench shall be placed as follows: (1) centered 10' upslope of the pressure line with the highest elevation, (2) centered 75% down the dispersal field, (3) centered 25' downslope of the pressure line with the lowest elevation (see Observation Well detail, appended).



References

Cogger, C. , Carlile, B., Osborne, D. (1982). Design and Installation of Low-Pressure Pipe Waste Treatment Systems. Department of Soil Science, North Carolina University. UNC Grant College Publication UNC-sg-82-03.

DHHS (2017). Humboldt County Onsite Wastewater Treatment System (OWTS) Regulations and Technical Manual. Humboldt County Department of Health and Human Services, Department of Environmental Health.

Appendix

- Design Summary
- Topographic Map
- Assessor's Parcel Map
- Site Plan
- Soil Profile Test Hole #1
- Soil Texture Test Hole #1
- Soil Chart
- Percolation Test Results
- Pump Curve
- Pump Data
- Pump Performance
- Observation Well Detail
- Minimum Setbacks for Septic Tanks and Disposal Fields



DESIGN SUMMARY - SITE EVALUATION REPORT INDIVIDUAL SEWAGE DISPOSAL SYSTEM

<u>DATE:</u>	12-27-2023	<u>OWNER:</u>	Aurel Coza
<u>AP#:</u>	110-251-037 & 110-251-038	<u>CLIENT:</u>	Aurel Coza
<u>WATER SUPPLY:</u>	Public	<u>MAIL:</u>	4704 E. Eurelid Ave.
<u>SITE ADDRESS:</u>	634 & 644 Blueridge Rd.	<u>CITY:</u>	Phoenix Az. 85044
<u>SITE CITY:</u>	Whitethorn, CA 95589	<u>PHONE:</u>	-

SINGLE FAMILY RESIDENCE - NO. OF BEDROOMS (LOADING RATE): **2 (300 GPD)**

	PRIMARY FIELD	&	RESERVE FIELD
<u>LOCATION:</u>	TH#1		TH#2
<u>SLOPE:</u>	5%		5%
<u>DEPTH:</u>	5 Feet		5 Feet
<u>TEXTURE ZONE:</u>	Zone 2		Zone 2
<u>USDA CLASS:</u>	Sandy Clay Loam		Sandy Clay Loam
<u>STABILIZATION RATE:</u>	2.5 min/inch		2.5 min/inch
<u>DEPTH TO WATER TABLE:</u>	No groundwater observed		No groundwater observed

LOW PRESSURE PIPE DISTRIBUTION SYSTEM (LPP)

<u>DEPTH OF PIPE:</u>	0.5 ft
<u>DEPTH OF GRAVEL (D):</u>	1.5 feet below pipe
<u>TRENCH WIDTH (W):</u>	2.0 feet

HUMBOLDT COUNTY OWTS LAMP REGULATIONS (TABLE 2)

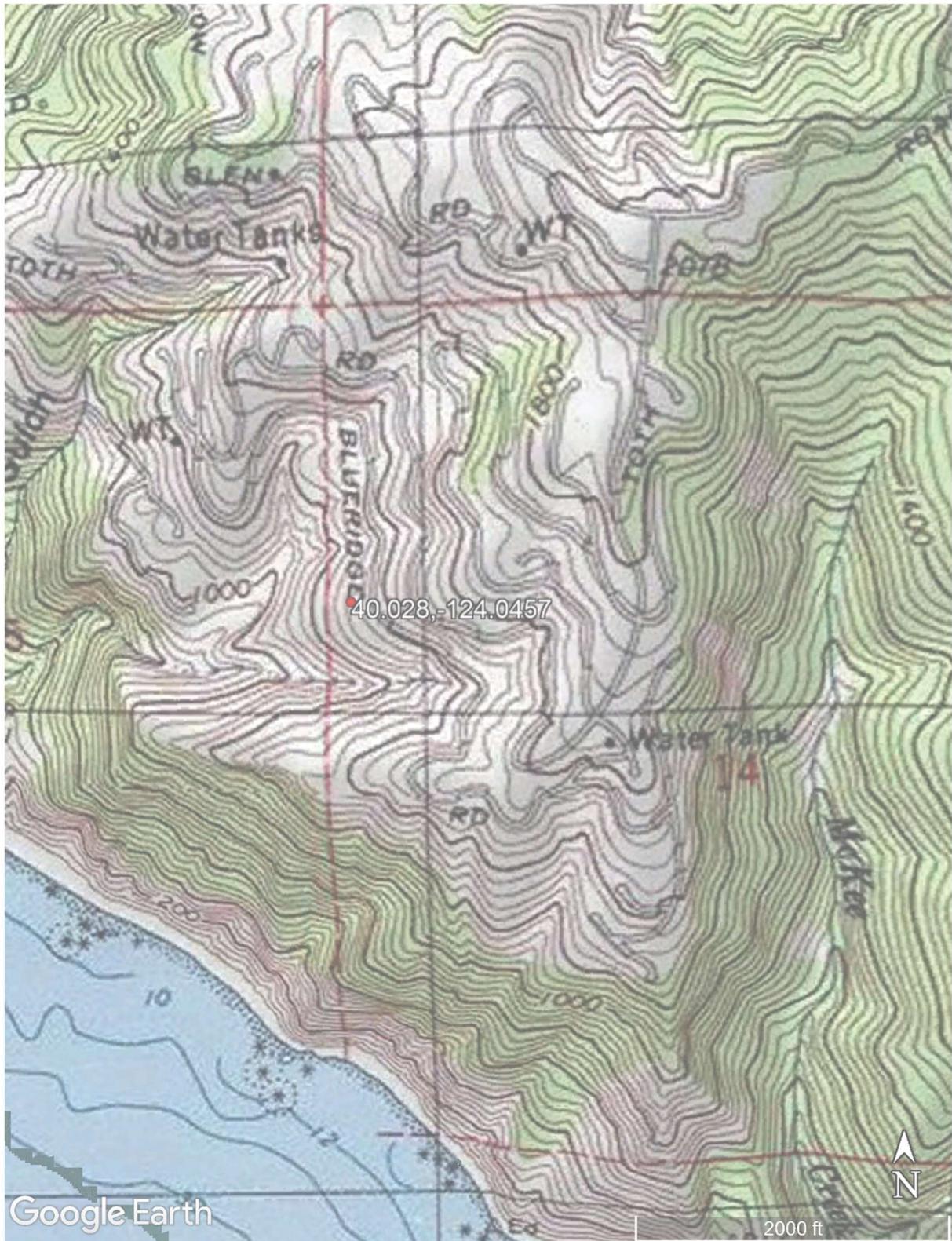
Primary linear length of system required: Flow/App Rate/Abs Area = 300/0.732/5.0 = **81.97 feet**
Reserve linear length of system required: Flow/App Rate/Abs Area = 300/0.732/5.0 = **81.97 feet**

DESIGN SUMMARY: Primary & Reserve Field: LPP system with 10 ft 2"Ø PVC force main & (2) 41 ft 1.5"Ø PVC laterals = 82 total leach line length

DESIGN IS BASED ON TESTING RESULTS USING APPROVED PROCEDURES. THE ABOVE SAID PROPERTY COMPLIES WITH ALL STATE AND COUNTY REQUIREMENTS FOR AN ON-SITE SEPTIC SYSTEM



Topographic Map





Assessor's Parcel Map

Assessor's Map Bk. 110, Pg. 25
 County of Humboldt, CA.

POR. SECS. 14 T5S R1E

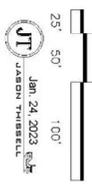
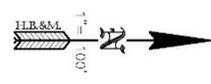
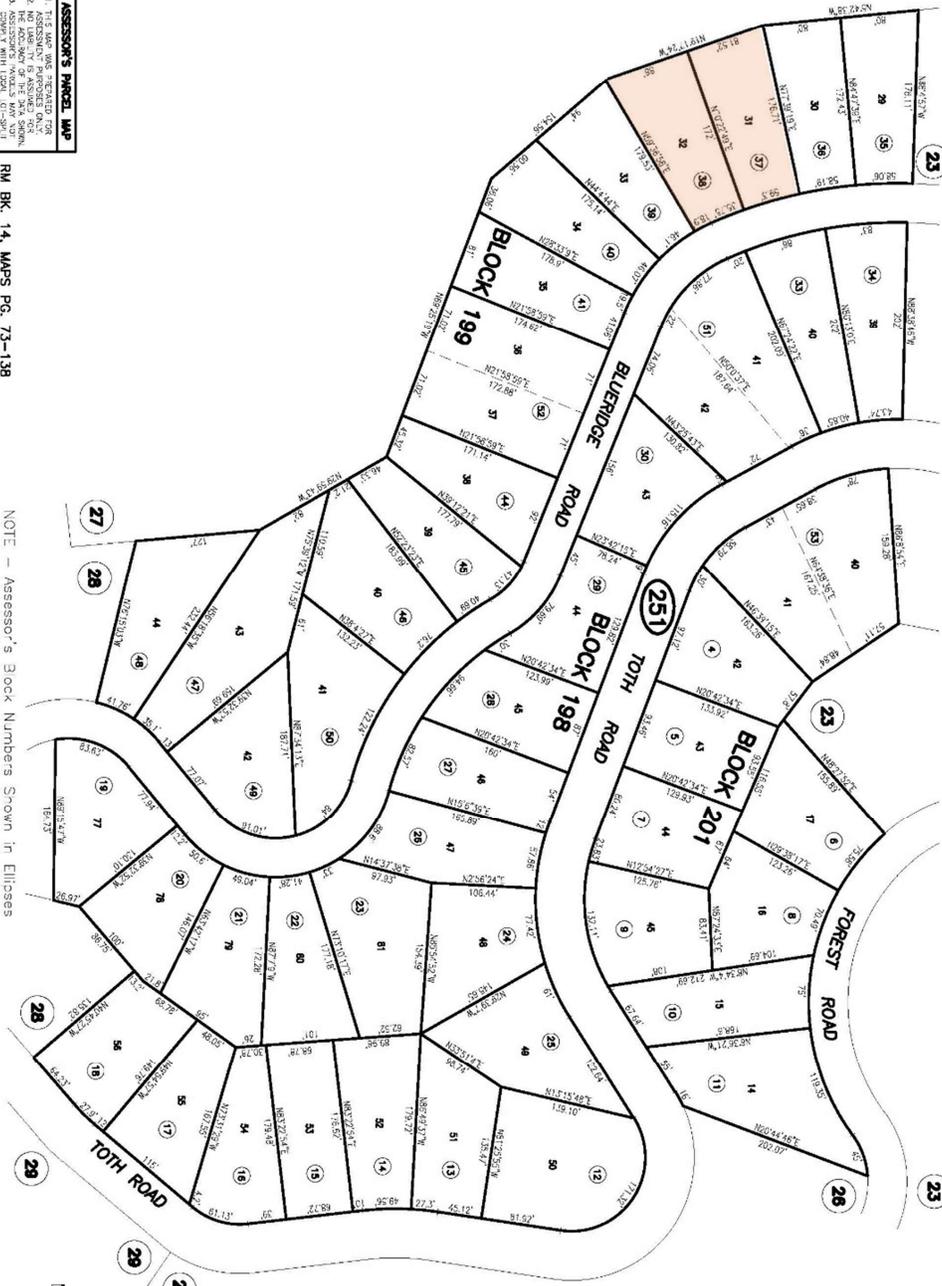
110-25

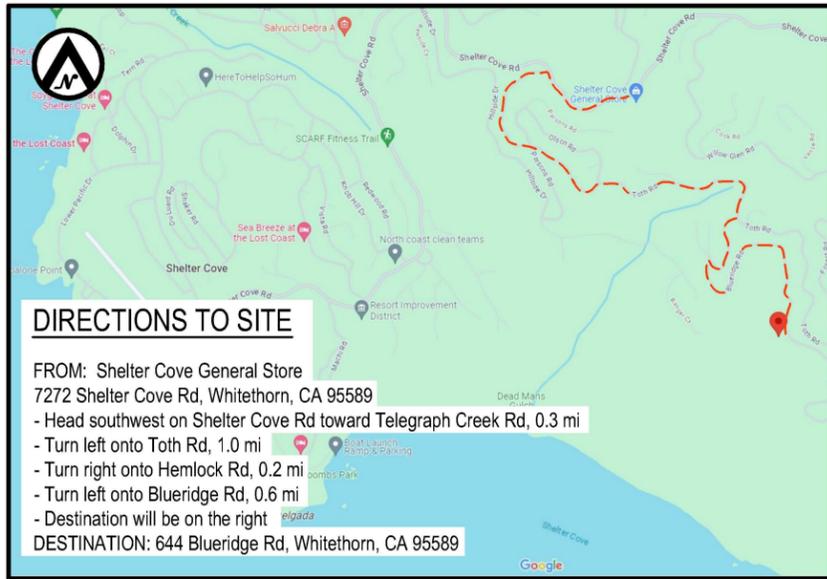


ASSASSOR'S PARCEL MAP
 1. THIS MAP WAS PREPARED FOR THE COUNTY OF HUMBOLDT BY THE ASSASSOR'S OFFICE.
 2. THE ASSASSOR'S OFFICE HAS CONDUCTED A VISUAL INSPECTION OF THE DATA SHOWN ON THIS MAP AND HAS FOUND IT TO BE CORRECT AND ACCURATE.
 3. THE ASSASSOR'S OFFICE HAS CONDUCTED A VISUAL INSPECTION OF THE DATA SHOWN ON THIS MAP AND HAS FOUND IT TO BE CORRECT AND ACCURATE.
 4. THE ASSASSOR'S OFFICE HAS CONDUCTED A VISUAL INSPECTION OF THE DATA SHOWN ON THIS MAP AND HAS FOUND IT TO BE CORRECT AND ACCURATE.
 5. THE ASSASSOR'S OFFICE HAS CONDUCTED A VISUAL INSPECTION OF THE DATA SHOWN ON THIS MAP AND HAS FOUND IT TO BE CORRECT AND ACCURATE.

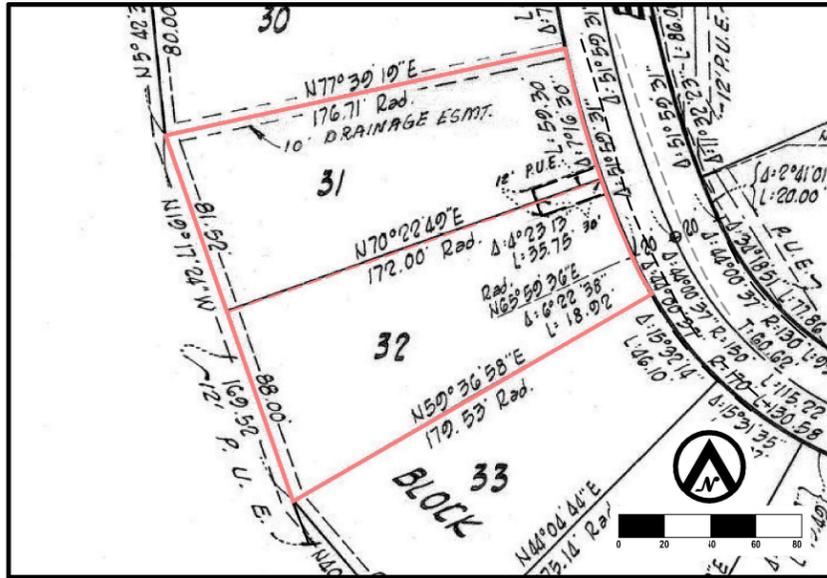
RM BK. 14, MAPS PG. 73-138
 RM BK. 15, MAPS PG. 64-116

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





VICINITY MAP
SCALE: NTS



PROPERTY MAP
SCALE: 1"=80'

LEGEND

- | | |
|------------------------------------------|--------------------|
| PROPERTY LINE | SOIL TEST LOCATION |
| BUILDING SETBACKS (F: 2', S: 5', R: 10') | EXISTING SLOPE |
| EXISTING ELEVATION CONTOUR, 10' | COMP. COMPARTMENT |
| EXISTING ELEVATION CONTOUR, 2' | ROW. RIGHT OF WAY |
| SEPTIC LEACH LINE | (E) EXISTING |
| | (P) PROPOSED |

PROJECT DESCRIPTION

JOB# 23-6059
PROPOSED (2) BEDROOM RESIDENCE W/ LPP
ON-SITE WASTEWATER TREATMENT SYSTEM.

APPLICANT

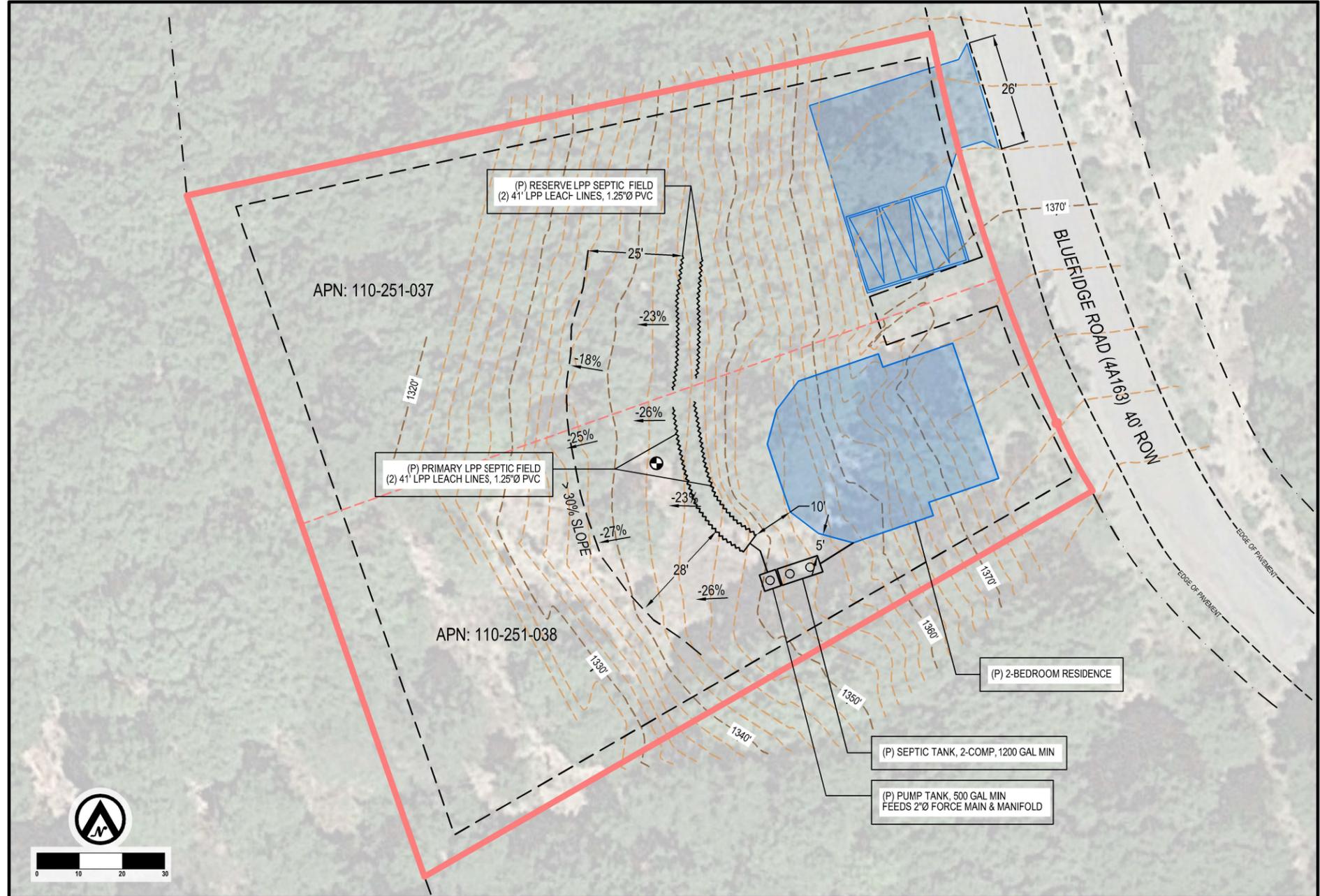
NAME:
Aurel Coza
MAILING ADDRESS:
4704 E. Eurelid Avenue, Phoenix AZ 85044
EMAIL:
aurel.coza@gmail.com

OWNER OF RECORD

NAME:
Aurel Coza
MAILING ADDRESS:
4704 E. Eurelid Avenue, Phoenix AZ 85044
EMAIL:
aurel.coza@gmail.com

PROPERTY DETAILS

ASSESSOR'S PARCEL NUMBER (APN):
110-251-037 & 110-251-038
SUBJECT PARCEL COORDINATES (WGS84)
40.0280 (latitude), -124.0457 (longitude)
PARCEL SIZE:
0.27 acres (110-251-037) + 0.28 acres (110-251-038) = 0.55 acres
ZONING:
RS-S-S1-Q/D
100-YR FLOOD ZONE:
NO



NOTES

1. SITE SERVED BY MUNICIPAL WATER SUPPLY.
2. NO KNOWN STREAM(S) OR WETLAND(S) IN DEVELOPMENT AREA.
3. NO HISTORICAL BUILDINGS OR KNOWN ARCHAEOLOGICAL OR PALEONTOLOGICAL RESOURCES IN DEVELOPMENT AREA.
4. GRADING: <50 CY - FOUNDATION PREPARATION AND MINOR DRIVEWAY GRADING ONLY.
5. GRADING, EXCAVATION, EROSION AND SEDIMENT CONTROL SHALL BE IN CONFORMANCE WITH THE COUNTY OF HUMBOLDT GRADING ORDINANCE COUNTY CODE SECTION 311-14.



A.M. BAIRD
ENGINEERING & SURVEYING, INC.
1257 MAIN STREET, P.O. BOX 396
FORTUNA, CA 95540 (707) 725-5182

SCALE: AS NOTED
DRAWN BY: CPL
CHKD: AMB
DATE: 12/26/2023

AUREL COZA
SITE ADDRESS: 634 & 644 BLUERIDGE ROAD, WHITETHORN, CA 95589
APNS: 110-251-037 & 110-251-038

SEPTIC SITE PLAN

JOB # 23-6059

SHEET #

11

DESCRIPTION
REVISIONS

DATE

BY



Soil Profile, Test Hole #1

DEPTH (ft)	DESCRIPTION	COLOR	SAMPLE DEPTH	SOIL CLASS
0	DRIED LEAVES, FOREST COVER			
-	TOP SOIL , ROOTS			LOAM
0.5				
-				
1.0				
-				
1.5	MUNSELL COLOR: 10 YR 3/3 - dark brown GRAVEL (%): ~25% ROOTS: first 30 inches STRUCTURE: Single Grain, crumb CONSISTENCY: Wet: non-sticky (0) ; non-plastic (0) ; Moist: loose (0) GROUNDWATER: no signs of groundwater observed from 0"-32"			SANDY LOAM
-				
2.0				
-				
2.5				
-	DISTINCT TRANSITION			
3.0	MUNSELL COLOR: 10 YR 5/6 - yellowish brown GRAVEL (%): ~45% ROOTS: few STRUCTURE: Single Grain CONSISTENCY: Wet: slightly-sticky (1) ; slightly-plastic (1) ; Moist: very friable (1) GROUNDWATER: no signs of groundwater observed from 32"-53"			SANDY CLAY LOAM
-				
3.5				
-				
4.0				
-	DISTINCT TRANSITION			
4.5				
-				
5.0				
-				
5.5				
-				
6.0	MUNSELL COLOR: 10 YR 6/4 - light yellowish brown GRAVEL (%): ~45% ROOTS: none STRUCTURE: Single Grain, crumb CONSISTENCY: Wet: slightly-sticky (1) ; slightly-plastic (1) ; Moist: very friable (1) GROUNDWATER: no signs of groundwater observed from 53" to the bottom of the test hole			SANDY LOAM
-				
6.5				
-				
7.0				
-				
7.5				
-				
8.0				
-				
8.5				
-				
9.0				
-				
9.5				
-				
10.0	NO GROUNDWATER END OF EXCAVATION			



Soil Texture, Test Hole #1

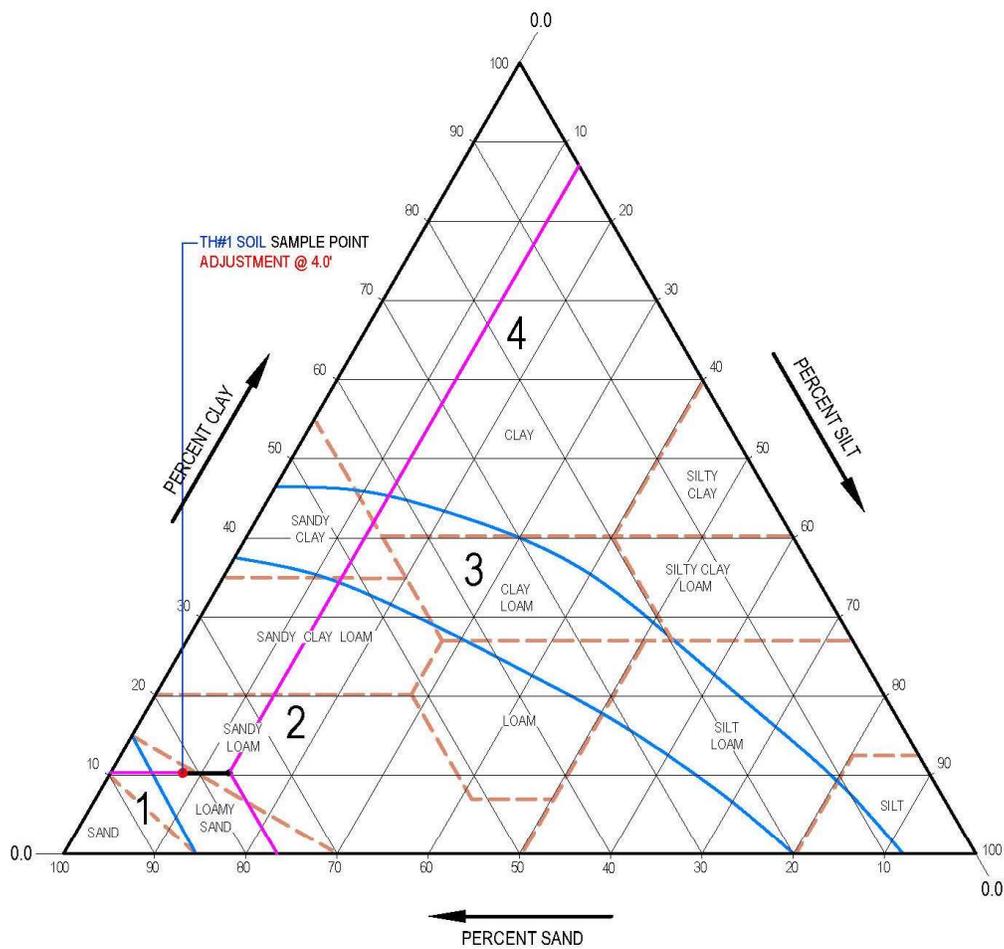
PROJECT NAME:	COZA	DATE OF EXCAVATION:	03/30/2023
PROJECT #:	23-6059	EXCAVATION METHOD:	EXCAVATOR / HAND
SITE APN:	110-251-037 & 038	WEATHER SEASON:	WET
TEST HOLE #:	1	LOGGED BY:	CPL
TH1-1	SAMPLE NUMBER		
5.0	DEPTH (ft)		
883.0	TOTAL SAMPLE WEIGHT (gm)		
339.0	COARSE WEIGHT (gm)		
75.0	A. OVENDRY WEIGHT (gm)		
1:00:00 PM	B. STARTING TIME (hh:mm:ss)		
63.1	C. TEMP @ 40 SEC. (°F)		
25.0	D. HYDROMETER READING @ 40 SEC. (gm/l)		
-7.5	E. COMPOSITE CORRECTION (gm/l)		
17.5	F. TRUE DENSITY @ 40 SEC. (gm/l) [D-E]		
74.3	G. TEMP @ 2.0 HRS. (°F)		
13.0	H. HYDROMETER READING @ 2.0 HRS. (gm/l)		
-5.2	I. COMPOSITE CORRECTION (gm/l)		
7.8	J. TRUE DENSITY @ 2.0 HRS. (gm/l) [H-I]		
76.6	K. % SAND $[100-(F/A * 100)]$		
10.3	L. % CLAY $[J/A * 100]$		
13.0	M. % SILT $[100-K-L]$		
SANDY LOAM	N. USDA TEXTURE		
2	O. SOIL PERCOLATION SUITABILITY CHART ZONE		
23.4	P. COMBINED % SILT AND CLAY $[L+M]$		
38.4	Q. COARSE % BY WEIGHT $[COARSE WEIGHT/A * 100]$		
5.1	R. % COARSE ADJUSTMENT $[0.000006Q^3+0.00012Q^2+0.11936Q-0.01882]$		



Soil Chart

PROJECT NAME:	COZA	DATE OF EXCAVATION:	03/30/2023
PROJECT #:	23-6059	EXCAVATION METHOD:	EXCAVATOR / HAND
SITE APN:	110-251-037 & 038	WEATHER SEASON:	WET
TEST HOLE #:	1	LOGGED BY:	CPL

COARSE ADJUSTMENT: TH#1 @ 4.0' = 5.1%

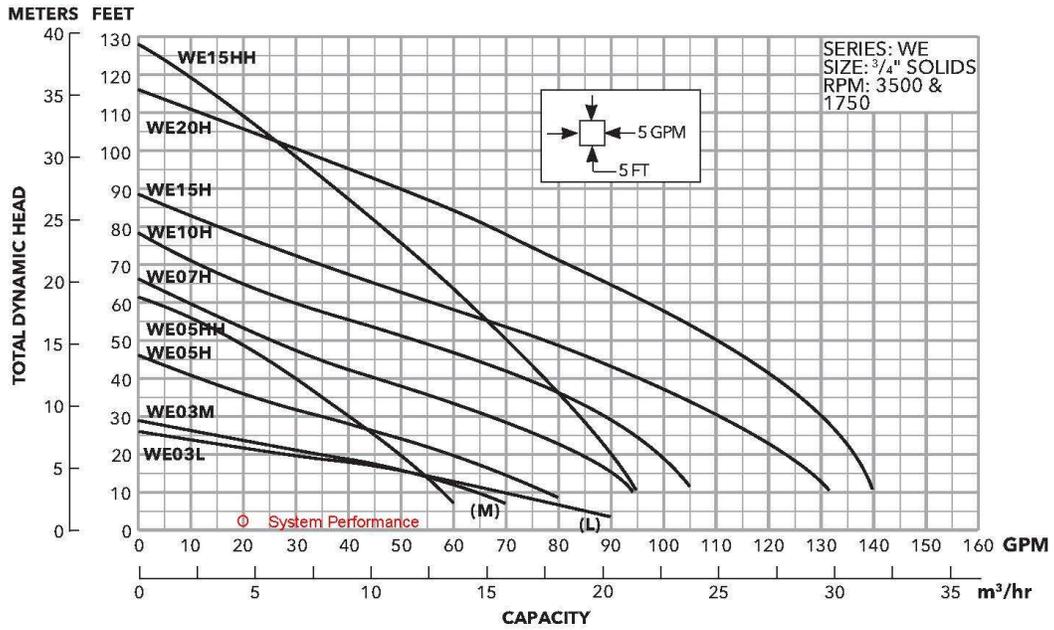




Pump Curve

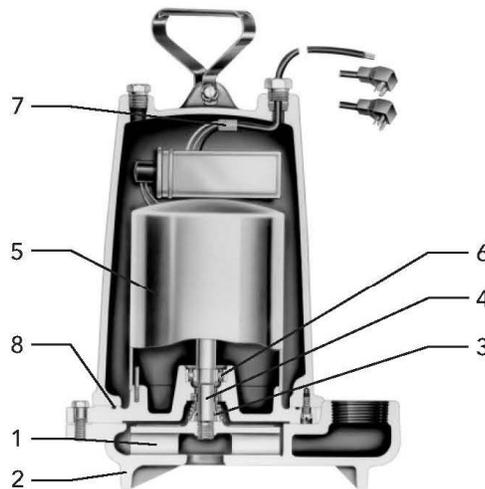
Goolds Water Technology

Wastewater



COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring





Pump Data

Goulds Water Technology

Wastewater

MODELS

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency %	Resistance		Power Cable Size	Weight (lbs.)		
										Start	Line-Line				
WE0311L	0.33	1	115	1750	5.38	10.7	30.0	M	54	11.9	1.7	16/3	56		
WE0318L			208			6.8	19.5	K	51	9.1	4.2				
WE0312L			230			4.9	14.1	L	53	14.5	8.0				
WE0311M			115			10.7	30.0	M	54	11.9	1.7				
WE0318M			208			6.8	19.5	K	51	9.1	4.2				
WE0312M			230			4.9	14.1	L	53	14.5	8.0				
WE0511H	0.5	3	115	3450	3.56	14.5	46.0	M	54	7.5	1.0	14/3	60		
WE0518H			208			8.1	31.0	K	68	9.7	2.4	16/3			
WE0512H			230			7.3	34.5	M	53	9.6	4.0				
WE0538H			200			4.9	22.6	R	68	NA	3.8	14/4			
WE0532H			230			3.3	18.8	R	70	NA	5.8				
WE0534H			460			1.7	9.4	R	70	NA	23.2				
WE0537H		575	1.4		7.5	R	62	NA	35.3						
WE0511HH		1	3		115	3.88	3.88	14.5	46.0	M	54	7.5		1.0	14/3
WE0518HH					208			8.1	31.0	K	68	9.7		2.4	16/3
WE0512HH					230			7.3	34.5	M	53	9.6		4.0	
WE0538HH					200			4.9	22.6	R	68	NA		3.8	14/4
WE0532HH					230			3.6	18.8	R	70	NA		5.8	
WE0534HH	460			1.8	9.4			R	70	NA	23.2				
WE0537HH	575	1.5	7.5	R	62	NA	35.3								
WE0718H	0.75	1	208	4.06	4.06	11.0	31.0	K	68	9.7	2.4	14/3	70		
WE0712H			230			10.0	27.5	J	65	12.2	2.7				
WE0738H			200			6.2	20.6	L	64	NA	5.7	14/4			
WE0732H		3	230			5.4	15.7	K	68	NA	8.6				
WE0734H			460			2.7	7.9	K	68	NA	34.2				
WE0737H			575			2.2	9.9	L	78	NA	26.5				
WE1018H	1	1	208	4.44	4.44	14.0	59.0	K	68	9.3	1.1	14/3	80		
WE1012H			230			12.5	36.2	J	69	10.3	2.1				
WE1038H			200			8.1	37.6	M	77	NA	2.7	14/4			
WE1032H		3	230			7.0	24.1	L	79	NA	4.1				
WE1034H			460			3.5	12.1	L	79	NA	16.2				
WE1037H			575			2.8	9.9	L	78	NA	26.5				
WE1518H	1.5	1	208	5.56	5.56	17.5	59.0	K	68	9.3	1.1	14/3	80		
WE1512H			230			15.7	50.0	H	68	11.3	1.6				
WE1538H			3			200	10.6	40.6	K	79	NA	1.9		14/4	
WE1532H						230	9.2	31.7	K	78	NA	2.9			
WE1534H						460	4.6	15.9	K	78	NA	11.4			
WE1537H			575			3.7	13.1	K	75	NA	16.9				
WE1518HH		1	3		208	5.50	5.50	17.5	59.0	K	68	9.3		1.1	14/3
WE1512HH					230			15.7	50.0	H	68	11.3		1.6	
WE1538HH					200			10.6	40.6	K	79	NA		1.9	14/4
WE1532HH					230			9.2	31.7	K	78	NA		2.9	
WE1534HH					460			4.6	15.9	K	78	NA		11.4	
WE1537HH					575			3.7	13.1	K	75	NA		16.9	
WE2012H	2	1	230	5.38	5.38	18.0	49.6	F	78	3.2	1.2	14/3	83		
WE2038H			3			200	12.0	42.4	K	78	NA	1.7			
WE2032H						230	11.6	42.4	K	78	NA	1.7			
WE2034H		460				5.8	21.2	K	78	NA	6.6				
WE2037H		575	4.7			16.3	L	78	NA	10.5					



Pump Performance

Goulds Water Technology

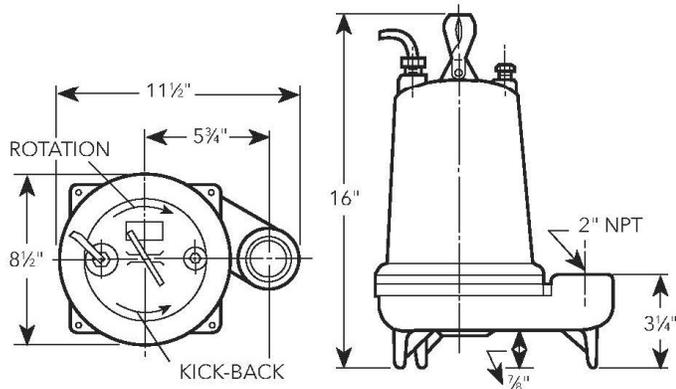
Wastewater

PERFORMANCE RATINGS (gallons per minute)

Order No.	WE-03L	WE-03M	WE-05H	WE-07H	WE-10H	WE-15H	WE05HH	WE15HH	WE-20H
HP	½	½	½	¾	1	1½	½	1½	2
RPM	1750	1750	3500	3500	3500	3500	3500	3500	3500
Total Head Feet of Water									
5	86	-	-	-	-	-	-	-	-
10	70	63	78	94	-	-	58	95	-
15	52	52	70	90	103	128	53	93	138
20	27	35	60	83	98	123	49	90	136
25	5	15	48	76	94	117	45	87	133
30	-	-	35	67	88	110	40	83	130
35	-	-	22	57	82	103	35	80	126
40	-	-	-	45	74	95	30	77	121
45	-	-	-	35	64	86	25	74	116
50	-	-	-	25	53	77	-	70	110
55	-	-	-	-	40	67	-	66	103
60	-	-	-	-	30	56	-	63	96
65	-	-	-	-	20	45	-	58	89
70	-	-	-	-	-	35	-	55	81
75	-	-	-	-	-	25	-	51	74
80	-	-	-	-	-	-	-	47	66
90	-	-	-	-	-	-	-	37	49
100	-	-	-	-	-	-	-	28	30

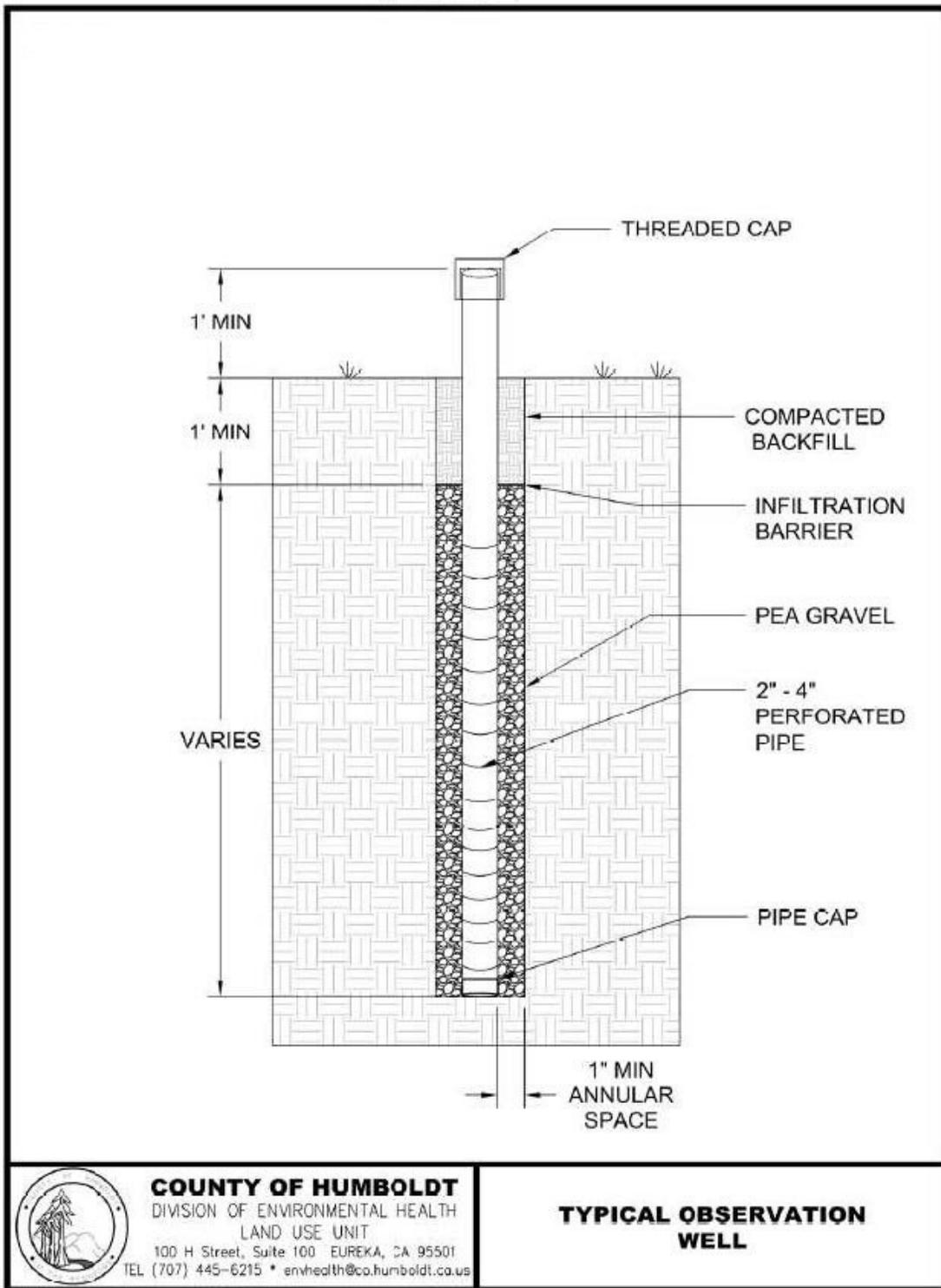
DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





County of Humboldt Observation Well Detail





County of Humboldt Minimum Setbacks for Septic Tanks and Dispersal Fields

Minimum Setback Distance Requirements

Tanks and dispersal fields must be located to meet the minimum setback distances shown below. See page reverse for required OWTS horizontal setbacks to public water wells and surface water intakes.

Minimum Horizontal Distance (ft.)	Public Water Well	Private Water Well	Surface Intake Public Water	Perennial Stream, Wetland & Other Waters*	Ephemeral Stream or Drainage Swale*
Septic Tank	100	100		50	25
Pump Tank	100	100		50	25
Dispersal System	150	100	200-400 (see table below)	100	50

Minimum Horizontal Distance (ft.)	Property Lines Public Water	Property Lines (Private Water)	Buildings or Structures	Cut Banks Unstable Land Steep Slopes>30%	Large Trees
Septic Tank	5	25	5	25	10
Pump Tank	5	25	5	25	10
Dispersal System	10	50	10	25	10

* Setback distances from surface waters is determined based on the US Army Corps of Engineers' definition of Ordinary High Water Mark, 33 CFR 328.3(e).