Proposed Onsite Wastewater Treatment System
Proposed 14.22-Acre Park Restroom Building, Phase 3
Warbler Road, East of Sheepcreek Road
Phelan, California
APN 3066-251-14 & 3066-261-08

Percolation Test Report

Prepared For: Phelan Pinon Hills Community Services District
Prepared By: Merrell Johnson Companies

April 21, 2022

George Cardenas
PPHCSD Engineering Manager
4176 Warbler Road
P.O. Box 294049
Phelan, CA 92329

Subject: Percolation Test Report for Onsite Wastewater Treatment System | Proposed 14.22-Acre Park Restroom Building, | 4176 Warbler Road, Phelan, CA 92329 | APN 3066.251-14 & 3066.261.08 | M.J. Project No. 3103.006.500

Mr. Cardenas:

Per your authorization, Merrell Johnson Companies' (MJC's) personnel have performed percolation testing for the proposed onsite wastewater treatment system (OWTS) planned for the proposed restroom building at the proposed 14.22-acre park (Phase 3).

MJC understands that seepage pits will be used to dispose of the effluent from the OWTS.

We trust that the enclosed information will be useful for the design and construction phases of this project. If you have any questions, please do not hesitate to contact our firm.

Sincerely,
Merrell Johnson Companies

Brad S. Merrell, P.E.
President
R.C.E. 49423 Exp. 09/30/22

Contents

Appendices

References

A. Site Plan (Page A-0), Phelan Pinon Hills Community Services District, Proposed Park, Steeno Design Studios, Job No. C20-L29, January 2022

B. 2019 California Plumbing Code, California Code of Regulations, Title 24, Part 5, California Building Standards Commission

C. Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems, San Bernardino County Environmental Health Services, Revised September 2019.
http://wp.sbcounty.gov/dph/wp-content/uploads/sites/7/2019/09/PERC-9.26.19-APPROVED.pdf

D. How to Size Your Leach Lines, Infiltrators, or Pits, San Bernardino County Division of Environmental Health (DEHS), Not Dated

E. Minimum Setback and Location of Septic System, including distribution box and leach line cross-sections -DEHS Publication, Not Dated

INTRODUCTION

The percolation tests described in this report were performed in accordance with San Bernardino County Environmental Health Service's (EHS) Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems, Revised September 2019.

Following these Standards, we notified EHS on March 09, 2022, that our percolation testing at the subject site would be performed on March 16, 2022. This included our filling out and emailing EHS's their Percolation Test Notification form. A copy of this notification is attached to this report in Appendix D.

The following table lists the site address, owner, and the contractor for whom this report was prepared.

Site Address	Project Owner	Report Prepared For
Park Site	Phelan Pinon Hills Community Services District	George Cardenas PPHCSD Engineering Manager
4176 Warbler Road	4176 Warbler Road	4176 Warbler Road
Phelan, CA	Phelan, CA 92329	Phelan, CA 92329
34° 25' 18.13" N 117° 34' 13.45" W	--	--
	(760) 868-1212 gcardenas@pphcsd.org	(760) 868-1212 gcardenas@pphcsd.org

DESCRIPTION OF SITE

The 14.22-acre park site is located on the north side of Warbler Road, east of Sheepcreek Road in the Phelan area of San Bernardino County. The existing Phelan Community Services facility and park site are located adjacent the west side of the proposed 14.22-acre phase 3 park expansion. The phase 4 park expansion located to the north and east of phase 3 is planned for a future date.

Phase 3 development of the proposed park will include the construction of a multi-purpose athletic field, field event lawn area, tennis court, native gardens/fountains, splash pad, event plaza w/ stage, and restroom building. Improvements to Warble Road, a parking lot, and pedestrian walkways will also be constructed.

Future Phase 4 improvements will include a softball field, pump-track, and dog park. Two parking lots, access roads, pedestrian walkways, and four retention basins are also planned. The park expansion improvements are illustrated on the Site Plan prepared by Steeno Design Studio, Inc., dated January 2022.

The proposed OWTS for the proposed restroom building will be located north of the proposed multi-purpose field (soccer field) and will incorporate a septic tank and seepage pits. The project's Civil Engineer will prepare the Site Plan that illustrates the proposed replacement OWTS location using the information provided in this report.

The proposed development and OWTS locations are shown on the attached Site Plan, Appendix A, Figure 2. In addition, the Assessor's Parcel Maps are presented in Appendix A, Figure 3.

GROUNDWATER

Water for the site is provided by a private water purveyor. To conjunction with the Geotechnical Investigation and this Percolation Test Report, five exploratory test borings and two percolation test borings were drilled. The deepest boring was to a depth of 30 feet. No groundwater was encountered in any of the test borings.

A review of the California Department of Water Resources website indicates only three wells within a five-mile radius of the site. Two of the wells are listed as dry. The nearest water well that includes historic water depth data is located just south of Phelan Road, west of Caughlin Road about 4.7 miles northeast of the site.
http://wdl.water.ca.gov/waterdatalibrary/

The well data from the Caughlin/Phelan Road site is listed below:

1. Site Well Number: 04N06W15J001S
   Site Code: 344319N1174893W001
   Approximate Site Elevation: 3803.02 (Surface Datum – NGVD29)
   Well Surface Elevation: 3803.02
   Depth of Historic High Groundwater: 869.5 feet (1917)
   Elevation of Historic Groundwater Surface: 2933.52

Based on our research of existing water well data in the vicinity of the project and our own exploratory borings, the depth to the historic high groundwater level is at least 100 feet below the project site's existing ground surface.

EQUIPMENT

The following supplies and equipment were utilized during to excavate the test borings and perform the percolation testing:

- Drill-rig – CME 75, 8-inch diameter
- Water Level Monitor (electronic measuring tape)
- ¾" gravel
- Stop-watch and timer
- Miscellaneous hand tools
- Water trailer
- Perforated PVC pipe
- Filter fabric

METHODOLOGY AND PROCEDURES

Two test borings were excavated to test the soil percolation rates, one to a depth of 20 feet and one to a depth of 30 feet. A sieve analysis performed on a soil sample obtained between the depths of 0-5 feet and 10 to 15 feet contained 21.9% and 15.0% fines, respectively (fines are defined as the soil fraction passing the #200 sieve). Percolation

testing was performed in both the 20-foot- and 30-foot-deep borings. The approximate locations of the test borings are shown on the attached Site Plan, Appendix A, Figure 2.

The soil profile of each percolation test boring was logged by our field engineer. A perforated PVC pipe, wrapped in filter fabric, was inserted into each test boring to keep the hole open despite sidewall caving. At the conclusion of the percolation testing, the borings were backfilled with the onsite soils.

SOIL CONDITIONS

The soil conditions exposed in the two percolation test borings are tabulated below.

Test Boring #	Depth (feet)	Soil Description	Lab Sample
P-1	0 to 20’	SM, Light brown silty sand, medium dense, moist, caving noted.	21.9% passing the 200 sieve (0-5’ sample)
P-2	0 to 30’	SM, Light brown silty sand, medium dense, moist, caving noted.	15.0% passing the 200 sieve (10-15’sample)

Sieve Analysis:

Sieve analysis was performed on bulk soil samples obtained in Borings P-1 and P-2. The samples were obtained between the depths of 0-5 feet and 10-15 feet, respectively. The purpose of the testing was to assist in classifying the soils encountered and to measure the percent of soil passing the #200 sieve (fines). The results of the sieve analysis indicated the soils tested in the test borings consisted of silty sand (SM) containing between 15.0 and 21.9 percent passing the #200 sieve. The sieve analysis test data is presented in Appendix C.

PERCOLATION TEST PROCEDURES

Test Boring:

1. The two 8-inch-diameter percolation test borings were excavated to depths of 20 and 30 feet using the CME 75 drill-rig.

Pre-Soak:

1. On March 15, 2022, the 20- and 30-foot-deep test borings were filled to the ground surface with clean water. It was observed that the water levels dropped rapidly. The water was allowed to percolate overnight.

   The following morning, March 16, 2022, the water had seeped away in both borings. The borings were again filled to the surface, and the water levels were measured after a 30-minute time interval. In both test holes, the water levels dropped more than half the initial wetted depth.

   To compensate for the reduced water volume caused by using perforated piping in each hole, the County's Standard required the holes be filled to the surface two more times to provide four consecutive 30-minute readings.

   Because the water levels dropped more than half the initial wetted depth after each of the four fillings described above, the *Same Day Testing* procedure described in Section 5.2 (Testing -Seepage Pit) of the County's Standard was used to test the percolation rate.

Percolation-rate Measurement:

1. After the pre-soaking, the two bore holes were filled to the ground surface. The drop in water level was measured after a time interval of 10 minutes.

2. The procedure described in No. 1 above was repeated three (3) more time to obtain a total of four 10-minute interval measurements.
3. The bore holes were then filled to a depth of 4 feet below the ground surface and the drop in water level measured after a 10-minute interval. This procedure was then repeated a second time (two 10-minute interval measurements).
4. The final two 48-inch initial wetted depth measurements did not vary by more than 10% and were used to calculate the percolation rate.
5. Because perforated piping was used, caving did not hamper the test measurements.

DESCUSSION OF RESULTS

The disposal area for the proposed seepage pits will be located southeast of the proposed restroom building. The sandy soils encountered in the test borings are considered favorable as defined in Section 3.2 of the County Standard. The results of the percolation tests are included with this report in Appendix D.

Sources of measurement error were kept to a minimum during the percolation testing. The water levels were measured to the nearest 100th of a foot using a water level monitor. Timers were used to start and stop the time intervals between readings.

TEST RESULTS FOR SEEPAGE PITS

The water seeped away rapidly in both test borings. Because 30-foot-deep seepage pits are proposed, the data from the 30-foot-deep test boring, P-2, was used to design the proposed seepage pit for the project. The field data for P-2 is listed below:

P-2 Test Data

1. Boring P-2
2. Diameter of the test boring - 0.67’ (8 inches)
3. P-2 was pre-soaked overnight (22 hours). The percolation tests were performed as described in the previous Percolation Test Procedures section of this report.
4. P-2 was drilled to a depth of 30.0 feet.
5. The strata encountered in the test hole consists of poorly graded sand with gravel to the depths explored. The strata are considered favorable as defined in the County Standard. The poorly graded sand with gravel was encountered in all five exploratory, and three percolation test borings drilled for this project.
6. The percolation tests were performed by Chris Langdon of Merrell Johnson Geotechnical.
7. The percolation tests were performed on March 16, 2022.
8. A perforated PVC pipe, wrapped in filter fabric, was inserted into hole to keep the holes open for measurements despite sidewall caving.
9. Numerical values used in the design calculations are tabulated as follows.

Parameter	Meaning	Value
t_i	Initial time when filling or refilling is completed (in hours)	10.90 hrs.
t_f	Final, end-time of fall (in hours)	11.07 hrs.
^t	Change in time (in hours)	0.17 hr.
d_b	Depth of water to bottom of test hole (in feet)	30’
d_i	Depth of water surface at t_i (in feet)	4.00
d_f	Depth of water surface at t_f (in feet)	8.08’
D	Diameter of hole in feet	0.67’
L_{avg}	Average length of water column	’
F	Change in depth	’
¶	3.14 (pi)	3.14
Q	Rate in gallons per square foot of sidewall per day	g/sf/d
Pit MPI	Pit minutes per inch	mpi

P-1 Seepage Pit Calculations

- F= $d_f - d_i = \hat{}d$ F= 8.08'- 4.00' = 4.08'
- Lave = db-(d_i+d_f) / 2 Lave = 30'- (4.00' + 4.08') / 2 = 25.96'
- Q = FD9/Lave x ^t Q= 4.08' x 0.67' x 9 / 25.96' x 0.17 hr. = **Q= 5.58 g/sf/day**
- Pit MPI = 180/Q = 180/5.58 = 32.26 mpi

Section 5.5 (e) of the County's Percolation Testing and Reporting Standard (Ref. C) states :

> The design Q for seepage pits must be >1.1 g/sf/day of sewage, but <4 g/sf/day. Q's greater than 4 g/sf/day will not be credited.

Therefore, the Q for used for the seepage pit design for this project was **4.0 g/sf/day**.

Septic Tank Capacities

The recommended capacities of the septic tanks were determined based on Section H201.0 of the California Plumbing Code (C.P.C.). Section H201.0 of the C.P.C. states:

> The liquid capacity of septic tanks shall comply with Table H201.1(1) and Table H201.1(4) as determined by the number of bedrooms or apartment units in dwelling occupancies and the estimated waste/sewage design flow rate or the number of fixture units as determined by Table 702.1 of this code, **whichever is greater in other occupancies**.

M.J.C. compared the septic tank capacities obtained using the estimated Fixture Count Method, Table H201.1(1), with the design flow rates using the Use/Occupancy Method presented in Table (H201.1(4) of the C.P.C.

Fixture Unit Count Method

Fixture Unit Count Method						
	Toilets	Urinals	Sinks	Mop Sink	Drinking Fountain	Totals
Restroom	6	2	4	1	2	15
D.F.U. per C.P.C. Table 702.1	6	2	1	3	0.5	--
Total Fixture	36	4	4	3	1	48
Min. Septic Tank Capacity (C.P.C. Table H201.1 (1)						**2,000-gal.**

Use/Occupancy Method

Use/Occupancy Method			
Type of Occupancy	Number of Parking Spaces	Gallons Per Day	Total Gallons Per Day
Park – Phase 3	163	20	3,260
		Total Daily Flow Rate	3,230 gal/day

The minimum septic tank capacity was calculated for the park expansion Phases 3 using the formula from C.P.C. Table H201.1(4), Note b.

Flow x 0.75+1125 = septic tank capacity
3,320 g/d x 0.75 + 1125 = 3,570-gallons
3,600-gallons used for this design

The C.P.C. requires the designer to use the fixture unit count or use/occupancy method, whichever septic tank capacity is greater. In accordance with the C.P.C., Merrell Johnson Geotechnical recommends the Use/Occupancy Method, C.P.C. Table H201.1(4), be used to determine the septic tank capacity for the proposed Restroom Building.

Minimum Recommended Septic Tank Capacities			
Building	Fixture Unit Count Method	Occupancy Type Method	Septic Tank Capacity
Restroom	X		2,000-gallons
Restroom		X	3,600-gallons

Seepage Pit Depth Below Inlet Pipe Calculations

The total seepage pit depth below the assumed four-foot (4) deep inlet pipe was calculated as follows:

Septic Tank Size / (Q x diameter of seepage pit x 3.14) plus assumed 4-foot inlet depth.

- Four-foot (4) seepage pit diameter = 3,600g / (4 g/sf/d x 4.0'x 3.14') = 72'
- Five-foot (5) seepage pit diameter = 3,600 gal / (4 g/sf/d x 5.0'x 3.14) = 57'
- Six-foot (6) seepage pit diameter = 3,600gal / (4 g/sf/d x 6.0x 3.14) = 48'

Merrell Johnson Companies recommends the seepage pits be installed to the depths listed below:

Option No.1 - 4.0' diameter seepage pit, assuming a 4.0' inlet depth

- 72' / 24' = three (4) 4-foot-dia. pits, each 28' deep assuming a 4' inlet depth

Option No. 2 – 5.0' diameter seepage pit

- 57' / 19 = three (3) 5-foot-dia. pits, each 23' deep assuming a 4' inlet depth

Option No. 3 – 6.0' diameter seepage pit

- 48' / 16' = three (3) 6-foot-dia. pits, each 20' deep assuming a 4' inlet depth

Seepage Pit Recommendation Summary (assumes a 4-foot-inlet depth)

- **Option No. 1 – 3,600-gallon septic tank, distribution box, and three (3) 4-foot-diameter by 28-feet-deep seepage pits**

- **Option No. 2 – 3,600-gallon septic tank, distribution box, and three (3) 5-foot-diameter by 23-feet-deep seepage pits**

- **Option No. 2 – 3,600-gallon septic tank, distribution box, and three (3) 6-foot-diameter by 20-feet-deep seepage pits**

If the seepage pit diameters and/or depths are reduced from what is recommended above, additional, or deeper seepage pits would be required.

Separation to Groundwater

The historic high groundwater table is 870 feet at the closest well; therefore, the separation between the bottoms of the recommended 20- to 28-foot-deep seepage pits and the historic high groundwater is at least 300 feet below the existing ground surface. This depth easily meets the County's separation to groundwater requirement of 40 feet.

Septic Tank

- **Septic Tank Material**

    - The septic tanks shall be constructed of precast concrete or fiberglass.

- **Septic Tank Specifications**

    - Tank Compartments – The septic tank shall have no less than two compartments. Inlet compartments shall be not less than two-thirds of the total capacity of the tank. The liquid depth shall be not less than 2.5 feet nor more than 6 feet. The secondary department shall have a capacity that does not exceed one-third of the total tank capacity.

- Tank Access – Access to each septic tank shall be provided by not less than two manholes, 20 inches in minimum dimension, or by an equivalent removable cover slab. One access manhole shall be located over the inlet, and one access manhole shall be located over the outlet. Where a first compartment exceeds 12 feet in length, an additional manhole shall be provided over the baffle hall.
- Pipe Opening Sizes – The inlet and outlet pipe openings shall not be larger than the connection sewer pipe. The vertical leg of round inlet and outlet fittings shall not be less than the connecting sewer pipe nor less than 4 inches in diameter.
- Pipe Extension – The inlet and outlet pipe or baffle shall extend 4 inches above and not less than 12 inches below the water surface. The invert of the inlet pipe shall be at a level not less than 2 inches above the inlet of the outlet pipe.
- Free Vent Area – A free vent area equal to the required cross-sectional area of the sewer to provide free ventilation above the water surface from the disposal field through the septic tank should be provided.
- Tank Structure Requirements – Tanks should be capable of supporting an earth load of not less than 500 pounds per square foot, where the maximum coverage does not exceed 3 feet.

Seepage Pit Construction

1. **Septic Tank to Distribution Box Connection** - Connections between the septic tank and distribution boxes shall be laid with approved pipe with watertight joints on natural ground or compacted fill.
2. **Distribution Box** - Because the system will incorporate multiple seepage pits, these seepage pits will be served through an approved distribution box by means of a watertight connection laid on undisturbed soil or compacted fill; the outlet from the pit shall be an approved vented leg fitting extending not less than 12 inches below the inlet fitting.
3. **Seepage Pits** – Each seepage pit shall be circular is shape and be excavated to the diameters and depths listed above. **The contractor should anticipate sidewall caving during the excavation of the seepage pits.**

4. **Seepage Pit Spacing** – Each seepage pit should be spaced at least 10 feet apart. If caving is observed, the spacing should be increased accordingly.
5. **Seepage Pit Lining** – Each pit shall be lined with precast concrete circular sections approved by the County Environmental Health Services (EHS). The void (annular space) between the precast concrete circular sections and the seepage pit sidewall excavation shall be filled with six (6) inches of clean ¾-inch gravel or rock.
6. **Seepage Pit Cover** – An EHS approved concrete cover shall be installed on top of the precast circular sections. The cover concrete shall exhibit a minimum compressive strength of 2,500 psi, be at least 5 inches thick, and designed to support an earth load of not less than 400 pounds per square foot. Because an occasional vehicle might drive over the covers, the concrete should be reinforced with No. 4 bars spaced 12 inches on center each way. Each such cover shall be provided with a nine (9) inch minimum inspection hole with plug or cover and shall be coated on the underside with an approved bituminous or other non-permeable protective compound.
7. **Cover Depth Below Grade** – The top of the concrete cover must not be less that 18 inches below the surface of the ground.

Setbacks

The septic tank and seepage pits must be setback from certain structures and features to help ensure public safety and proper functioning of the seepage pits.

Minimum Horizontal Separations from Subsurface Sewage Disposal

Min. Horizontal Distance From:	Septic Tank (feet)	Disposal Field (feet)	Seepage Pit (feet)
Building or Structure	5	8	8
Property Line Adjoining Private Property	5	5	8
Domestic Supply Well	100	100	150

Min. Horizontal Distance From:	Septic Tank (feet)	Disposal Field (feet)	Seepage Pit (feet)
Public Water Wells	100	150	150
Large Trees	10	10	10
Distribution Box	5	5	5
Seepage Pits	5	10	10
Disposal Field	5	--	10
Private Domestic Water Line	5	5	5
Public Domestic Water Line	25	25	25
Distribution Box	5	5	5
High Groundwater Level	5	5	10

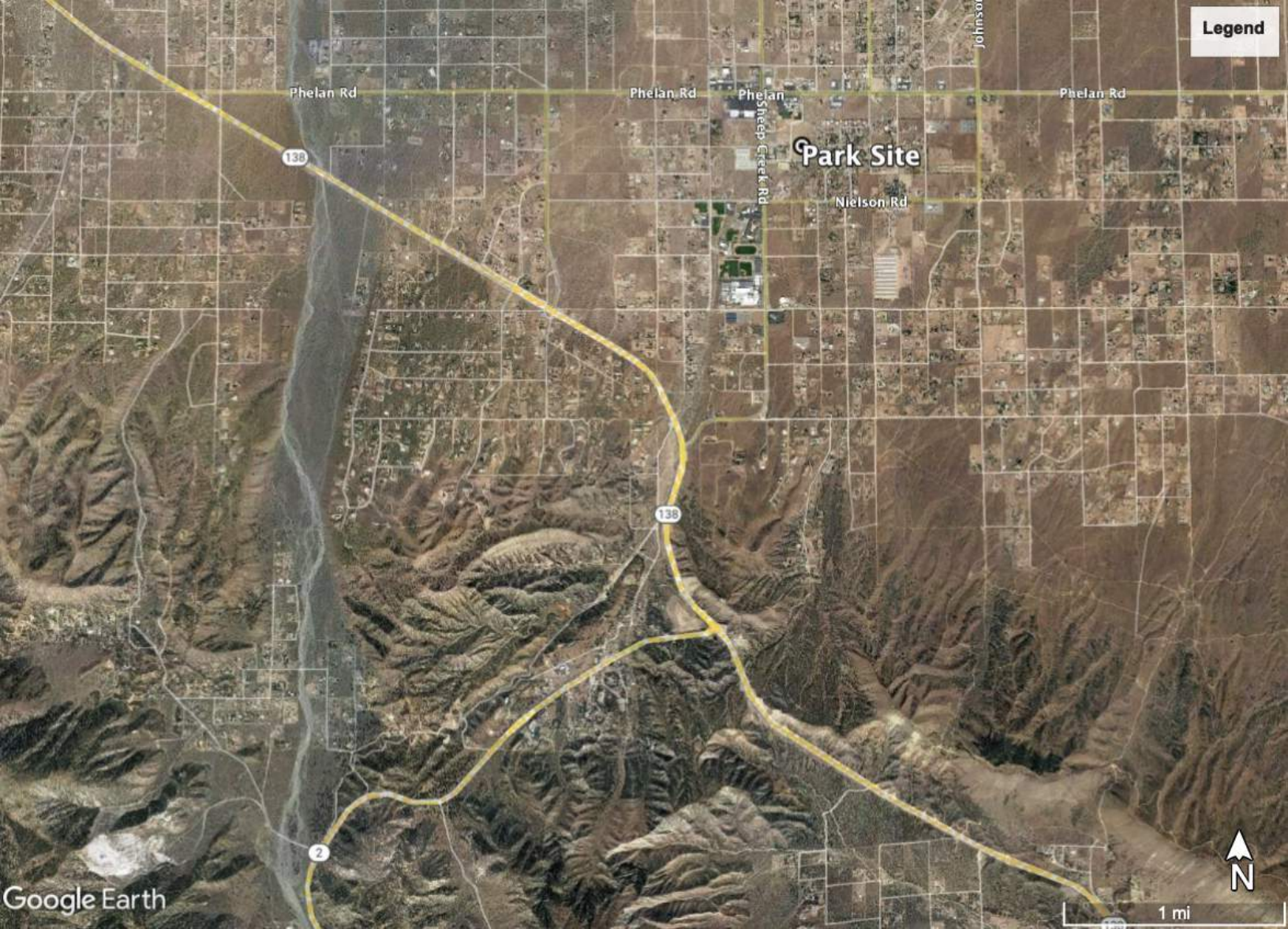
CLOSURE

It is possible that variations in the soil conditions could exist between the areas explored and tested. Therefore, if any soil conditions are encountered at the site that is different from those assumed in the preparation of this report; our firm should be notified so that we may review the situation that exists and make supplementary recommendations or perform additional tests if needed.

For your reference, a copy of the E.H.S publication, “Taking Care of Your Septic System” has been included as an attachment to this report, Appendix F.

We appreciate the opportunity to be of service to you. Should you have any questions or need further assistance, please do not hesitate to contact this office.

Appendix A
Figures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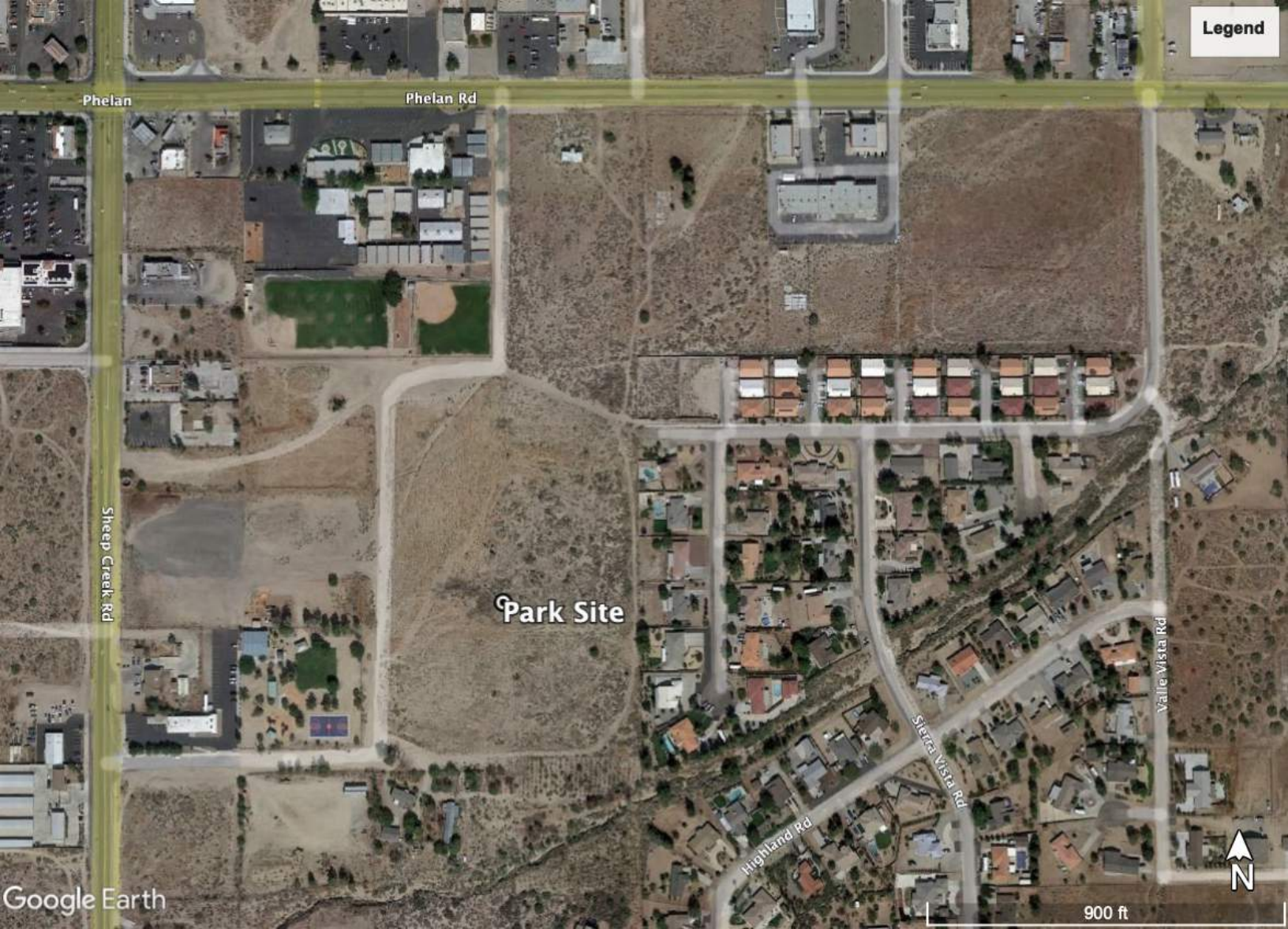
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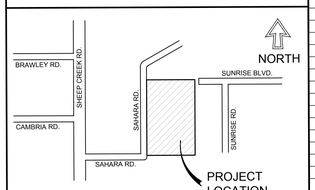
PROPOSED DEVELOPMENT FOR:
PHELAN PINION HILLS COMMUNITY SERVICES DISTRICT

VICINITY MAP



KEYED NOTES

#	DESCRIPTION	SYMBOL
1	VAN ACCESSIBLE PARKING SPACE W/ ACCESSIBILITY STALL EMBLEM PAINTED AS SHOWN	
2	DISABLED ACCESSIBLE PARKING ONLY SIGN.	
3	48" WIDE ACCESSIBILITY ACCESS W/ BLUE STRIPES	
4	LANDSCAPED AREA	
5	TRUNCATED DOMES 36" DEEP X WIDTH OF RAMP OR LANDING	
6	6" WIDE CONCRETE CURB.	
7	6" WIDE CONCRETE CURB. W/ 2' PARKING NOSE OVER	
8	ACCESSIBLE RAMP NOT TO EXCEED 8% SL. IN DIRECTION OF RUN & 2% MAX CROSS SL.	
9	WARNING SIGNAGE REGARDING UNAUTHORIZED USE OF DISABLED PARKING SPACES	
10	STRIPED LOADING ZONE	
11	TRAFFIC FLOW DIRECTIONAL ARROWS PAINTED ON PAVING AS SHOWN ON PLAN	
12	DOUBLE STRIPED PAINTED PARKING STALL STRIPE	
13	4" NOMINAL THICK CONCRETE WALKWAY W/ 5% MAX. SLOPE & 2% CROSS SLOPE	
14	PROPOSED CONC. SIDEWALK	
15	PROPOSED CONCRETE OR A.C. PAVING PER GEO-TECH REPORT	
16	20' HIGH SITE LIGHT STANDARD	
17	PROPOSED MONUMENT SIGN,4' HIGH & 36SQ.FT., MAX UNDER SEPARATE PERMIT	
18	TERRACE SEATING W/ RETAINING WALL, HEIGHT VARIES. SEE GRADING PLANS	
19	CONC. WHEEL STOP AT A.D.A. PARKING SPACE	
20	6 FT. WIDE BIKE TRAILS	
21	EXISTING JOSHUA TREE TO REMAIN	
22	EXISTING JOSHUA TREE TO BE REMOVED (DASHED CIRCLE)	
23	EXISTING FENCE TO REMAIN	
24	PROPOSED 5' HIGH CHAINLINK FENCE	
25	OVERLOOK AREA AND GARDENS	
26	LINE OF PROJECT PHASING	
27	CONCESSION STAND W/ PICNIC TABLES	
28	CONCRETE GUTTER OR SWALE, SEE GRADING PLAN	
29	DECORATIVE CANOPY	
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PROJECT DATA

ZONE: PER COUNTY MAP FH04A (PH/CG) GENERAL COMMERCIAL

OVERLAYS: FLOOD PLAIN 1 (FP1) / FIRE SAFETY 2 (FS2)

OCCUPANCY: (A-5) ASSEMBLY & (S) STORAGE

CONSTRUCTION TYPE: V-B

STORIES: 1-STORY

FIRE SPRINKLERS: YES

A.P.N. 3066-261-08 & 10/ 3066-251-14

PTN. N.W. 1/4, SEC. 24 T.4N., R.7W. SITE ADDRESS: NW CNR. OF SAHARA RD. AND WARBLER RD. PHELAN,CA 92329

ZONING SETBACKS:

F.E.M.A. FLOOD ZONE

APPLICANT/OWNER: PHELAN/PINON HILLS C.S.D. PO BOX 294049 4176 WARBLER RD. PHELAN, CA 92329-4049 PH:760-868-1212 FAX:760-868-2323

ARCHITECT/REPRESENTATIVE: STEENO DESIGN STUDIO, INC. ARCHITECT: TOM STEENO 11774 HESPERIA ROAD, SUITE B-1 PH: 760-244-5001 FAX. 760-244-1948

SITE INFORMATION:

A.P.N. 3066-251-14 GROSS AREA (10.05 AC.)	=	437,963 SQ. FT.	70.4%
A.P.N. 3066-261-08 GROSS AREA (4.22 AC.)	=	183,823 SQ. FT.	29.6%
GROSS AREA TOTAL (14.27 AC.)	=	621,786 SQ. FT.	100%

PROPOSED:

AREA		SQ. FT.	100%
FUTURE PUMP TRACK	=	29,890 SQ. FT.	4.8%
SKATE PARK AREA	=	10,171 SQ. FT.	1.6%
RESTROOMS	=	860 SQ. FT.	0.1%
MULTI-PURPOSE FIELD	=	39,600 SQ. FT.	6.4%
MULTI-PURPOSE/ SOFTBALL FIELD	=	39,600 SQ. FT.	6.4%
LANDSCAPED AREA (INCLUDES MULTI-PURPOSE FIELD EVENT LAWN AREA)	=	298,714 SQ. FT.	48.0%
PROP. PAVING & CONC. (TOTAL)	=	182,076 SQ. FT.	29.3%
RETENTION AREA	=	20,875 SQ. FT.	3.4%

PARKING INFORMATION: SYMBOL INDICATING QTY OF STALLS:

REQUIRED PARKING STALLS:

PHASE 3:
MULTI-PURPOSE FIELD - 39,600 SQ. FT. 705 SQ. FT. OF SEATING AREA @ 1/25 SQ. FT. = 28 SPACES
TENNIS COURT - 2,808 SQ. FT. 3 PER COURT = 3 SPACES

PHASE 4:
MULTI-PURPOSE/ SOFTBALL FIELD - 39,600 SQ. FT. 412 SQ. FT. OF SEATING AREA @ 1/25 SQ. FT. = 17 SPACES
FUTURE PUMP TRACK & SKATE PARK - 40,061 SQ. FT. @ 1/1,000 SQ. FT. = 40 SPACES

TOTAL REQUIRED PARKING STALLS (9'x19')	=	88 SPACES
PROPOSED PARKING STALLS @ MIN. 9'x19'	=	155 SPACES
PROPOSED "ACCESSIBLE" PARKING STALL @ 9'x19' W/ 8' UNLOADING ZONE	=	8 SPACES
TOTAL PROVIDED PARKING STALLS	=	163 SPACES
E.V. PARKING STALLS REQUIREMENTS	=	10% OF TOTAL SPACES
PHASE I & II PROVIDED PARKING SPACES	=	165 SPACES
PHASE III & IV PROVIDED PARKING SPACES	=	163 SPACES
TOTAL PARKING SPACES	=	328 SPACES
REQUIRED E.V. PARKING SPACES	=	33 SPACES
PROVIDED 9'X19' E.V. PARKING SPACES	=	33 SPACES
E.V. CHARGING STATIONS REQUIREMENTS =		6% OF TOTAL SPACES
REQUIRED E.V. CHARGING STATIONS	=	20
PROVIDED 9'X19' E.V. DUAL CHARGING STATIONS	=	10 X 2

SCOPE OF WORK

TO DEVELOP AN APPROX. 14.27 ACRES OF VACANT PARCEL INTO A COMMUNITY PARK. PROPOSED PARK WILL CONSIST OF A MULTI-USE FIELD, INFORMAL MULTI-PURPOSE EVENT AREA, A PUMP TRACK/ SKATE PARK AREA, TENNIS COURT, COMMUNITY GARDEN, RESTROOMS, SPLASH PAD, EVENT PLAZA W/ STAGE, CHILDREN'S TOT-LOT AND PLAYGROUND, PICNIC AREA AND BIKE TRAILS. THE REMAINDER OF THE PARK WOULD CONSIST XEROSCAPED DROUGHT RESISTANT, AND LOW MAINTENANCE LANDSCAPING.

UTILITIES

ELECTRIC:
SOUTHERN CALIFORNIA EDISON CO.
12353 HESPERIA RD.VICTORVILLE CA. 92392
(760) 951-3237

DISPOSAL
CR & R
PHELAN, CA 92371
PH: (760) 868-6353

WATER:
PHELAN PINON HILLS CSD
4176 WARBLER RD. PHELAN, CA 92371
PH:760-868-3755

TELEPHONE:
VERIZON
15168 LA PAZ ROAD VICTORVILLE, CA. 92392
(800) 772-5153

GAS
PROPANE (LP) SERVICE PROVIDER TO BE SPECIFIED

SEWER:
PRIVATE ON SITE SYSTEM

NORTH

SCALE = 1:40

0 20 40 80 120

E-1 FUTURE PUMP TRACK 29,890 SQ. FT.

E-2

E-3

E-4 Exploratory Boring, Typical

E-5

DOG PARK

SKATE PARK AREA 10,171 SQ. FT.

TOT LOT

PLAYGROUND 5-12 Y/O

RETENTION AREA

LOT. 11 TRACT NO 8044 M.B. 204/89 VACANT

LOT. 12 TRACT NO 8044 M.B. 204/89 EX. RESIDENCE

LOT. 13 TRACT NO 8044 M.B. 204/89 EX. RESIDENCE

LOT. 14 TRACT NO 8044 M.B. 204/89 EX. RESIDENCE

LOT. 15 TRACT NO 8044 M.B. 204/89 EX. RESIDENCE

LOT. 16 TRACT NO 8044 M.B. 204/89 EX. RESIDENCE

LOT. 17 TRACT NO 8044 M.B. 204/89 EX. RESIDENCE

LOT. 18 TRACT NO 8044 M.B. 204/89 EX. RESIDENCE

ADJACENT PROPERTY A.P.N 3066-251-08 ZONE: PH/CG VACANT

EXISTING

PHASE 1
PHASE I
CIVIC CENTER BLDG
14,034 SQ.FT.
1/250 = 56 SPACES REQD.

CIVIC CENTER A.P.N 3066-261-10 8.14 ACRES NOT A PART

PHASE 2
PHASE II
MULTI PURPOSE COMMUNITY SERVICE BLDG
17,284 S.F.
85 SPACES REQD.

EVENT PLAZA W/ STAGE

SPLASH PAD 1,200 SQ. FT.

PROPOSED PARK A.P.N 3066-251-14 10 ACRES

INFORMAL MULTI-PURPOSE FIELD/ EVENT LAWN AREA

PHASE 3

REST ROOMS

Percolation Test Boring P-2

Seepage Pit , typ.

Percolation Test Boring P-1
3,600-gal. Septic Tank
Distribution Box

Percolation Test P-3
Infiltration Test

PHASE 4

LOT LINE TO BE MERGED

SHARED MULTI-PURPOSE/ SOFTBALL FIELD 39,600 SQ. FT.

MULTI-PURPOSE FIELD 39,600 SQ. FT.

PROPOSED PARK A.P.N 3066-261-08 4.22 ACRES

BLEACHERS

RETENTION AREA

PARCEL NO. 4 PARCEL MAP NO. 4063 P.M.B. 40/80 EXISTING RESIDENCE

SHEEP CREEK ROAD

WARBLER ROAD

ADJACENT PROPERTY A.P.N 3066-261-07 DEVELOPMENT NOT A PART

EX. BLDG. NOT A PART

EXISTING DEVELOPMENT A.P.N 3066-261-10

NEW DEVELOPMENT COMMUNITY GARDEN

NEW DEVELOPMENT PROP. TENNIS COURT

NATIVE GARDEN & FOUNTAINS

EXISTING BUILDING COMMUNITY CENTER 4,588 SQ.FT. NOT A PART

OPEN SPACE (LANDSCAPED)

A.P.N. 3066-261-10 PARCEL L

LOT. 5 TRACT 10838 M.B. 157/73 VACANT

LOT. 2 TRACT 10838 M.B. 157/73 VACANT

SITE PLAN
SCALE = 1:40

STEENO DESIGN STUDIO INC
ARCHITECTURE ◆ DESIGN ◆ PLANNING
11774 HESPERIA ROAD, SUITE B-1 HESPERIA, CA 92345
PHONE(760) 244-5001 ◆ FAX(760) 244-1948
www.steenodesign.com

DATE FINISHED
JAN 2022

REVISIONS

THESE PLANS SHALL COMPLY WITH THE 2019 CALIFORNIA BUILDING CODE WHICH ADOPTS THE 2018 IBC, 2018 IRC, 2018 IMC, 2018 UPC, 2018 CEC AND THE 2019 ENERGY STANDARDS.

LICENSED ARCHITECT THOMAS R. STEENO No. 26448 REN. 2/29/24 STATE OF CALIFORNIA

PROJECT: PARKS & RECREATION

PHELAN / PINION HILLS C.S.D.

SITE ADDRESS:
A.P.N. 3066-251-14 / 3066-261-08 & 10
SAHARA RD. & WARBLER RD.
PHELAN, CA 92329

CONTACT:
DON MUNTZ

JOB NO.
C20-L29

SHEET NAME:
SITE PLAN

PAGE
A-0

Appendix B
Laboratory Tests
Sieve Analyses

Particle-Size Analysis of Soil

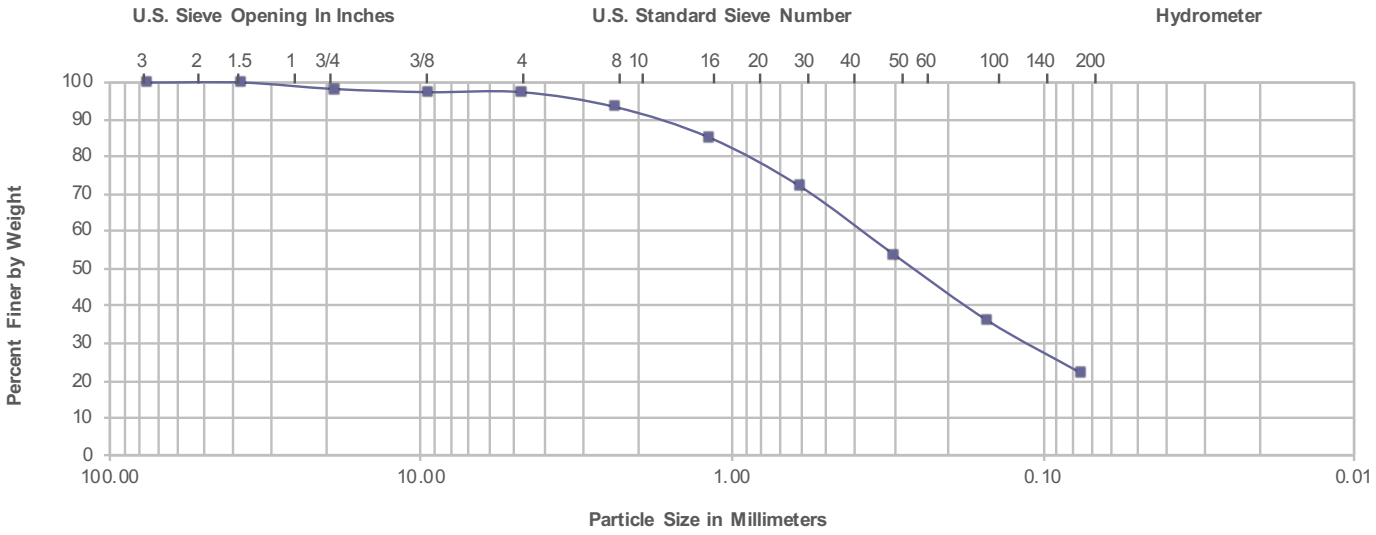
D422, D1140, D2487

Report Date:	04/21/22
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3103.006.500
Project Title:	14-Acre Park Site
Project Location:	Warbler Road, Phelan, CA
Client:	Phelan Pinon Hills Community Services District

Sample ID: CDL30152209 **Gravel (%):** 2.6% **Sand (%):** 75.5% **Fines (%):** 21.9%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Two at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	2.4%	19.000	0.300	0.075	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	5176.7
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson. engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

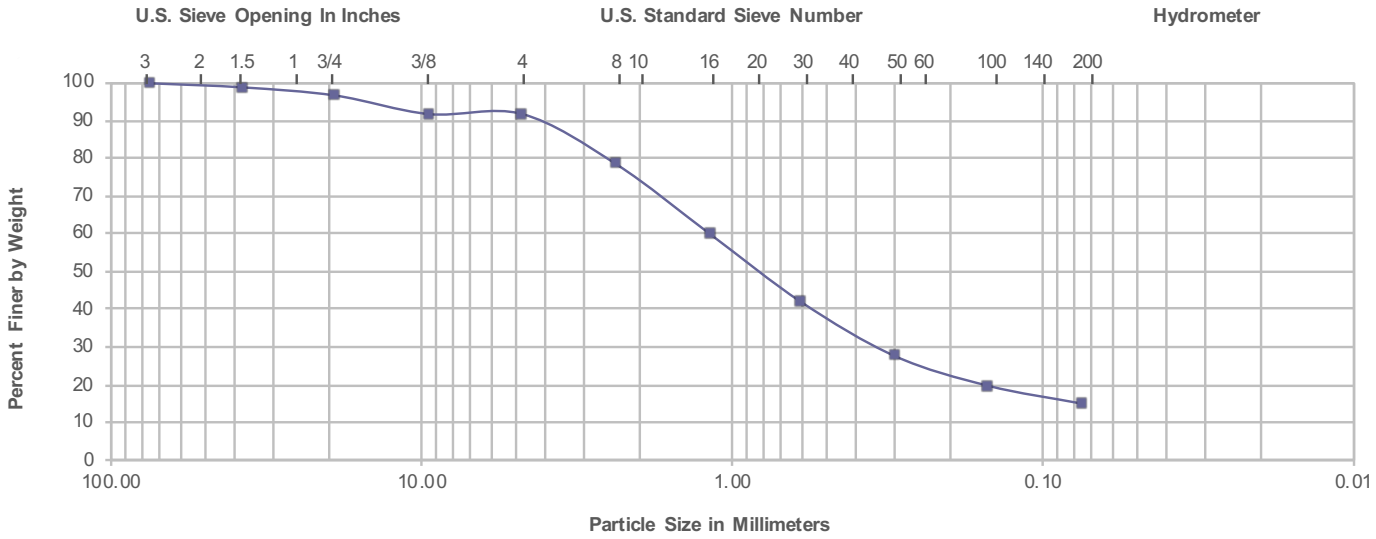
D422, D1140, D2487

Report Date:	04/21/22
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3103.006.500
Project Title:	14-Acre Park Site
Project Location:	Warbler Road, Phelan, CA
Client:	Phelan Pinon Hills Community Services District

Sample ID: CDL30152213 **Gravel (%):** 8.2% **Sand (%):** 76.9% **Fines (%):** 15.0%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Three at 10' to 15'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	1.4%	37.500	1.180	0.300	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	10602.5
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

MerrellJohnson. engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Appendix C
Percolation Test Data

Percolation Test Data Sheet

Project:	PPHCSD-Park	Project No:	3103.006.500	Date:	03/16/22
Test Hole No:	P-1	Tested By:	CDL		
Depth of Test Hole, D_T:	20'	USCS Soil Classification:	SM		

Test Hole Dimensions (inches)			Length	Width	
Diameter (if round)=	8	Sides (if rectangular)=			

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	3/15/22	3/16/22	overnight	6	240	240	y
2	0810	0840	30	1	133	113	y

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_o Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	0816	0846	30	3.0	129.5	126.5	
2	0855	0925	30	1.0	126.0	125.0	
3	1116	1126	10	2.0	46.5	44.5	
4	1133	1143	10	2.0	46.0	44.0	
5	1152	1202	10	2.0	44.8	42.8	
6	1208	1218	10	2.0	45.0	43.0	
7	1226	1236	10	48.0	86.0	38.0	
8	1244	1254	10	48.0	85.5	37.5	
9							
10							
11							
12							
13							
14							
15							

COMMENTS:

Percolation Test Data Sheet

Project:	PPHCSD-Park	Project No:	3103.006.500	Date:	03/16/22
Test Hole No:	P-2	Tested By:	CDL		
Depth of Test Hole, D_T:	30'	USCS Soil Classification:	SM		

Test Hole Dimensions (inches)			Length	Width	
Diameter (if round)=	8	Sides (if rectangular)=			

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	3/15/22	3/16/22	overnight	6	360	360	y
2	0751	0821	30	2.5	196	209.5	Y

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_o Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	0805	0835	30	0.5	188.5	198.0	
2	0841	0911	30	2.0	186.6	196.0	
3	0920	0930	10	2.0	70.1	68.1	
4	0939	0949	10	2.0	62.0	60.0	
5	0956	1006	10	2.0	61.8	59.8	
6	1012	1022	10	2.0	57.8	55.8	
7	1030	1040	10	48.0	96.5	48.5	
8	1054	1104	10	48.0	97.0	49.0	
9							
10							
11							
12							
13							
14							
15							

COMMENTS:

Appendix D
Percolation Test Notification

Public Health
Environmental Health Services
PERCOLATION TEST NOTIFICATION

www.SBCounty.gov
www.sbcounty.gov/dph/dehs
Phone: (800) 442-2283

Please email form to EHS.CustomerService@dph.sbcounty.gov or fax to 909.387.4323 at least two (2) working days before testing.

THIS SECTION TO BE COMPLETED BY QUALIFIED PROFESSIONAL

QUALIFIED PROFESSIONAL INFORMATION

Firm Name			Date	
Merrell Johnson Geotechnical			03/09/22	
Firm Address		**City**	**State**	**Zip**
16091 Kamana Road		Apple Valley	CA	92307
Firm Contact Person	**Email(s)**		**Phone Number**	
Chris Langdon	Chris.langdon@merrelljohnson.com		(760) 881-7457	

SITE INFORMATION

Owner's Name		Assessor's Parcel Number (APN)		
Phelan Piñon Hills Community Services District		APN 3066-251-14 & 3066-261-08		
Site Address		**City**	**State**	**Zip**
4176 Warbler Road		Phelan	CA	92329
Email(s)			**Phone Number**	
Gcardenas@pphcsd.org. (George Cardenas)			(760) 868-1212	

BILLING INFORMATION

Environmental Health Services may need to be onsite to observe percolation testing. This will be billed at the current hourly professional rate. Provide billing information below or check one of the following:

☐ Same as Qualified Professional Information ■ Same as Site Information

Billing Name			
Billing Address	**City**	**State**	**Zip**
Email(s)		**Phone Number**	

PROJECT INFORMATION

Disposal field	☐ Leach Lines	■ Seepage Pits	☐ Alternative Treatment System	
Exploratory Boring(s)	Boring Date(s): 3/15/22	Boring Time: 0800	Number of Borings: 5	Depth of Boring(s) in ft.: 30
Testing	Test Date(s):	Test Time:	Number of Tests:	Depth of Test Hole(s) in ft.:
Project Type	☐ Single Family Residence	☐ Multi Family Residential	■ Commercial	
	Lot Size (ft^2/acres):	Number of Units:	Lot Size (ft^2/acres): 14.22 -acres	
		Lot Size (ft^2/acres):	Estimated Flow:	
	Please select one of the following			
	☐ Tentative Tract (TT) # >100'	☐ Tentative Parcel Map (TPM) # >100'		
	Number of Proposed Lots:	Original Lot Size (ft^2/acres): >100'	Average New Lot Size (ft^2/acres):	

A sewer connection will be required if a sewer is available within 200 ft. of the nearest property line (add 100 ft. for each additional lot). A "sewer will not serve" letter may be required prior to submittal of the percolation report.

Site Conditions	Historic groundwater level in feet >100'	Slope in disposal area (%) 3.5%
	Source of Water	
	☐ Private Well	■ Water Purveyor
	☐ Check box if parcel is on Forest Service Land	
	☐ Check box if lot is within 100 feet of a river/stream	

For Office Use Only

Fee:	FA Number:	Record ID:	PE Number:
Late Fee: ☐ Y ☐ N	Designated Employee:	Received By:	Date:
Check One: ☐ New ☐ Transfer ☐ Reactivate		Changes (please specify):	

Appendix E

Minimum Setback and Location of Septic System

SAN BERNARDINO COUNTY
Department of Public Health
Division of Environmental Health Services

www.SBCounty.gov
www.sbcounty.gov/dph/dehs
800-442-2283

Minimum Setback and Location of Septic System

LOCATION OF SEWAGE DISPOSAL SYSTEM

Minimum Horizontal Distance in Clear Required From:	Bldg. Sewer	Septic Tank	Disposal Field	Seepage Pit or Cesspool
Buildings or Structures	2 ft.	5 ft.	8 ft.	8 ft.
Property line adjoining private property	Clear	5 ft.	5 ft.	8 ft.
Water supply wells	50 ft.	100 ft.	100 ft.	150 ft.
Streams and lakes	50 ft.			to 200 ft.
Large trees	-	10 ft.	-	10 ft.
Seepage pits or cesspools	-	5 ft.	5 ft.	12 ft.
Disposal field	-	5 ft.	4 ft.	5 ft.
Domestic water line	1 ft.	5 ft.	5 ft.	5 ft.
Distribution box	-	-	5 ft.	5 ft.

* By Ordinance 2521

NOTES: When disposal fields and/or seepage pits are installed in sloping ground, the minimum horizontal distance between any part of the leaching system and ground surface shall be fifteen (15) feet.

1. Including porches and steps whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, car ports, covered walks, covered driveways and similar structures or appurtenances.
2. All non-metallic drainage piping shall clear domestic water supply wells by at least fifty (50) feet. This distance may be reduced to not less than twenty-five (25) feet when approved type metallic piping is installed. Where special hazards are involved, the distance required shall be increased, as may be directed by the Health Officer or the Administrative Authority.

GENERAL INFORMATION ON SEPTIC TANKS

Septic tanks should be cleaned before too much sludge or scum is allowed to accumulate. If either the sludge or scum approaches too closely to the bottom of the outlet device, particles will be scoured into the disposal field and will clog the system. Eventually, when this happens, liquid may break through to the ground surface, and the sewage may back up in the plumbing fixtures. When a disposal field is clogged in this manner, it is not only necessary to clean the tank, but it also may be necessary to construct a new disposal field.

There are no formulas which determine how often septic tanks should be cleaned. Many have gone as long as ten years without requiring cleaning, even when servicing a garbage disposal. Others have had to cleaned within a year. As a general rule, tanks should be inspected yearly to determine whether or not cleaning is required. There are firms which specialize in cleaning septic tanks.

The life of an absorption field will be drastically shortened if the septic tank is not operating properly. Every time that sewage which has not been properly treated in the septic tank is discharged into the field, it causes the layer of impervious material to build up with alarming rapidity. This over-all condition can be caused by an undersized tank, a one in need of cleaning.

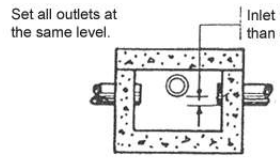
According to the U. S. Public Health Service, there are more than 1,200 additives on the market, which are claimed to aid the function of a septic system in one manner or another. As far as is known, none has proved an advantage in properly controlled tests.

Normal household waste, including that from the laundry, bath, and kitchen, should pass into a single system.

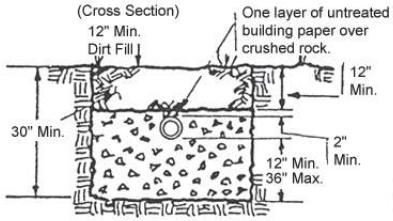
Toilet-paper substitutes should not be flushed into a septic tank. Paper towels, newspaper, wrapping paper, rags, and sticks may not decompose in the tank, and are likely to lead to clogging of the plumbing and disposal system.

Soil conditions in some areas are unsuitable for septic tank system, particularly in the mountain areas. Percolation tests determine the acceptability of the soil and the size and design of the subsurface disposal system.

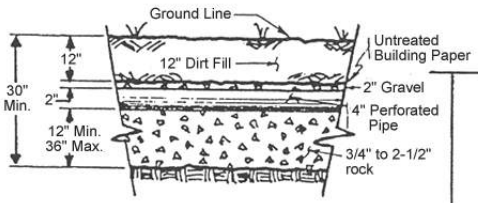
DISTRIBUTION BOX



DRAINAGE TRENCH (Cross Section)



DRAINAGE TRENCH (Longitudinal Section)



NOTE A:
Add two (2) feet to this dimension for each additional foot of gravel below the twelve (12) inch gravel bed in trench.

NOTE B:
Where no water main exists, the leach line or seepage pit may be located a minimum of five (5) feet from side property line.

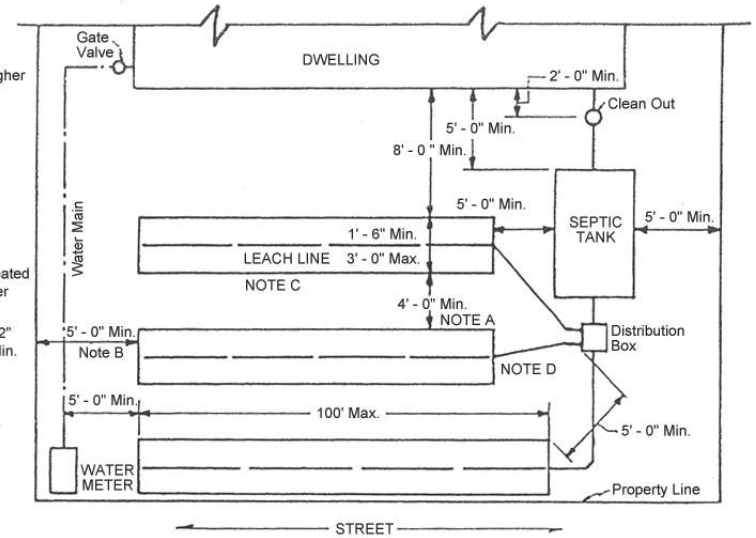
NOTE C:
Leach line must contain at least one hundred and fifty (150) square feet of trench bottom. There must be sufficient yard space to increase the leach line by one hundred (100) percent.

NOTE D:
These lines from the distribution box to the leach line area shall be water - tight lines.

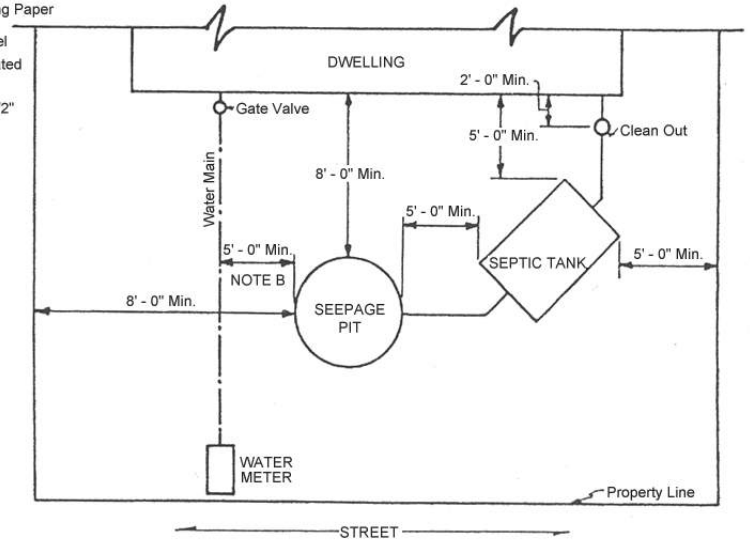
SEPTIC TANK SIZE

BEDROOMS	GALLONS
1 or 2	750
3	1,000
4	1,200
5 or 6	1,500

LEACH LINE SYSTEM



SEEPAGE PIT SYSTEM



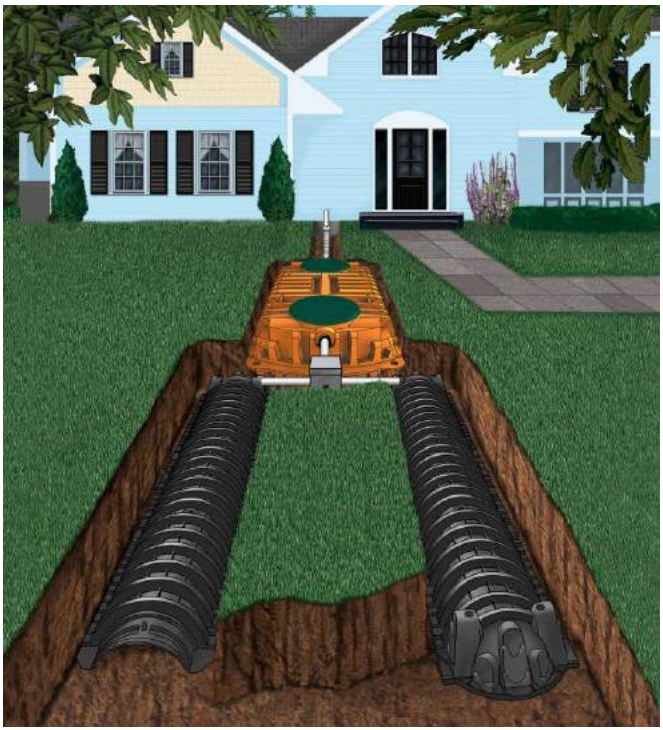
Appendix F
Taking Care of Your Septic System

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

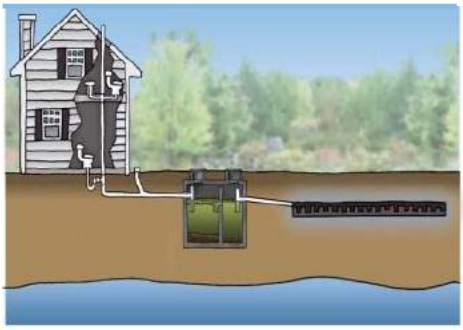
385 N Arrowhead Ave., 2nd Floor
San Bernardino, CA 92415
1-800-442-2283

TABLE OF CONTENTS

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.

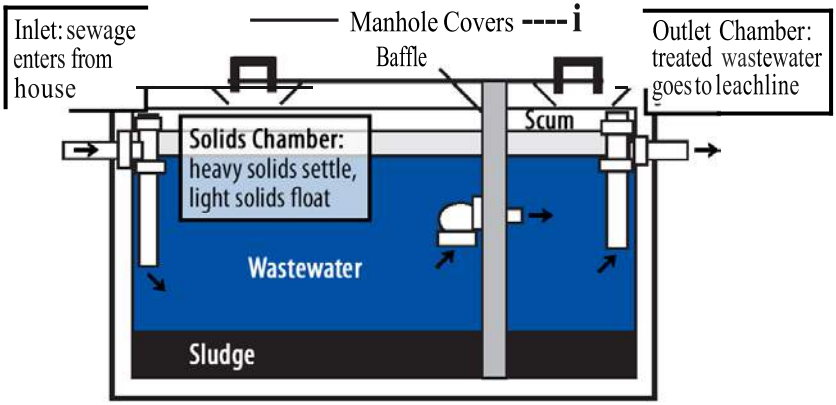
What Does A Septic System Do?

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

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