



Sonoma County PRMD  
2550 Ventura Avenue  
Santa Rosa, CA 95403

Date: November 11, 2019  
Job Number: 988-18

**Septic Feasibility Evaluation on APN 134-171-051  
for  
Septic Easement Potential to Serve APN 134-171-050**

**Purpose**

The purpose of this septic evaluation is to determine if the parcel located at 306 Todd Road in Santa Rosa (APN 134-171-051) has the potential to warrant a further investigation of a septic easement on the parcel, to serve 304 Todd Road in Santa Rosa (APN 134-171-050).

**Evaluation of 304 Todd Road, Santa Rosa – APN: 134-171-050**

The parcel that would be served by a proposed easement is located at 304 Todd Road and has been determined to be unsuitable for septic system installation. A Pre-perc Site Evaluation was conducted on June 17, 2019 (WSR19-0329) by BC Engineering Group and Sonoma County PRMD staff.

- Slope approximate 1% to 3%.
- The pre-perc area, shown on the attached map, displayed an average limiting layer of massive clay-loam/clay at 17 inches.
- During winter standing water was observed in the area of *Pre-perc Site Evaluation WSR19-0329*.
- The soils did not appear to meet the minimum depth of 24 inches to the limiting layer required for Code Compliant septic system installation.
- The majority of the parcel is encumbered by compacted gravel and fill that is unsuitable for septic system installation.
  - Total Parcel Size = approximately 19.02 acres
  - Unencumbered Area = approximately 0.52 acres ( $\approx 3\%$ )
  - Encumbered Area = approximately 18.50 acres ( $\approx 97\%$ )
- Located in Web Soil Survey area with soil classification WoA. See below for classification characteristics. Observations were in general conformance with WoA soil classification characteristics.

The parcel located at 304 Todd Road in Santa Rosa does not appear to be suitable for septic system installation.



### **Evaluation of 300 Todd Road, Santa Rosa – APN: 134-171-049**

Soils were observed at 300 Todd Road (APN 134-171-049) without the County on July 31, 2018, to determine if the site had similar soil conditions to those observed on 304 Todd Road in Santa Rosa during *WSR19-0329 Pre-perc Site Evaluation*.

- Slope approximate 1% to 2%.
- The parcel located at 300 Todd Road is 0.90 acres and the center of the potential septic location is located approximately 175 feet from the center of the 304 Todd Road pre-perc area (*WSR19-0329*).
- Similar soil conditions were observed to those recorded under *Pre-perc Site Evaluation (WSR19-0329)*.
- Located in Web Soil Survey area with soil classification WoA. See below for classification characteristics. Observations were in general conformance with WoA soil classification characteristics.

The parcel located at 300 Todd Road in Santa Rosa does not appear to be suitable for septic system installation.

### **Evaluation of 306 Todd Road, Santa Rosa– APN: 134-171-051**

Per the request of the Client and the County, the neighboring site located at 306 Todd Road (APN 134-171-051) was evaluated by visual observations and a publicly available Web Soil Survey data provided by the United States Department of Agriculture’s “Natural Resources Conservation Service”. The subject parcel at 134-171-051 is divided between two (2) soil classifications; WoA and CeA as seen on the attached Soil Survey Site Exhibit, dated October 22, 2019. Per the Web Soil Survey these soil classifications have the following characteristics:

- WoA – Wright loam, shallow, wet, 0 to 2 percent slopes

#### Typical profile

- *H1 – 0 to 7 inches: loam*
- *H2 – 7 to 15 inches: loam*
- ***H3 – 15 to 62 inches: clay***
- *H4 – 62 to 73 inches: sandy clay loam*

#### Properties and qualities

- *Natural drainage class: Somewhat poorly drained*
- ***Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr).***

Assumed fastest mpi of limiting layer (Clay 15” to 62”) = 0.06 inches per hour  
MPI Calculation: 0.06 in/hr = (60 min/hr)/(0.06 in/hr) = 1,000 mpi.



**1,000 mpi > 120 mpi (max allowed), not suitable**

- **Depth to water table: About 0 inches, less than minimum of 24 inches**

➤ CeA – Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA 14

#### Typical profile

- *Apg1* – 0 to 2 inches: clay
- *Apg2* – 2 to 8 inches: clay
- ***Assg* – 8 to 25 inches: clay**
- *Bssg1* – 25 to 39 inches: clay
- *Bssg2* – 39 to 46 inches: clay
- *Bkssg* – 46 to 52 inches: clay
- *2Bkg* – 52 to 60 inches: loam
- *2Btg* – 60 to 72 inches: fine sandy loam
- *2C* – 72 to 84 inches: loamy coarse sand

#### Properties and qualities

- *Natural drainage class*: Poorly drained
- *Capacity of the most limiting layer to transmit water (Ksat)*: Moderately low to moderately high (0.06 to 0.20 in/hr)  
Assumed fastest mpi of limiting layer (Clay 0" to 52") = 0.20 inches per hour  
MPI Calculation:  $0.20 \text{ in/hr} = (60 \text{ min/hr}) / (0.20 \text{ in/hr}) = 300 \text{ mpi}$   
**300 mpi > 120 mpi (max allowed), not suitable**
- *Depth to water table*: About 36 to 60 inches

The soil survey information appears to be in general conformance with the soil conditions observed on parcels 134-171-049 and 134-171-050, located within the WoA soil zone, with massive Clay observed at a depth of 17 inches or less. It is assumed that similar soil conditions are present on 306 Todd Road in Santa Rosa within the same WoA soil classification as parcels 300 and 304 Todd Road.

#### Topography

Similar topography exists on all three subject parcels. The unencumbered area on parcel 134-171-050 has an average elevation of 101 feet. Parcel 134-171-049 has an average elevation of 101 feet. Parcel 134-171-051 has an average elevation ranging from 96 feet to 100 feet. Parcel 134-171-051 drains from the north to south side of the parcel and is at a lower elevation than the area observed during *Pre-perc Site Evaluation (WSR19-0329)*.

Minor drainage channels were visually observed on parcel 134-171-051, and along the property line separating 134-171-050 and 134-171-051.



## Summary

Based on *Pre-perc Site Evaluation (WSR19-0329)*, soil investigation on 300 Todd Road, the Web Soil Survey data for the three (3) parcels, poor drainage of parcels surrounding 134-171-051, flat topography, and very low estimates of the soils capacity to transmit water, it does not appear that any of the three (3) parcels (APN 134-171-049, -050, -051) have adequate conditions to support a Code Compliant septic system.

It is my opinion that perusing an easement on the parcel located at 306 Todd Road (APN 134-171-051) is unnecessary, as it is extremely unlikely that the parcel would reveal suitable soil conditions for a Code Compliant septic system installation.

Please see the attached Soil Survey Site Exhibit dated October 22, 2019, and referenced documents.

Sincerely,



Thomas J. Billeter, P.E.



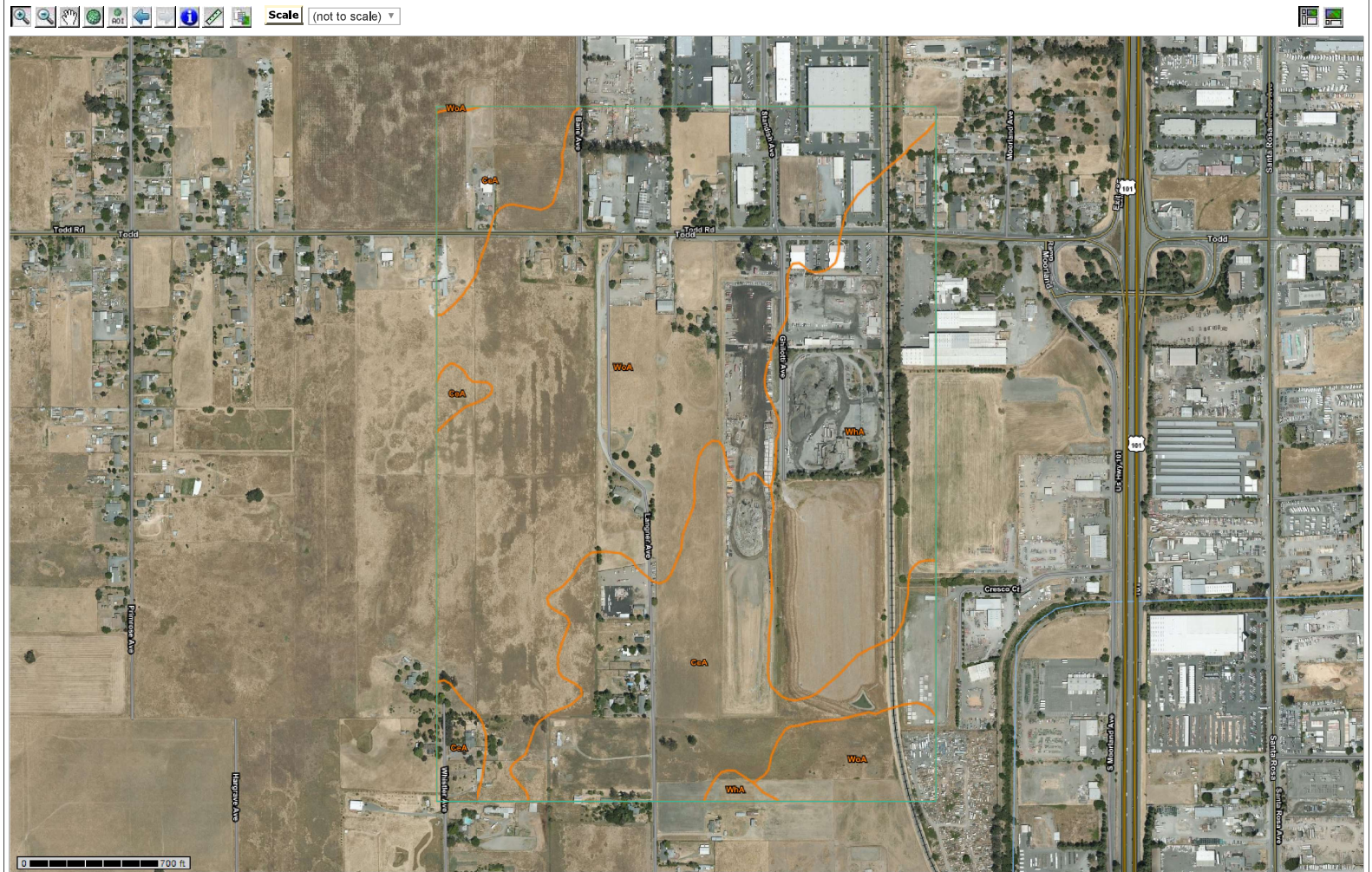


Search

Map Unit Legend

Sonoma County, California (CA097)			
Sonoma County, California (CA097)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CeA	Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA 14	64.1	26.9%
WhA	Wright loam, wet, 0 to 2 percent slopes	50.3	21.1%
WoA	Wright loam, shallow, wet, 0 to 2 percent slopes	124.1	52.0%
<b>Totals for Area of Interest</b>		<b>238.4</b>	<b>100.0%</b>

Soil Map



Warning: Soil Map may not be valid at this scale.

## Sonoma County, California

### WoA—Wright loam, shallow, wet, 0 to 2 percent slopes

#### Map Unit Setting

*National map unit symbol:* hfkp  
*Elevation:* 60 to 300 feet  
*Mean annual precipitation:* 30 inches  
*Mean annual air temperature:* 55 degrees F  
*Frost-free period:* 240 to 260 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Wright and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Wright

##### Setting

*Landform:* Terraces, hills  
*Landform position (two-dimensional):* Footslope, backslope  
*Landform position (three-dimensional):* Side slope, tread  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear, convex  
*Parent material:* Alluvium

##### Typical profile

*H1 - 0 to 7 inches:* loam  
*H2 - 7 to 15 inches:* loam  
*H3 - 15 to 62 inches:* clay  
*H4 - 62 to 73 inches:* sandy clay loam

##### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* About 15 inches to abrupt textural change  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Very low (about 2.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* Yes

### **Minor Components**

#### **Huichica**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Yolo**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Clear lake**

*Percent of map unit:* 3 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Unnamed**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## **Data Source Information**

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 13, Sep 16, 2019

## Sonoma County, California

### CeA—Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA 14

#### Map Unit Setting

*National map unit symbol:* 2vbsl

*Elevation:* 20 to 360 feet

*Mean annual precipitation:* 26 to 42 inches

*Mean annual air temperature:* 57 to 61 degrees F

*Frost-free period:* 225 to 300 days

*Farmland classification:* Prime farmland if irrigated and drained

#### Map Unit Composition

*Clear lake, drained, sandy substratum, and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Clear Lake, Drained, Sandy Substratum

##### Setting

*Landform:* Basin floors

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Basin alluvium derived from volcanic and sedimentary rock over fan alluvium derived from volcanic and sedimentary rock

##### Typical profile

*Apg1 - 0 to 2 inches:* clay

*Apg2 - 2 to 8 inches:* clay

*Assg - 8 to 25 inches:* clay

*Bssg1 - 25 to 39 inches:* clay

*Bssg2 - 39 to 46 inches:* clay

*Bkssg - 46 to 52 inches:* clay

*2Bkg - 52 to 60 inches:* clay loam

*2Btg - 60 to 72 inches:* fine sandy loam

*2C - 72 to 84 inches:* loamy coarse sand

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Poorly drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 36 to 60 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum in profile:* 6 percent



*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.5 to 3.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 8.0

*Available water storage in profile:* High (about 9.2 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 2e

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* D

*Hydric soil rating:* Yes

#### **Minor Components**

##### **Haire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

##### **Reyes**

*Percent of map unit:* 5 percent

*Landform:* Salt marshes

*Hydric soil rating:* Yes

##### **Whight**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 13, Sep 16, 2019

# Request for Well and Septic Service

WLS-006

**PURPOSE:** This form is used to request a paid service from the Well & Septic Division of the Permit and Resource Management Department (PRMD) related to an existing or proposed septic system. A permit application may be required following the requested service.

Date of Request  
307 Todd Road  
Site Address  
Santa Rosa 95407  
City/Town Zip  
BC Engineering Group  
Applicant Name Santa Rosa  
2800 Cleveland Ave. Ste. C 95403  
Mailing Address State/Zip  
707-542-4321  
Day Phone

WSR19-0329  
SEV Number  
Standish Street  
Cross Street  
134-171-050  
Assessor's Parcel Number  
Ghilotti Construction Company  
Property Owner's Name  
304 Todd Road, Santa Rosa, CA 95407  
Mailing Address State/Zip  
707-585-1221 Tom Smith  
Day Phone

Service Requested:

pre-perc

----- **DO NOT WRITE BELOW THIS LINE - To Be Completed by PRMD Staff** -----  
Code Enforcement Violation Yes  No  Violation # \_\_\_\_\_

Status \_\_\_\_\_

Staff Comments/Notations

11:00am  
6/17/19 Preperc w/ Jessica Chavez.  
Purpose: To find suitable soils for serving employee restroom  
Observed: 2 profile holes labeled A and B show similar soil characteristics. In the USDA Soil Survey, the soils are wright loam. The limiting layer is the massive clay layer @ 17". The soils do not meet the minimum depth of 24" to hardpan/clay pan for a nonstandard septic system. The site was further explored to see if there were other potential septic areas. The whole site appears to be compacted gravel soils due to construction/heavy equipment. Also, I observe area with stock pile and recycle stock pile. It does not appear that there were suitable soils for a potential septic.

Staff Signature \_\_\_\_\_

Date Completed 6/19/19

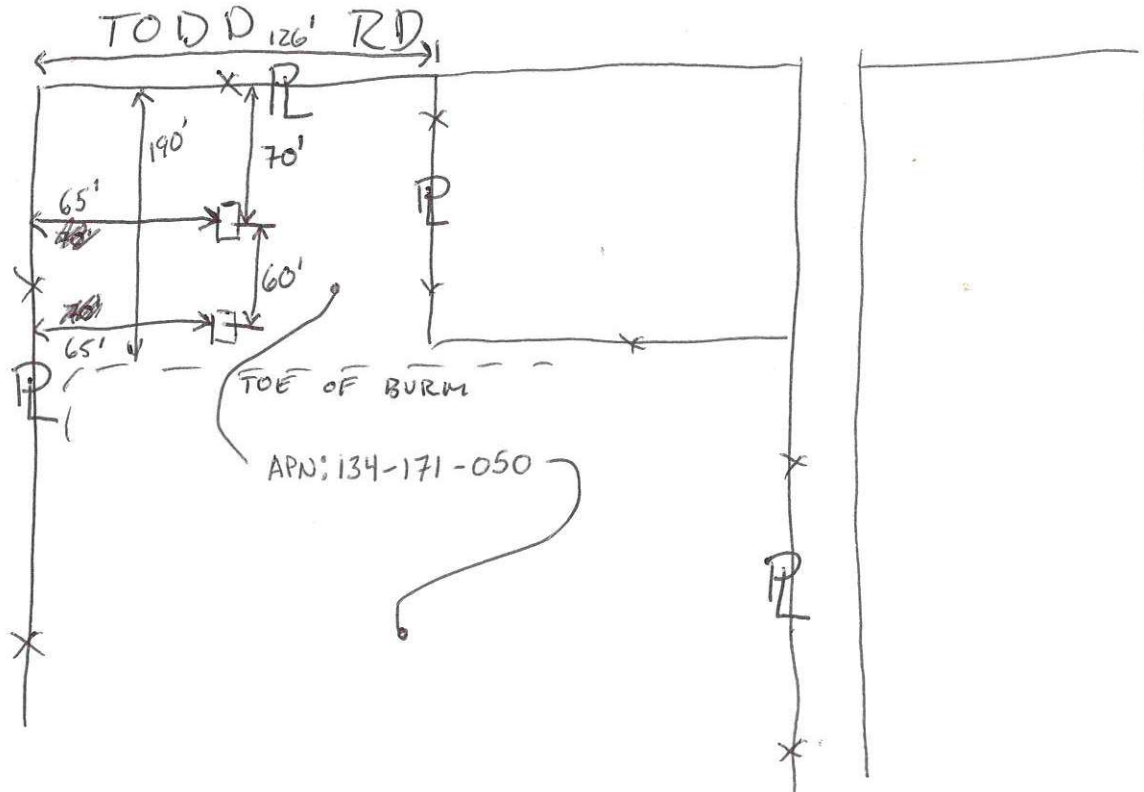
**Sonoma County Permit and Resource Management Department**

2550 Ventura Avenue ♦ Santa Rosa, CA ♦ 95403-2829 ♦ (707) 565-1900 ♦ Fax (707) 565-1399

Address: 304 Todd Rd, Santa Rosa		Pre-perc date: 6-17-19	Time: 11:00am
APN: 134-171-050		Site Review by:	Tuan Huynh
Test Conducted by: Jessica Chavez, E.I.T.	Subdivision:	Initial <input type="checkbox"/>	Supp. <input type="checkbox"/>
Test verified by: BC Engineering Group	Water availability zone:	Mutual/Public Water? Y	
Special standards area: none	SCS soil type: <i>Wright loam</i>		
Topography: Ridge <input type="checkbox"/> Slope <input type="checkbox"/> Saddle <input type="checkbox"/> Basin <input type="checkbox"/> Convex <input type="checkbox"/> Concave <input type="checkbox"/> Planar <input type="checkbox"/>			
Setbacks: Cutbank/grade break <input type="checkbox"/> Wells <input type="checkbox"/> Springs <input type="checkbox"/> Streams <input type="checkbox"/> Ponds <input type="checkbox"/> Drainage <input type="checkbox"/>			
Areas of concern: Geology report <input type="checkbox"/> Drainage <input type="checkbox"/> Trees <input type="checkbox"/> % Rock <input type="checkbox"/> GW <input type="checkbox"/> Rock outcrops <input type="checkbox"/>			
Hydrometer Test: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Depth(s): B@24" CL with PI=48	
Wet Weather Perc Required?		Wet Weather Groundwater Test Required?	
Subsoil perc depth(s)		Pump System:	Perc depth(s)
Type of system(s):			
PropertyType: Commercial	Topographic map req?		Geologist report req?
Weather: Dry/Sunny		Comments: Employee restrooms	

SITE MAP : *SEE ATTACHED*

WSR19-0329





Date: 6-17-19

WSR19-0329

Address: 304 Todd Rd, Santa Rosa

A.P.N. 134-171-050

PH A

Slope = 1 %

WWGT Req? \_\_\_\_\_

LLR = \_\_\_\_\_ gpd/LF

Depth (in)			Munsell Color	% Rock	Texture	Structure	Consistency	Moisture	Pores	Roots
0	-	17	10 YR 3 /4	10	SL	MOD B	Fr	Dry	M/M	M/S
17	-	32	10 YR 2 /2	<5	CL /C	M	VF	Damp	S/S	NONE
32	-									
0	-									
0	-									

Mottling 9" and below Sample(s) \_\_\_\_\_ MPI/SAR \_\_\_\_\_

NOTES/COMMENTS: Limiting layer is @ 17" massive clay/clay loam

PH B

Slope = 0 %

WWGT Req? \_\_\_\_\_

LLR = \_\_\_\_\_ gpd/LF

Depth (in)			Munsell Color	% Rock	Texture	Structure	Consistency	Moisture	Pores	Roots
0	-	19	10 YR 4 /3	10	SL	MOD B	Fr	Dry	M/M	M/S
19	-	34	10 YR 4 /3	>5	CL /C	M	VF	Damp	M/S	NONE
34	-									
0	-									
0	-									

Mottling 12" and below Sample(s) B@24" CL/C PI=48 MPI/SAR \_\_\_\_\_

NOTES/COMMENTS: Limiting layer is @ 19" massive clay/clay loam  
Hydro was taken @ 24"

PH \_\_\_\_\_

Slope = \_\_\_\_\_ %

WWGT Req? \_\_\_\_\_

LLR = \_\_\_\_\_ gpd/LF

Depth (in)			Munsell Color	% Rock	Texture	Structure	Consistency	Moisture	Pores	Roots
0	-									
0	-									
0	-									
0	-									
0	-									

Mottling \_\_\_\_\_ Sample(s) \_\_\_\_\_ MPI/SAR \_\_\_\_\_

NOTES/COMMENTS: \_\_\_\_\_

Abbreviations:

USDA Texture: Gravel=G, Sand=S, Loamy Sand=LS, Sandy Loam=SL, Sandy Clay Loam=SCL, Sandy Clay=SC, Silt Loam=SiL, Loam=L, Clay Loam=CL, Silty Clay Loam=SiCL, Clay=C  
 Structure: Granular=G, Platy=P, Blocky=B, Prismatic=Pr, Massive=M, Columnar=C  
 Consistency: Loose=L, Very Friable=VFr, Friable=Fr, Firm=F, Very Firm=VF, Extremely Firm=EF, Solid (BH refusal)=S  
 Moisture: Dry=Dr, Damp=D, Very Damp=VD, Saturated=S, Seepage=Se  
 Roots and Pores: M/ = Many, S/ = Some, F/ = Few, /S = Small, /M = Medium, /L = Large

Pores





Date: 4/21/19

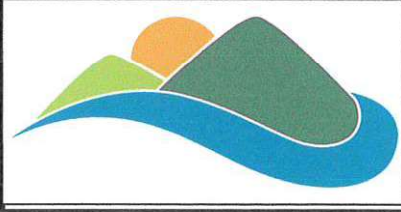
Drawn: RHP

Job: 988-18

Scale: 1"=60'

**PRE PERC APPLICATION  
SITE MAP**

GHILOTTI CONSTRUCTION COMPANY INC.  
304 TODD ROAD  
SANTA ROSA, CA 95407  
APN: 134-171-050



**BC ENGINEERING GROUP, INC.  
CIVIL ENGINEERING & LAND PLANNING**

www.bcengineeringgroup.com  
Phone: 707.542.4321  
SANTA ROSA OFFICE:  
2800 Cleveland Ave, Suite C, Santa Rosa CA 95403  
UKIAH OFFICE:  
603 S. State Street, Ukiah CA 95482



# Oakley Laboratory & Field Services

1645 Chapman Way • Santa Rosa , CA 95403 • Telephone 707-575-1075

August 7, 2018  
Job No. 18-156.36

BC Engineering Group  
2800 Cleveland Avenue  
Santa Rosa, CA. 95403

Attention: Mr. Jonathan Erker

Re: Results of Free Swell, Atterberg Limits

Client number: 988-18

The results of the soil texture analysis on samples received on July 31, 2018 are as follows:

Sample Location	B @ 24"
% Free Swell	--
Liquid Limit	65
Plasticity Index	48

We are pleased to provide laboratory services for you and look forward to your continued work. If you have any questions, please call.

Oakley Laboratory and Field Services

By:   
Wayne G. Oakley  
Laboratory Director

# Oakley Laboratory & Field Services

1645 Chapman Way • Santa Rosa , CA 95403 • Telephone 707-575-1075

August 3, 2018  
Job No. 18-156.36

BC Engineering Group  
2800 Cleveland Avenue  
Santa Rosa, Calif. 95403

Attention: Mr. Jonathan Erker

Re: Results of Soil Texture Analysis  
By Bouyoucos Hydrometry Method

Client number: 988-18

The results of the soil texture analysis on sample received on July 31, 2018 are as follows:

Sample Location	B @ 24"
% Plus No. 10 (WT)	11.9
% Sand	34.8
% Clay	38.2
% Silt	27.0
Db g/cc	---

We are pleased to provide laboratory services for you and look forward to your continued work. If you have any questions, please call.

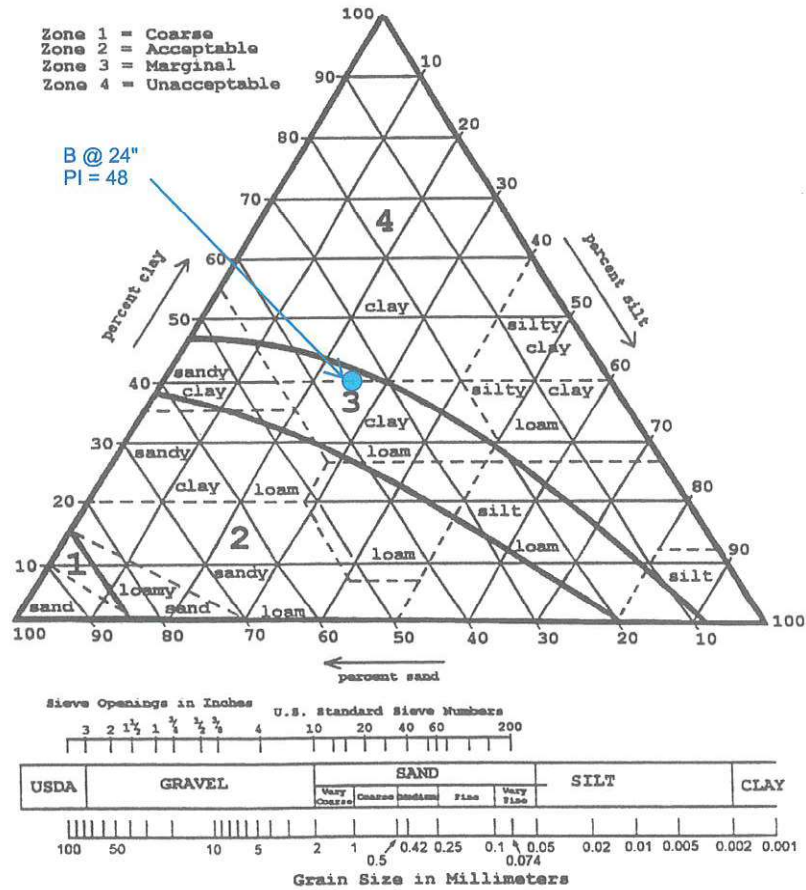
Oakley Laboratory and Field Services

By: 

Wayne G. Oakley  
Laboratory Director

- Other prominent soil features such as structure, stoniness, roots and pores, dampness, soil boundaries, etc.

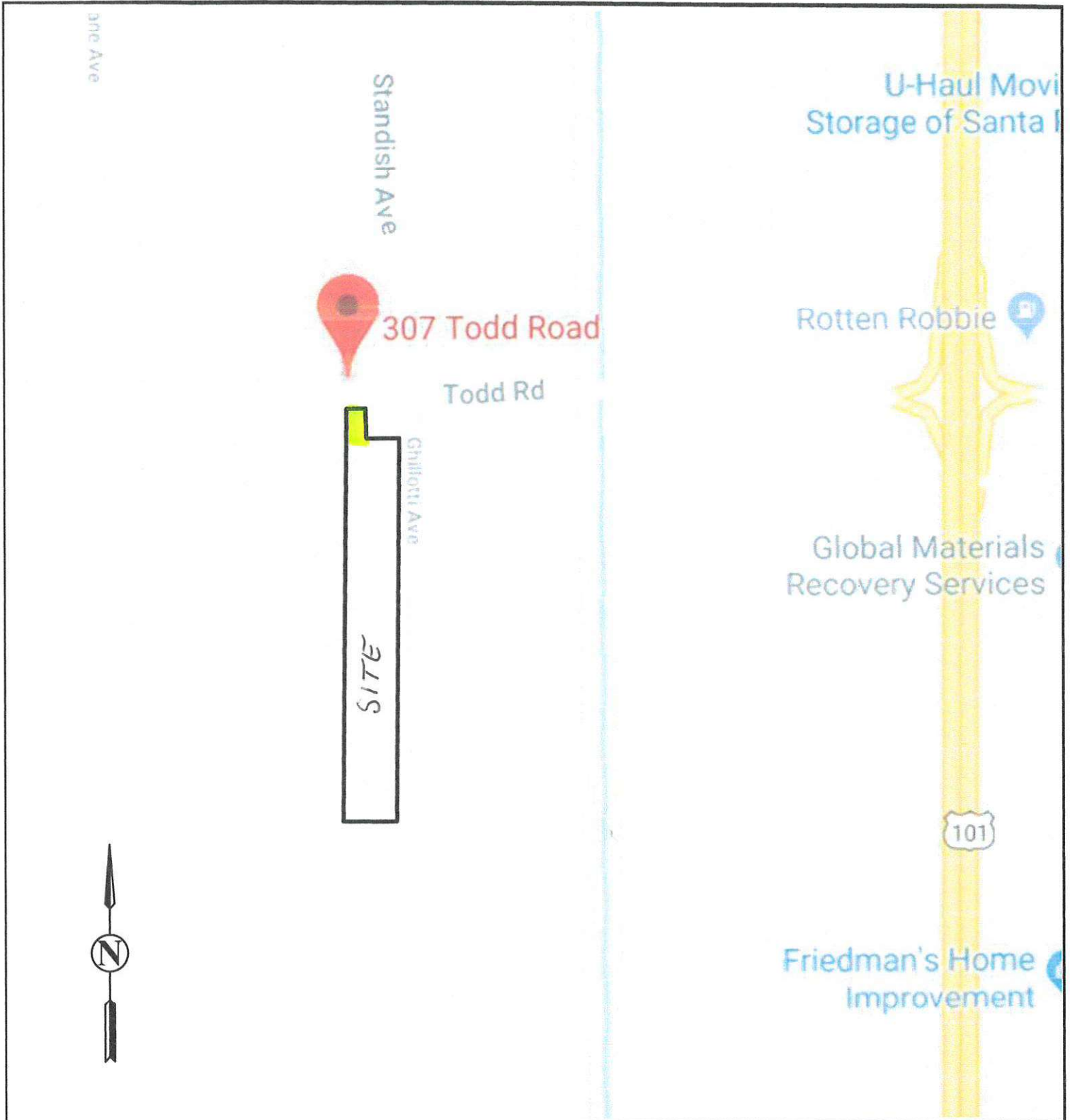
**Figure 7.4 Soil Percolation Suitability Chart for OWTS**



Instructions:

- Plot texture on triangle based on percent sand, silt, and clay as determined by hydrometer analysis.
- Adjust for coarse fragments by moving the plotted point in the 100 percent sand direction an additional 2% for each 10% (by volume) of fragments greater than 2mm in diameter.
- Adjust for compactness of soil by moving the plotted point in the 100 percent clay direction an additional 15% for soils having a bulk-density greater than 1.7 gm/cc.

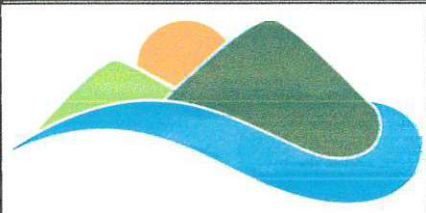
Note: For soils falling in sand, loamy sand, or sandy loam classification bulk density analysis will generally not affect suitability, and analysis is not necessary.



Date: 4/24/19  
 Drawn: RH  
 Job: 988-18  
 Scale: 1"=60'

**PRE PERC APPLICATION  
 VICINITY MAP**

GHILOTTI CONSTRUCTION COMPANY INC.  
 304 TODD ROAD  
 SANTA ROSA, CA 95407  
 APN: 134-171-050

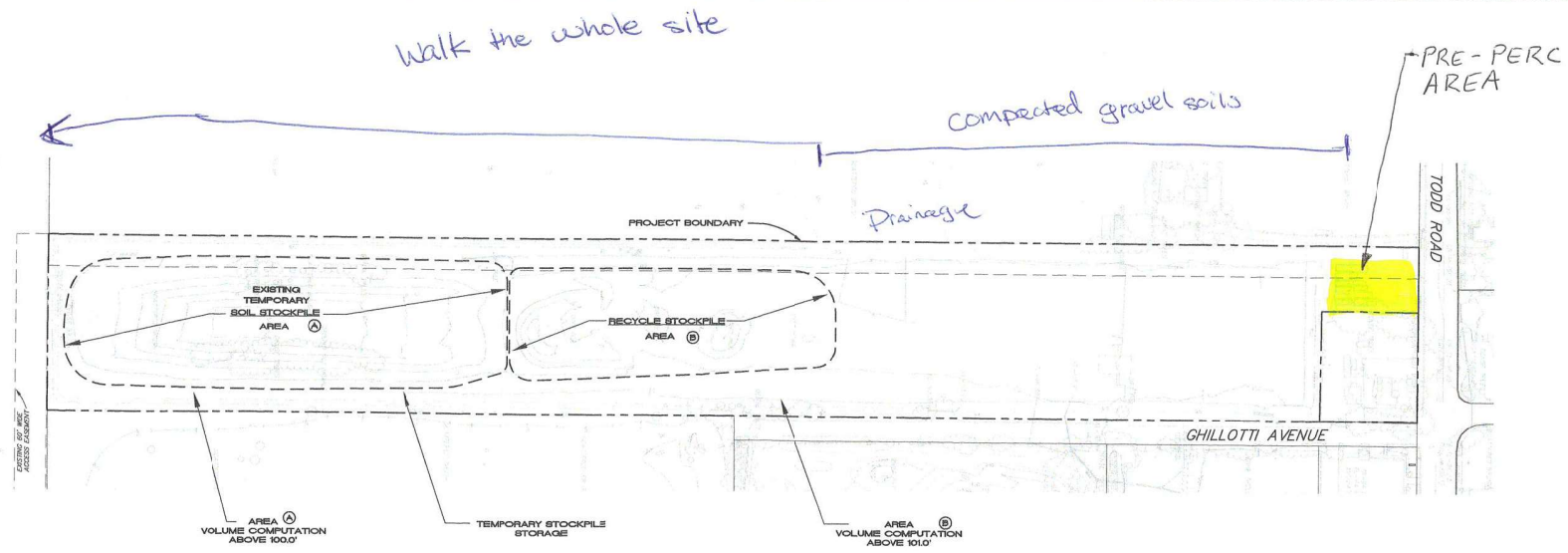


**BC ENGINEERING GROUP, INC.**  
**CIVIL ENGINEERING & LAND PLANNING**

www.bcengineeringgroup.com  
 Phone: 707.542.4321

**SANTA ROSA OFFICE:**  
 2800 Cleveland Ave, Suite C, Santa Rosa CA 95403

**UKIAH OFFICE:**  
 603 S. State Street, Ukiah CA 95482



**EXISTING TEMPORARY STOCKPILE QUANTITIES**

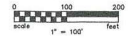
AREA SH#	FILL CY
(A)	135,000
(B)	15,000
<b>TOTAL</b>	<b>150,000</b>

**NOTE:**  
 (A) & (B) = TOTAL VOLUME OF EXISTING TEMPORARY STOCKPILE MATERIAL PLACED ABOVE PERMANENT FILL PAD AS OF OCTOBER 2016

**PERMANENT FILL QUANTITIES**

CUT CY	FILL CY
-	90,000

**NOTE:**  
 PERMANENT FILL IS AN ESTIMATE OF FILL PLACED ON SITE FOR SEWER AND DRAINAGE PANS PREPARED BY CARLILE MACY DATED MAY 2016, FILE NO. 16-H174, REVISED AS PER 02-0910, OCTOBER 2016



**EXISTING GRADING PLAN  
 PERMANENT FILL AND  
 AND  
 TEMPORARY FILL QUANTITIES  
 304 TODD ROAD**

APN 134-171-050  
 SANTA ROSA, CALIFORNIA  
 JANUARY 2016



CIVIL ENGINEERS • URBAN PLANNERS • LAND SURVEYORS • LANDSCAPE ARCHITECTS  
 15 THIRD STREET, SANTA ROSA, CA 95401  
 TEL: (707) 524-6484 FAX: (707) 524-2316