Sladden Engineering

PERCOLATION TESTING FOR ONSITE SEWAGE DISPOSAL FEASIBILITY PROPOSED SELF-STORAGE FACILITY APN 0597-111-67 SEC SUN MESA DRIVE & NEWTON LANE TOWN OF YUCCA VALLEY, CALIFORNIA

-Prepared By-

Sladden Engineering

45090 Golf Center Parkway, Suite F
Indio, California 92201
(760) 863-0713

Sladden Engineering

45090 Golf Center Parkway, Suite F, Indio, CA 92201 (760) 863-0713 Fax (760) 863-0847
6782 Stanton Avenue, Suite C, Buena Park, CA 90621 (714) 523-0952 Fax (714) 523-1369
450 Egan Avenue, Beaumont, CA 92223 (951) 845-7743 Fax (951) 845-8863
www.Sladdenengineering.com

January 14, 2025 Project No. 544-24365
25-01-007

1.0 DESCRIPTION OF SITE AND PROPOSAL

1.1 Mr. Rob Billings
5024 Wallaby Street
Yucca Valley, California 92284

Project: Proposed Self-Storage Facilities
APN 0597-111-67
SEC Sun Mesa Drive & Newton Lane
Town of Yucca Valley, California

Subject: Percolation Testing for Onsite Sewage Disposal Feasibility

1.2. Location:

The project site is located at the southeast corner of Sun Mesa Drive and Newton Lane in the Town of Yucca Valley, California. The project site consists of a single parcel that is formally identified by the County of San Bernardino as APN 0597-111-67. The parcel occupies approximately 4.34 acres of land and is undeveloped. Local surface gradients descend to the southeast at inclinations of approximately ten horizontal to one vertical (10H:1V) and less. The site is near the elevation of the adjacent properties and roadways and is located at approximately 34.1669 degrees north latitude and 116.4207 degrees west longitude (Figure 1). The subject property is bounded by Sun Mesa Drive to the north, undeveloped property to the east, commercial property to the south, and Newton lane to the west.

1.3 Proposed Development:

a) It is our understanding that the proposed project will consist of constructing a self-storage facility and a 400 square foot manager's office on the subject property. Concrete flatwork, landscape areas, and various associated site improvements are also anticipated. The new office building will be serviced by an onsite sewage disposal system consisting of a septic tank and leach lines.

1.4 Description of Site and Surroundings:

a) Overall surface gradients descend to the east at inclinations of ten horizontal to one vertical and less (10H:1V). The project site is located at an elevation of approximately 3,725 feet above mean sea level (MSL)[1].

[1] United States Geological Survey (USGS), 2021, Yucca Valley North Quadrangle, California-San Bernardino County, 7.5 Minute Series.

b) No natural ponding of water or surface seeps were observed at or near the site during our investigations conducted on December 3, 2024. Site drainage appears to be controlled via sheet flow and surface infiltration. The closest "blue line" stream is located approximately 0.35 miles to the northwest of the property (USGS, 2021).
c) It is assumed that the properties within the vicinity of the project site are utilizing individual on-site sewage disposal systems consisting of septic tanks and leach lines or seepage pits.
d) No water wells were identified on-site during our field investigation The site vicinity is serviced by the Hi-Desert Water District
e) No bedrock outcrops were observed on the subject property or in the immediate site vicinity. The underlying earth materials consists of fine to coarse-grained silty sand (SM) and sand (SW).
f) Bedrock was not encountered within the exploratory bores and test holes that were excavated to a maximum depth of approximately 21.5 feet bgs.
g) Groundwater was not encountered within our exploratory bores or test holes that extended to a maximum explored depth of approximately 21.5 feet bgs. Information regarding the approximate depth to groundwater provided by the California Department of Water Resources online database indicates that the depth to groundwater is in excess of 80 feet below the existing ground surface in the immediate vicinity of the site. The following table provides a summary of the historic high groundwater depths reported in the project vicinity.

TABLE 1
GROUNDWATER DEPTHS

STATE WELL	LAT/LONG	DISTANCE (KM)	DATE	DEPTH (FT)
01N05E14J001S	34.1697/-116.4255	0.50	01/23/1958	167
01N05E14Q001S	34.1661/-116.43	0.85	02/12/1958	100
01N05E24B001S	34.1625/-116.4122	0.95	02/12/1958	131.54
01N05E14P001S	34.1661/-116.4344	1.25	01/01/1958	82
01N05E24F001S	34.1589/-116.4167	1.00	02/12/1958	Dry Well
01N05E24K001S	34.1553/-116.4122	1.50	01/24/1958	Dry Well

h) Site geologic features are not expected to have a significant impact on sewage disposal system design.
i) It appears that there will be sufficient area for the on-site sewage disposal system and the required expansion area on the subject site.

2.0 EQUIPMENT

a) Two (2) exploratory bores and four (4) test holes were excavated on the subject property using a truck-mounted drill-rig (Mobile B-61) equipped with 8-inch outside diameter augers.
b) Tools used during testing consisted of a water level measuring device, a multi-timer application, and a 500-gallon truck-mounted water tank.

3.0 METHODOLOGY AND PROCEDURES

3.1 The exploratory bore and test hole locations were determined by Global Positioning System (GPS). The approximate locations of the exploratory bore and test holes are indicated in the attached Exploration Location Plan (Figure 3).

3.2 The test results and soil conditions encountered during our site exploration indicated "favorable" conditions. The percolation test rates determined by testing were consistent with the alluvial soil conditions observed throughout the subject parcel. The surface gradient throughout the site is less than 30 percent.

3.3 The soil encountered in our exploratory bores and test holes consisted primarily of fine- to coarse-grained silty sand (SM) and sand (SW).

3.4 Test procedures for leach lines:

a) Prior to testing, the County of San Bernardino DEHS was notified of the intent to perform percolation testing.
b) Two (2) exploratory bores and four (4) leach line percolation test holes were excavated on the site to depths between approximately 5 and 15 feet bgs. Percolation testing was performed at a depth of approximately 5 feet bgs within each of the test holes. Two (2) inches of ½ inch gravel was placed on the bottom of the test holes to prevent scouring when water was added.
c) Twelve inches of water (10 inches above gravel) of water was placed in the test holes and the drop in the water level was recorded over two consecutive 10-minute readings.
d) Percolation testing was performed by filling each test hole with approximately 8 inches of water and recording the time required to drop (minimum of 1-inch drop, maximum of 3-inch drop) in accordance with San Bernardino County OWTS guidelines[2].

3.4 Leach Line Test Results

TABLE 2
LEACH LINE TEST RESULTS

Test Hole No.	Depth (Ft.)	Q gal/sq. ft/day	Q minutes/inch	Minimum Square Feet of Absorption Area Per Gallon Per Day
P-1	5.0	----	2.22	0.83
P-2	5.0	----	1.67	0.83
P-3	5.0	----	2.38	0.83
P-4	5.0	----	2.10	0.83

[2] San Bernardino Public Health, Environmental Health Services, Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems, Revised September 2019.

4.0 DISCUSSION OF RESULTS

4.1 Testing indicates percolation rates between 1.67 and 2.38 minutes per inch that are consistent with the alluvium encountered with our exploratory bore and test holes.

4.2 The recorded measurements are considered accurate, and the consistency of the individual test results indicates accuracy.

5.0 DESIGN

5.1 Criteria:

a) Leach lines may be designed based on an application rate of 0.83 square feet per gallon per day in accordance with San Bernardino County DEHS guidelines.

TABLE 3
FIXTURE COUNT

PLUMBING FIXTURE	NUMBER	F/U	TOTAL
Water Closet	1	6	6
Lavatory	1	2	2
Sink	1	2	2

b) The estimated flow has been determined in accordance with CPC Table H201.1(4). Based on information provided by the design team, type of occupancy has been based on "Offices – per employee (20 gal)".

Based on the estimated wastewater flows and the provided fixture units, the new septic system should be sized based on the fixture units. The following information is considered applicable for use in septic system design:

a) The septic tank size should be based on the CPC Table H 201.1 for fixture units as follows:

- Fixture Units = 10
- Septic Tank Capacity = **750 gallons septic tank capacity**

b) The estimated waste/sewage flow rate was calculated based on the septic tank capacity of **750 gallons** with the following equation:

- Flow x 1.5 = Septic Tank Size
- Flow = Septic Tank Size / 1.5
- Flow = **500 gal/day**

c) Design Rate: The following calculation may be utilized to determine the design rate in square feet (ft^2) per 100 gallons of septic tank capacity (gstc):

= Application Rate (ft^2/gal/day)* Flow (gal)/(Septic Tank Size/100 gal)

=(0.83 ft^2/gal/day*500 gal)/(750 gal/100 gal)= **55.3 ft^2 per 100 gstc**

d) Information to assist in the design of the on-site sewage disposal system is presented below:

OWTS DESIGN
Standard Design (Three (3) Feet of Gravel @ Bottom of Leach Lines)
Fixture Units Served: 10
Design Rate (ft^2 per 100 gstc): 55.3
Application Rate (square feet/gal/day): 0.83
Estimated Gallons of Effluent Per Day: 500
Gallons of Septic Tank Capacity: 750
Absorption Area (square feet): 415
Trench Credit (square feet per ft): 7
Leach Line Length (ft): 60
Number of Leach Lines: 2 at 30 Feet Each

6.0 SEE ATTACHED EXPLORATION LOCATION PLAN AND OWTS PLAN

7.0 GENERAL DISCUSSION AND CONCLUSIONS

7.1 Based on the data presented in the report, it is the judgment of this engineer that leach lines may be used for the sewage disposal on this property.

7.2 Based on the data presented in this report and the tested information accumulated, it is the judgment of the engineer that the groundwater table should not encroach with the allowable limit set forth by County and State requirements, when the recommendations of this report are followed. Also, there appears to be sufficient area for the proposed on-site sewage disposal systems and future expansion.

7.3 All minimum setback distances shall be maintained for the proposed sewage disposal system in accordance with San Bernardino County guidelines[3].

[3] San Bernardino Public Health, Environmental Health Services, Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems, Revised September 2019; Appendix D.

8.0 GENERAL

The findings and recommendations presented in this report are based upon interpolating the soil conditions between bore locations and extrapolating the conditions throughout the sewage disposal system area. Should conditions encountered during grading (or excavation) appear different than those indicated in this report, this office should be notified.

This report is considered applicable for use by the client for the specific site and project described herein. The use of this report by other parties or for other projects is not authorized.

We appreciate the opportunity to provide service to you on this project. If you have any questions regarding this report, please contact the undersigned.

Respectfully submitted,
SLADDEN ENGINEERING

Carolin Patino
Staff Geologist

Brett L. Anderson
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
BRETT L. ANDERSON
No. C45389
CIVIL ENGINEERING
STATE OF CALIFORNIA

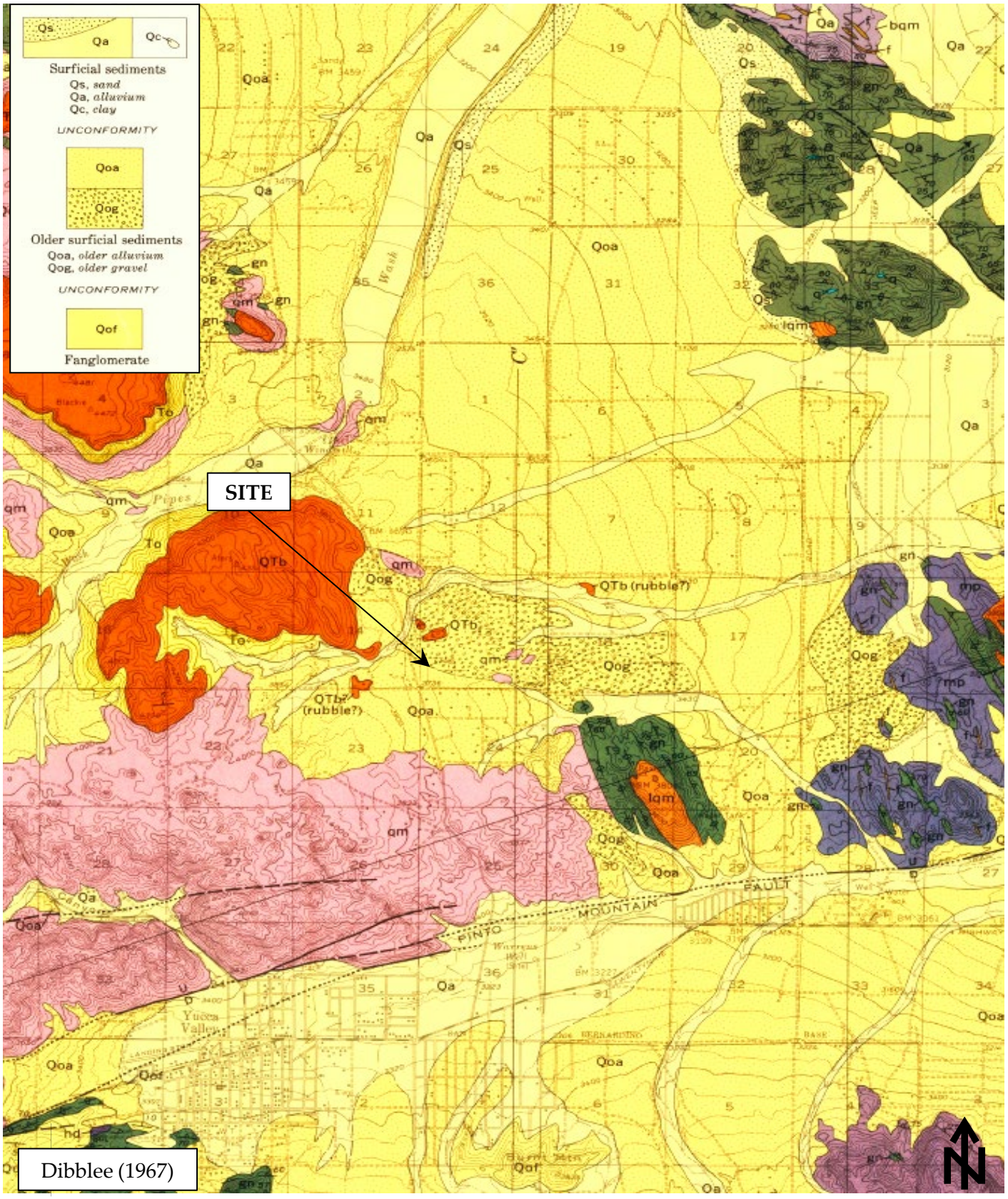
Matthew J. Cohrt
Principal Geologist

PROFESSIONAL GEOLOGIST
Matthew J. Cohrt
No. 2634
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

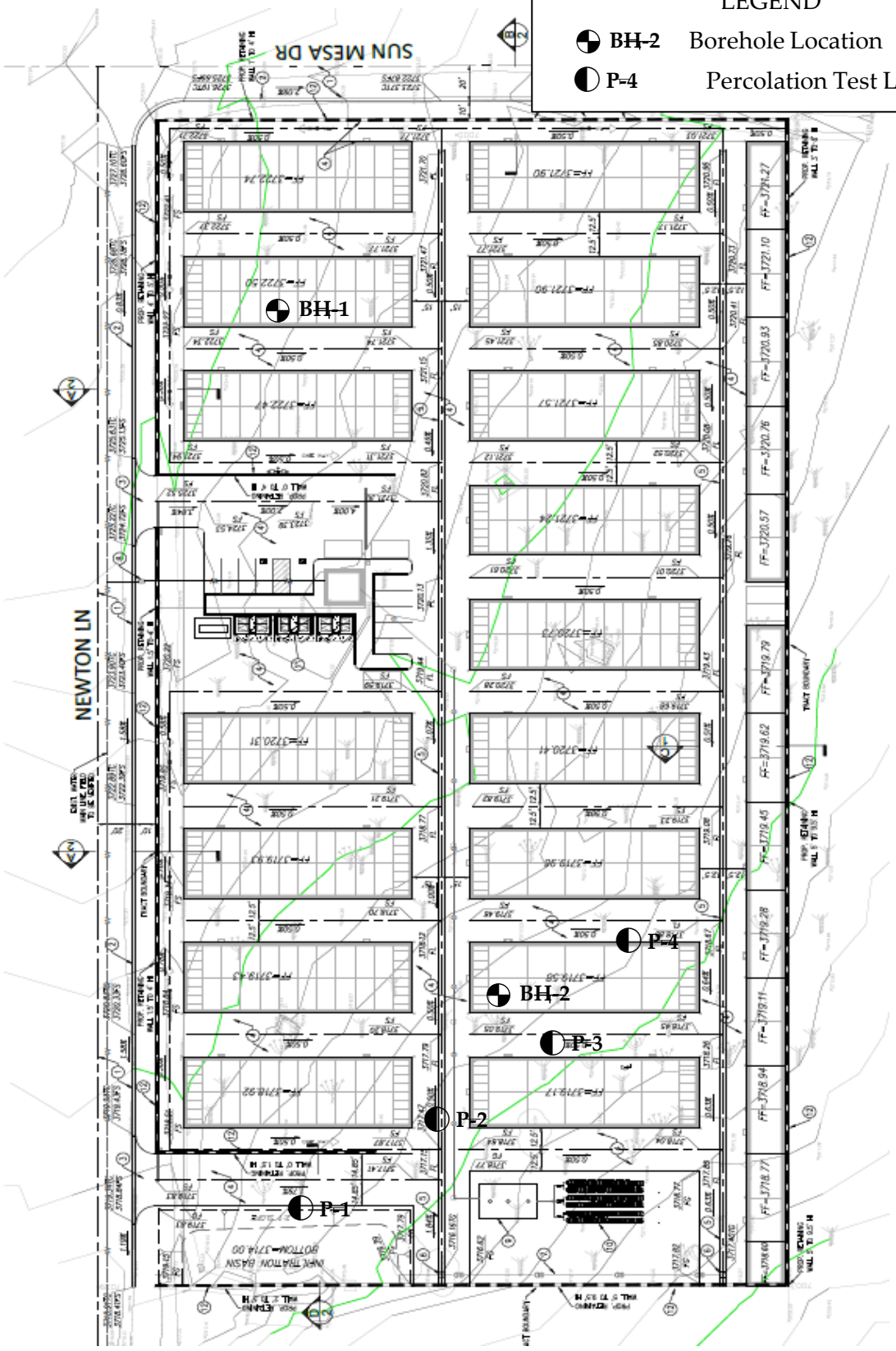
Perc/mc
PDF/Addressee

SITE LOCATION MAP
REGIONAL GEOLOGIC MAP
EXPLORATION LOCATION PLAN
OWTS PLAN

Sladden Engineering	SITE LOCATION MAP		FIGURE 1
	Project Number:	544-24365	
	Report Number:	25-01-007	
	Date:	January 14, 2025	



Sladden Engineering	REGIONAL GEOLOGIC MAP	FIGURE 2
	Project Number: 544-24365	
	Report Number: 25-01-007	
	Date: January 14, 2025	



EXPLORATION LOCATION PLAN

FIGURE 3

Project Number:	544-24365
Report Number:	25-01-007
Date:	January 14, 2025

Sladden Engineering

PRELIMINARY GRADING PLAN

SUN MESA ROAD, YUCCA VALLEY, CA

APN: 0597-111-67

LEGAL DESCRIPTION:

TR 8749, MB 120/50-64 SEC. 13, T1N, R5E., S.B.B.&M.
APN: 0597-111-67

BASIS OF BEARING :

THE SOUTHWEST 1/4 OF SECTION 13 PER TRACT 8749, MB 120/50-64 SAID BEARING BEING N00°00'08"E

BENCHMARK :

USGS BM 705 24
ELEVATION = 3718.55 FEET, NAVD 88

OWNER/DEVELOPER

ROB BILLINGS
5024 WALLABY STREET
YUCCA VALLEY CA 92284
760-686-4171
BILLINGSTRANSFER@YAHOO.COM

TOPOGRAPHY:

PREPARED BY:
LSAP CONSULTANTS LLC.
ADDRESS: 14997 MCGARGER RD
DESERT HOT SPRINGS , CA 92240
(760) 288-2232
SURVEY@LSAPCONSULTANTS.COM
DATE OF SURVEY JAN 2022

REGISTERED PROFESSIONAL ENGINEER
BRETT L. ANDERSON
No. C45309
CIVIL ENGINEERING
STATE OF CALIFORNIA

CERTIFIED ENGINEERING GEOLOGIST
MATTHEW J. CONRT
2634
STATE OF CALIFORNIA

OWTS DESIGN
Standard Design (Three (3) Feet of Gravel @ Bottom of Leach Lines)
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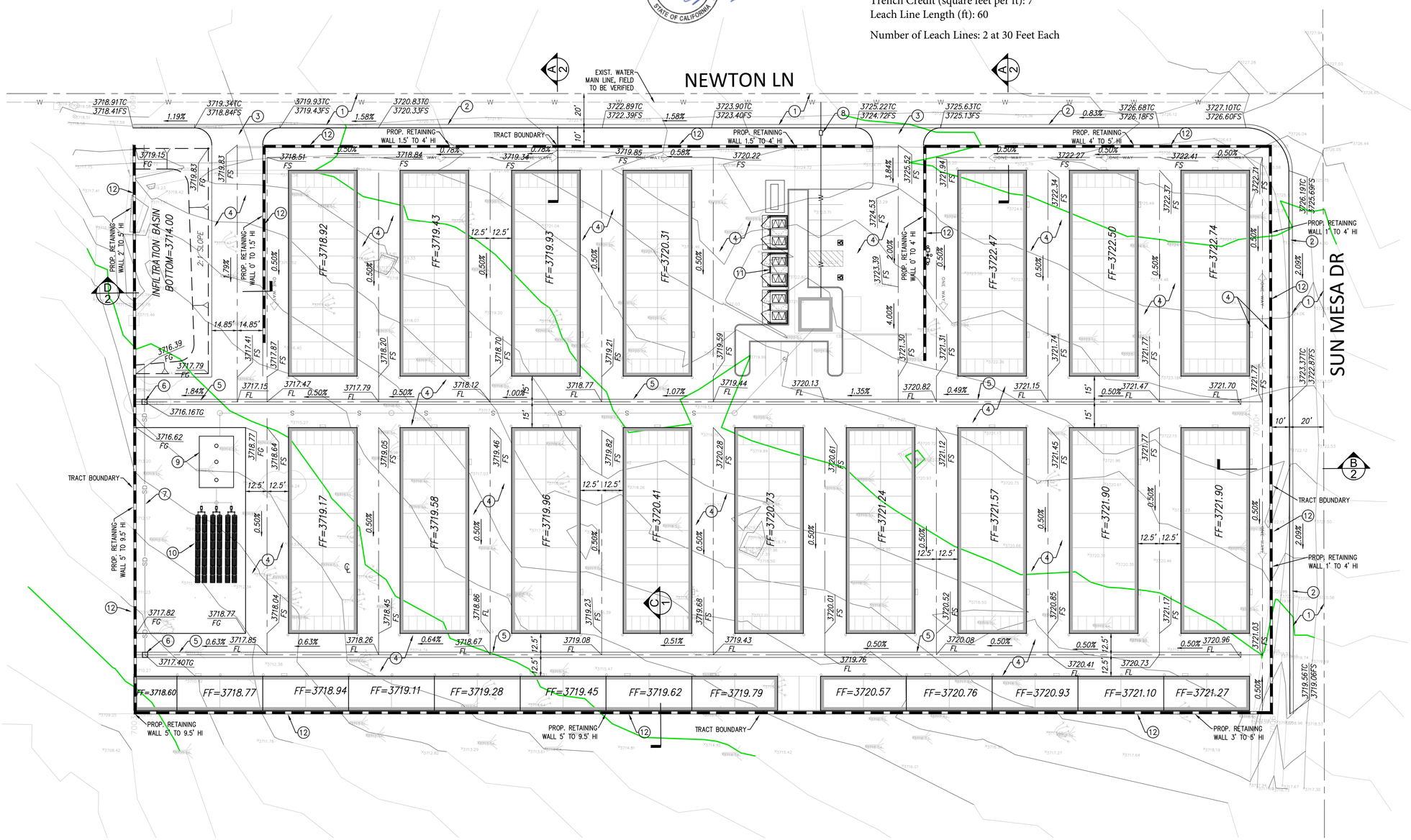
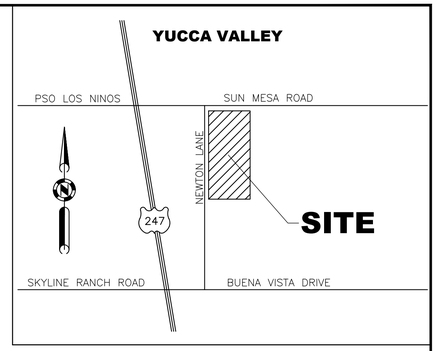
Number of Leach Lines: 2 at 30 Feet Each





VICINITY MAP

NTS

LEGEND:

	CENTERLINE	EP	EDGE OF PAVEMENT
	PROPERTY LINE	FF	FINISHED FLOOR
W	WATER LINE	FG	FINISHED GROUND
S	SEWER LINE	FL	FLOW LINE
OHE	ELECTRIC LINE	FS	FINISHED SURFACE
GAS GAS	GAS LINE	GB	GRADE BREAK
X	EXIST. CHAIN LINK FENCE	HP	HIGH POINT
	EXIST. WOOD FENCE	INV	INVERT ELEVATION
	EXIST. BLOCK WALL	PAD	PAD ELEVATION
944	EXIST. CONTOUR LINE	RET.	RETAINING WALL
945.0 FS	EXIST. SPOT ELEVATION	TC	TOP OF CURB
	EXIST. FIRE HYDRANT	TG	TOP OF GRATE
	EXIST. POWER POLE		
	EXIST. SEWER MANHOLE		
	EXIST. STORM DRAIN MANHOLE		
WM	EXIST. WATER METER		
	EXIST. WATER VALVE		
	EXIST. TREE		

CONSTRUCTION NOTE:

1. PROPOSED AC PAVEMENT
2. PROPOSED 6" CURB AND GUTTER
3. PROPOSED DRIVEWAY APPROACH
4. PROPOSED CONC. PAVEMENT
5. PROPOSED CONC. RIBBON GUTTER
6. PROPOSED 36"X36" CATCH BASIN WITH TRAFFIC RATED STEEL GRATE
7. PROPOSED 18" RCP
8. PROPOSED 1" SERVICE METER
9. PROPOSED SEPTIC TANK
10. PROPOSED LEACH FIELD
11. TRASH ENCLOSURE
12. PROPOSED RETAINING WALL

EARTHWORK VOLUMES:

TOTAL CUT - 4970 CY
TOTAL FILL - 4485 CY

** SEE EARTHWORK EXHIBIT FOR INFORMATION ON CUT-FILL BY LOCATION MAP.*

NORTH

0 15' 30' 60'

SCALE: 1"=30'

SHEET 1 OF 2

REGISTERED PROFESSIONAL ENGINEER
JOANNE C. SINGER
C 26900
03/31/2025
CIVIL
STATE OF CALIFORNIA

DRP ENTERPRISES LLC
Daniel Patneaude
MAILING ADDRESS:
PO Box 4428
Palm Springs, CA 92263
206-734-7765
DPATNEAUDE@DRPENTERPRISESLLC.ORG
WWW.DRPENTERPRISESLLC.ORG

Joanne C. Singer RCE 26900
760-625-7426

BORELOGS

Sladden Engineering

BORE LOG

Equipment:	Mobile B-61	Date Drilled:	12/3/2024
Elevation:	3,725 Ft. MSL	Boring No:	BH-1

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
■	14 14 17						0–2		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained (Qoa).
■	13 16 11						2–10		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained with calcium carbonate (Qoa).
■	5 7 8						10–14		Sand (SW); strong brown, dry, medium dense, fine- to coarse-grained with gravel (Qoa).
■	12 14 16						14–16		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained with gravel and calcium carbonate (Qoa).
■	10 13 13						16–22		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained with gravel and calcium carbonate (Qoa).
							22–50		Terminated at ~21.5 Feet bgs. No Bedrock Encountered. No Groundwater Encountered.

Completion Notes:

PROPOSED SELF STORAGE FACILITY
SUN MESA DRIVE; APN 0597-111-67

Project No:	544-24365	Page	1
Report No:	25-01-007		

Sladden Engineering

BORE LOG

Equipment:	Mobile B-61	Date Drilled:	12/3/2024
Elevation:	3,725 Ft. MSL	Boring No:	BH-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							0		Silty Sand (SM); strong brown, dry, fine- to coarse-grained (Qoa).
							2		
							4		
	15 16 13						6		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained with calcium carbonate (Qoa).
							8		
	11 16 20						10		Sand (SW); strong brown, dry, medium dense, fine- to coarse-grained with calcium carbonate webbing (Qoa).
							12		
							14		
	7 9 11						16		Silty Sand (SM); light brown, dry, medium dense, fine- to coarse-grained (Qoa).
							18		Terminated at ~16.5 Feet bgs. No Bedrock Encountered. No Groundwater Encountered.
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED SELF STORAGE FACILITY
SUN MESA DRIVE; APN 0597-111-67

Project No: 544-24365
Report No: 25-01-007

Sladden Engineering

BORE LOG

Equipment:	Mobile B-61	Date Drilled:	12/3/2024
Elevation:	3,725 Ft. MSL	Boring No:	P-1

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained (Qoa).
							4		
							6		Terminated at ~5.0 Feet bgs. No Bedrock Encountered. No Groundwater Encountered.
							8		
							10		
							12		
							14		
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED SELF STORAGE FACILITY
SUN MESA DRIVE; APN 0597-111-67

Project No: 544-24365
Report No: 25-01-007

Sladden Engineering

BORE LOG

Equipment:	Mobile B-61	Date Drilled:	12/3/2024
Elevation:	3,725 Ft. MSL	Boring No:	P-2

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained (Qoa).
							4		
							6		Terminated at ~5.0 Feet bgs. No Bedrock Encountered. No Groundwater Encountered.
							8		
							10		
							12		
							14		
							16		
							18		
							20		
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Completion Notes:

PROPOSED SELF STORAGE FACILITY
SUN MESA DRIVE; APN 0597-111-67

Project No: 544-24365
Report No: 25-01-007

Sladden Engineering

BORE LOG

Equipment:	Mobile B-61	Date Drilled:	12/3/2024
Elevation:	3,725 Ft. MSL	Boring No:	P-3

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained (Qoa).
							4		
							6		Terminated at ~5.0 Feet bgs. No Bedrock Encountered. No Groundwater Encountered.
							8		
							10		
							12		
							14		
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED SELF STORAGE FACILITY
SUN MESA DRIVE; APN 0597-111-67

Project No: 544-24365
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Sladden Engineering

BORE LOG

Equipment:	Mobile B-61	Date Drilled:	12/3/2024
Elevation:	3,725 Ft. MSL	Boring No:	P-4

Sample	Blow Counts	Bulk Sample	Expansion Index	% Minus #200	% Moisture	Density, pcf	Depth (Feet)	Graphic Lithology	Description
							2		Silty Sand (SM); strong brown, dry, medium dense, fine- to coarse-grained (Qoa).
							4		
							6		Terminated at ~5.0 Feet bgs. No Bedrock Encountered. No Groundwater Encountered.
							8		
							10		
							12		
							14		
							16		
							18		
							20		
							22		
							24		
							26		
							28		
							30		
							32		
							34		
							36		
							38		
							40		
							42		
							44		
							46		
							48		
							50		

Completion Notes:

PROPOSED SELF STORAGE FACILITY
SUN MESA DRIVE; APN 0597-111-67

Project No: 544-24365
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LEACH LINE DATA SHEETS

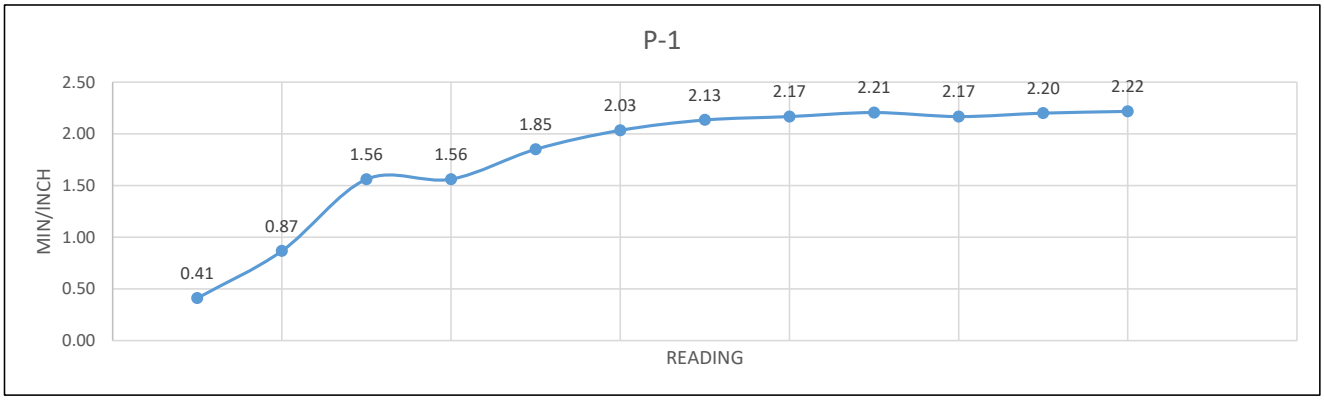
SAN BERNARDINO COUNTY LEACH LINE DATA SHEETS

Project: PROPOSED STORAGE FACILITY
Job No. : 544-24365
Date: 01/7/2025
Test Hole #: P-1
Depth (ft): 5.00
Disposal Area: FAVORABLE
USCS Soil Class: SM
Tested By: R.F.

READING	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
A	8:00:00	8:04:06	0:04:06	5.00	12	2	10	0.41
B	8:06:00	8:14:40	0:08:40	5.00	12	2	10	0.87
C	8:16:00	8:23:48	0:07:48	5.00	8	3	5	1.56

READING*	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
1	8:26:00	8:30:41	0:04:41	5.00	8	5	3	1.56
2	8:32:00	8:37:33	0:05:33	5.00	8	5	3	1.85
3	8:39:00	8:45:06	0:06:06	5.00	8	5	3	2.03
4	8:47:00	8:53:24	0:06:24	5.00	8	5	3	2.13
5	8:55:00	9:01:30	0:06:30	5.00	8	5	3	2.17
6	9:03:00	9:09:37	0:06:37	5.00	8	5	3	2.21
7	9:11:00	9:13:10	0:02:10	5.00	8	7	1	2.17
8	9:15:00	9:17:12	0:02:12	5.00	8	7	1	2.20
9	9:19:00	9:21:13	0:02:13	5.00	8	7	1	2.22

*Initial Water level of 8-inches



Rate (Min/Inch): 2.22

Sladden Engineering

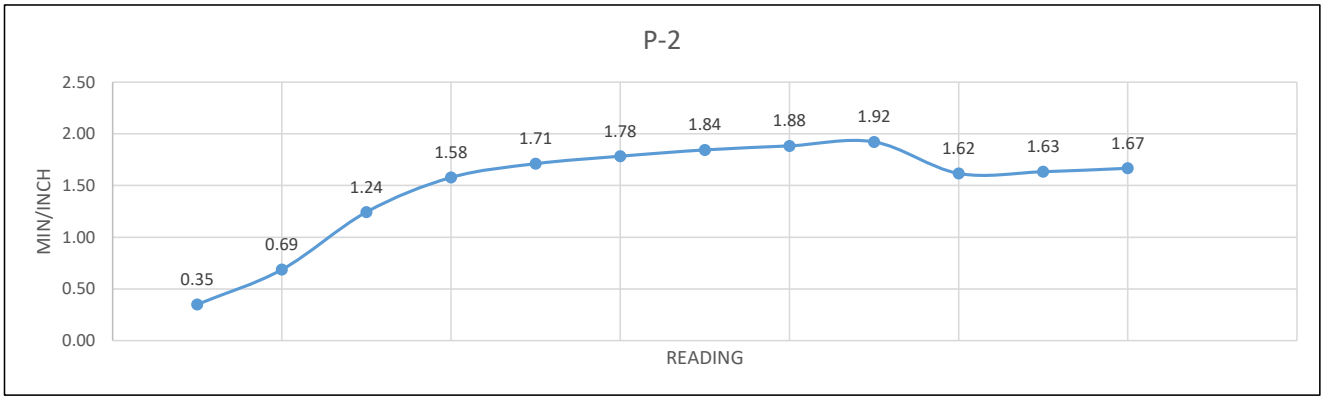
SAN BERNARDINO COUNTY LEACH LINE DATA SHEETS

Project: PROPOSED STORAGE FACILITY
Job No. : 544-24365
Date: 01/7/2025
Test Hole #: P-2
Depth (ft): 5.00
Disposal Area: FAVORABLE
USCS Soil Class: SM
Tested By: R.F.

READING	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
A	9:25:00	9:28:30	0:03:30	5.00	12	2	10	0.35
B	9:30:00	9:36:52	0:06:52	5.00	12	2	10	0.69
C	9:38:00	9:44:13	0:06:13	5.00	8	3	5	1.24

READING*	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
1	9:46:00	9:50:44	0:04:44	5.00	8	5	3	1.58
2	9:52:00	9:57:08	0:05:08	5.00	8	5	3	1.71
3	9:59:00	10:04:21	0:05:21	5.00	8	5	3	1.78
4	10:06:00	10:11:32	0:05:32	5.00	8	5	3	1.84
5	10:14:00	10:19:39	0:05:39	5.00	8	5	3	1.88
6	10:21:00	10:26:46	0:05:46	5.00	8	5	3	1.92
7	10:28:00	10:29:37	0:01:37	5.00	8	7	1	1.62
8	10:31:00	10:32:38	0:01:38	5.00	8	7	1	1.63
9	10:34:00	10:35:40	0:01:40	5.00	8	7	1	1.67

*Initial Water level of 8-inches



Rate (Min/Inch): 1.67

Sladden Engineering

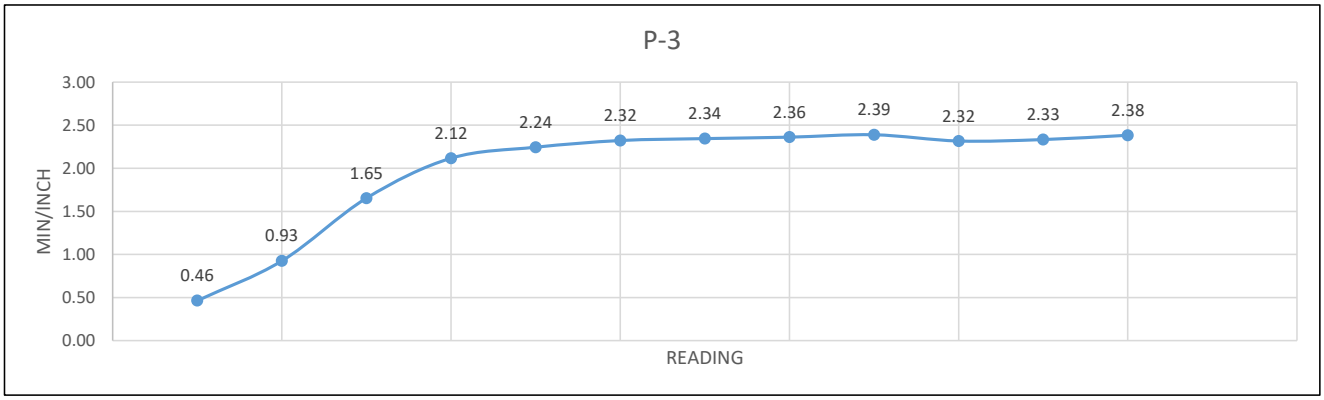
SAN BERNARDINO COUNTY LEACH LINE DATA SHEETS

Project: PROPOSED STORAGE FACILITY
Job No. : 544-24365
Date: 01/7/2025
Test Hole #: P-3
Depth (ft): 5.00
Disposal Area: FAVORABLE
USCS Soil Class: SM
Tested By: R.F.

READING	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
A	10:37:00	10:41:38	0:04:38	5.00	12	2	10	0.46
B	10:43:00	10:52:15	0:09:15	5.00	12	2	10	0.93
C	10:54:00	11:02:16	0:08:16	5.00	8	3	5	1.65

READING*	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
1	11:04:00	11:10:21	0:06:21	5.00	8	5	3	2.12
2	11:12:00	11:18:44	0:06:44	5.00	8	5	3	2.24
3	11:20:00	11:26:58	0:06:58	5.00	8	5	3	2.32
4	11:28:00	11:35:02	0:07:02	5.00	8	5	3	2.34
5	11:37:00	11:44:05	0:07:05	5.00	8	5	3	2.36
6	11:45:00	11:52:10	0:07:10	5.00	8	5	3	2.39
7	11:54:00	11:56:19	0:02:19	5.00	8	7	1	2.32
8	11:58:00	12:00:20	0:02:20	5.00	8	7	1	2.33
9	12:02:00	12:04:23	0:02:23	5.00	8	7	1	2.38

*Initial Water level of 8-inches



Rate (Min/Inch): 2.38

Sladden Engineering

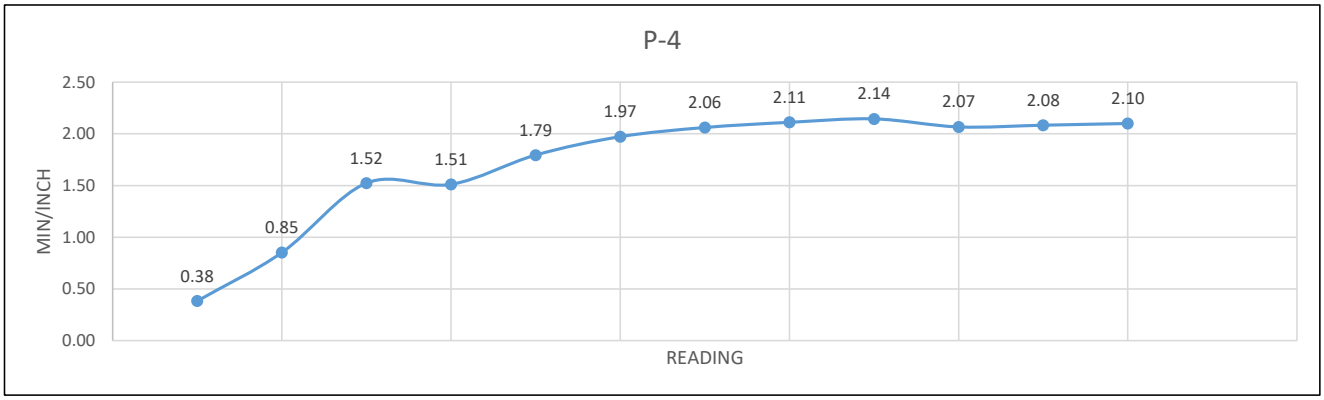
SAN BERNARDINO COUNTY LEACH LINE DATA SHEETS

Project: PROPOSED STORAGE FACILITY
Job No. : 544-24365
Date: 01/7/2025
Test Hole #: P-4
Depth (ft): 5.00
Disposal Area: FAVORABLE
USCS Soil Class: SM
Tested By: R.F.

READING	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
A	12:40:00	12:43:50	0:03:50	5.00	12	2	10	0.38
B	12:46:00	12:54:31	0:08:31	5.00	12	2	10	0.85
C	12:56:00	13:03:37	0:07:37	5.00	8	3	5	1.52

READING*	START TIME	END TIME	ELAPSED TIME (h:m:s)	DEPTH (ft)	INITIAL W (in)	FINAL W (in)	ΔW (in)	Min/Inch
1	13:05:00	13:09:32	0:04:32	5.00	8	5	3	1.51
2	13:11:00	13:16:23	0:05:23	5.00	8	5	3	1.79
3	13:18:00	13:23:55	0:05:55	5.00	8	5	3	1.97
4	13:26:00	13:32:11	0:06:11	5.00	8	5	3	2.06
5	13:34:00	13:40:20	0:06:20	5.00	8	5	3	2.11
6	13:42:00	13:48:26	0:06:26	5.00	8	5	3	2.14
7	13:50:00	13:52:04	0:02:04	5.00	8	7	1	2.07
8	13:54:00	13:56:05	0:02:05	5.00	8	7	1	2.08
9	13:58:00	14:00:06	0:02:06	5.00	8	7	1	2.10

*Initial Water level of 8-inches



Rate (Min/Inch): 2.10

Sladden Engineering

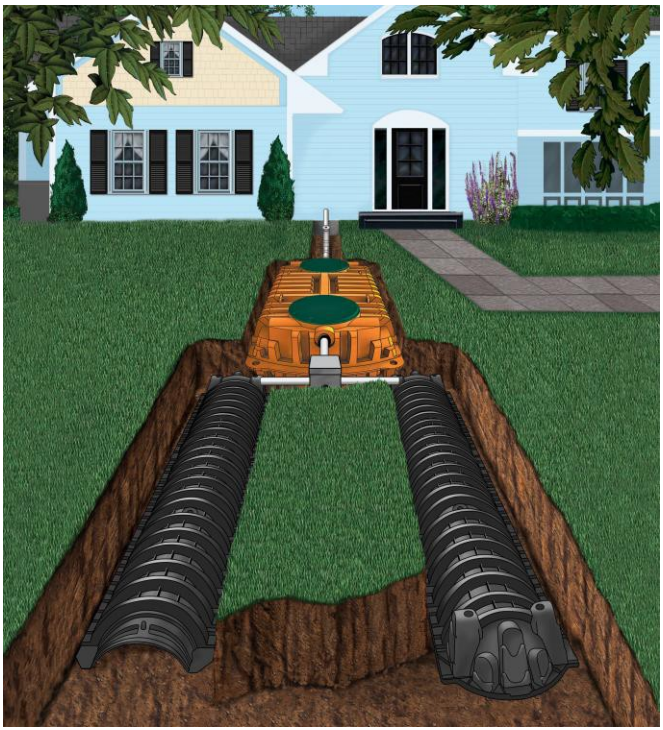
TAKING CARE OF YOUR SEPTIC SYSTEM

SAN BERNARDINO COUNTY

www.SBCounty.gov

TAKING CARE OF YOUR SEPTIC SYSTEM

WHAT YOU NEED TO KNOW



DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

385 N Arrowhead Ave., 2nd Floor
San Bernardino, CA 92415
1-800-442-2283

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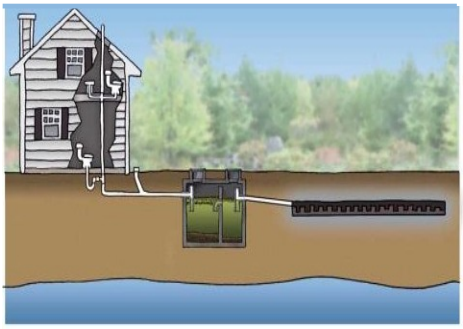
Reading this brochure could save you a lot of money, time, and trouble. By learning how to take care of your septic system, you can protect your family's health and the value of your home. You can also protect the environment, including your drinking water, from contamination caused by your septic system.

What Is A Septic System?

A septic system is made up of a septic tank and a leachline or seepage pit (dispersal soil absorption area) buried in the ground near your home. This system treats wastewater and sewage from your toilets, showers, washing machines, garbage disposals, kitchens, etc., where public sewer systems are not available.



The septic tank is a concrete, fiberglass, Polyethylene or steel box about nine feet long and five feet deep and wide. The tank is usually buried about five feet from the house under one to three feet of soil. The leachline is a gravel-filled underground trench, whereas a seepage pit is a vertical hole in the ground with a concrete block lid and walls that are covered with soil. The pit measures 4-6 feet in diameter and 15-40 feet deep.

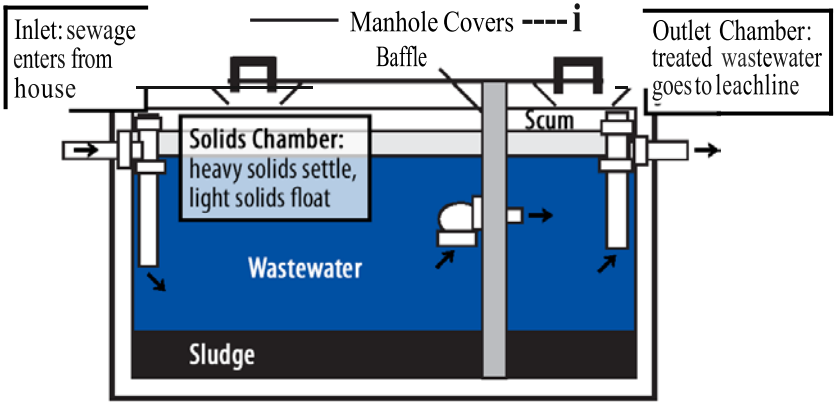
What Does A Septic System Do?

A septic tank has three main functions to:

1) Remove and treat greases and solids in the wastewater;
2) Store greases and solids until they are removed by a professional septic tank pumper; and
3) Slowly release wastewater to a dispersal system so it can be absorbed by the soil.

Wastewater from your home flows into a two-chamber septic tank. In the first solids chamber, greases and light solids in the water rise to the surface of the liquid, forming a scum layer, while heavier materials sink to the bottom and form a sludge layer. Anaerobic bacteria digest (break down) solids in the sludge layer to reduce sludge buildup. The third layer is the clarified wastewater which flows to the second liquids chamber where further settling occurs.

Typical Concrete Septic Tank



The treated wastewater flows from the liquid chamber to the dispersal soil absorption area, where it seeps down into the soil. Bacteria trapped in the soils continue treating the wastewater. Every time raw sewage flows into the tank, an equal amount of treated wastewater flows out.

What Could *Go* Wrong?

Septic Tank Failure

Ignoring your septic system could cost you thousands of dollars for repair or replacement. If your tank is not pumped regularly, scum and sludge will fill up the tank, overflow into the dispersal

area and plug up the soil. This causes the leachline to fail and the wastewater to rise to the surface of the ground. Failure of a leachline means a new leachline or seepage pit must be constructed with a permit from the County or City Building and Safety Department.

Other factors can also cause septic system failure. Wasting water, or even too many people living in the house, can cause a septic system to fail. Your septic system was designed according to the number of bedrooms in the home with an average of two people per bedroom. Because the soil can only absorb a limited amount of water, conserving water can help you stay under the daily limit.

This chart shows how much wastewater your tank can process in a 24-hour period:

Bedrooms	Estimated Gallons of Wastewater per Day	Septic Tank Capacity in Gallons
1-2	500	750
3	670	1000
4	800	1200
5-6	1000	1500

Water draining into the leachline from gutters, or even heavy rains, can overload the system and cause it to fail.

Health Hazard

Failure of a septic system is a serious health hazard and could threaten the health of your family and neighbors. Children and adults could come in contact with raw (untreated) sewage. Pets, insects, rodents, and birds could pick up and carry disease causing organisms to you and your family. Furthermore, it usually stinks.

Water Contamination

The first sign of failure is sewage where you don't want it, such as:

- Sewage running into the tub when you flush the toilet
- Sewage rising to the surface of the ground above the leachline, especially after storms
- Slow draining toilets/drains or toilets that won't flush
- Gurgling sounds in pipes and drains
- Mushy ground or lush, green grass near septic system area
- Strong sewage odors and possible complaints from your neighbors

What Can I Do? Important Ways to Keep Your Septic System Running Well

Do **have your tank pumped by a County-licensed septic tank pumper every two to four years.** Have both compartments pumped. To see if your tank needs to be pumped, remove the manhole cover at the inlet end (the end closest to the house). Use a shovel to push the scum layer away from the side of the tank to estimate its thickness. If the scum layer is more than one foot thick, have your tank pumped immediately! Replace the manhole cover and wash your hands and shovel. Yearly inspection of the septic tank is strongly recommended. Check your phone book yellow pages for a licensed Septic Tank Pumper. If your tank does not have risers to grade, install them over both chambers.

Do **keep a record of all pumpings, inspections, installations and other maintenance.** Keep this brochure and use the back page to record this information. This record should remain in the

house, even if you move. If you buy a house with a septic system, make sure you get a record and layout from the owner. They are responsible for keeping the records.

Do **call your City or County Building and Safety Department if your system fails within five years of the installation date.** This could mean your system was not designed, constructed or installed properly. DEHS does not have final plans on what was installed.

Do **find out where your septic tank and leachline are.** Your licensed pumper can help you draw a sketch of the septic system layout, including the location of the manholes, tank, piping and leachline. Remember, pumping your tank or installing a new leachline will cost more if the pumpers or contractors have to dig and search for the tank or leachline. Also, install an effluent filter on the outlet line to prevent solids from plugging the soil.

Do **conserve water.** Repair dripping faucets and leaking toilets. Avoid taking long showers and use water saving toilets, shower heads and faucets. Don't leave faucets running for long periods of time. Use your dishwasher or clothes washer only when the machine has a full load. Using your garbage disposal will also fill up your septic tank much faster.

Do **use bleach, disinfectants, and drain/toilet bowl cleaners sparingly and according to labels.** Take your leftover household hazardous chemicals to a Household Hazardous Waste Collection Center. For more information on household hazardous waste disposal call (909) 382-5401.

Do **reserve additional land equal to or larger than your present septic system area for future use.** This is needed when the original system fails. Do not build over the existing system or expansion area.

Tips to Avoid Trouble

Do Not **wait until your septic system fails to have your tank pumped.** It is cheaper and easier to prevent system failure than to correct a failed system or to install a new system. Remember, once the leachline is clogged, cleaning the tank will do little good. You will need a new leaching area.

Do Not **waste money on chemical, yeast, bacteria or enzyme additives.** These products have been evaluated by the EPA and it has been determined that they usually don't prevent problems. These products could hurt your system in the long run, or even contaminate groundwater. Only regular tank pumpings by professional licensed septic tank pumpers can help.

Do Not **destroy an old, failed leachline.** It may be used again by letting the old leachline dry out, or rest, for three to five years. DEHS recommends installing a diversion valve when your new leachline is built to change the flow of wastewater from the new line to the old line. After the three to five year waiting period, you can release the wastewater to the new line on even-numbered years and to the old line on odd-numbered years. If you let a leaching area rest every other year and have your septic tank pumped regularly, the leachline(s) should last the life of your home or building.

Do Not **allow anyone to drive, park or pave over any part of the system.** Traffic vibration or heavy weight could damage pipes and your seepage pits. The area over the leachline should be left undisturbed with only a mowed grass cover. Keep trees and shrubs away from your septic system area. Their roots could clog or damage your leachline(s).

Do Not **use your toilet and sink as a trash can to dump non- degradable (things that do not dissolve).** Keep things like vegetable trimmings, cooking oils, greases, coffee grounds, cigarette butts, Kleenex, paper towels, disposable diapers, and sanitary pads out of your septic tank. Use good quality white toilet paper that breaks up easily when wet. Dyes from colored toilet paper can hurt the bacteria.

Do Not **contaminate the groundwater or harm your septic system by pouring harmful chemicals down the drain or toilet.** Large amounts of cleaning products can kill the good bacteria in your septic tank that treat wastewater. Read the instructions on the labels and use only as directed.

KEEP THESE MATERIALS OUT OF YOUR SEPTIC SYSTEMS!

Non-degradable: grease, paper towels, plastics, coffee grounds, cigarette butts, disposable diapers, etc.

Hazardous Waste: paints and paint thinners, used motor oil, pesticides, antifreeze, weed killers, etc.

WHERE IS MY SEPTIC SYSTEM?

One method to locate a septic tank is by probing with a metal rod or by listening to the noise a plumber's snake makes when it contacts the tank inlet. Care must be utilized during the probing as it may damage the inlet fitting or piping.

Another method is by making a water probe with *W"* X 6' galvanized water pipe or PVC, threaded on one end. Purchase a pipe-to-hose fitting or use duct tape as a temporary fitting. Turn the water on and sink the probe into the ground. The water will do the digging. Set up a grid pattern and probe every 1 to 2 feet until the tank is found. The top of the septic tank is usually 2 to 4 feet beneath the surface. Legally, septic tanks can be no closer than 5 feet from the house so begin probing 6 to 7 feet from the house. Typically, the septic tank is in the front yard but the system might be in the rear yard or even under a patio slab.

SAVE THESE IMPORTANT SEPTIC SYSTEM RECORDS!

SEPTIC TANK ADDRESS:

SEPTIC TANK
Installation Date/Size (gallons)

CONTRACTOR
Name/Phone Number

SEPTIC TANK/SEEPAGE PIT PUMPING

LEACHLINES/SEEPAGE PIT
Installation Dates/Length, Width, Depth of Rock

SAN BERNARDINO COUNTY

Department of Public Health | Division of Environmental Health Services | 800-442-2283 | www.SBCounty.gov/dph/dehs