

Cover Sheet

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|----------------------------|------------------------------------|
| Document Title: | Approved Percolation Report |
| Prepared By: | San Bernardino County |
| Date: | 02/14/2023 |
| Version: | Permit SR0114465 |
| Project Name: | PPHCSD Civic Center Phase 1 |
| Client/Stakeholder: | PPHCSD |
| Confidentiality: | [Public/Internal/Confidential] |

Document Overview

This specification document outlines the requirements, standards, and key details for the project or product described above. The cover sheet provides a summary of essential information to identify and track the document throughout its lifecycle.

Contact Information

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Revision History

| Version | Date | Description | Author |
|---------|------|-------------|--------|
| | | | |



Proposed Onsite Wastewater Treatment System
Proposed Civic Center (Phase 1)
Warbler Road, East of Sheepcreek Road
Phelan, California
APN 3066-261-10

Updated Percolation Test Report

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

| | | |
|---|---|--|
| San Bernardino County Department of Public Health Division of Environmental Health Services | | |
| Percolation Report | EHS REF# <u>SR0114465</u> | |
| DESIGN RATE: <u>25</u> square feet per 100 gallons septic tank capacity | | |
| This rate applies to: | | |
| <input type="checkbox"/> Location(s) where tested | <input type="checkbox"/> Leach lines/bed | <input checked="" type="checkbox"/> Seepage pits |
| <input type="checkbox"/> Replacement only | <input type="checkbox"/> Entire lot/subdivision | <input type="checkbox"/> Limited to: |
| Additional requirements: | | |
| <input type="checkbox"/> Maintain septic tank minimum _____ ft setback from _____ | | |
| <input checked="" type="checkbox"/> Maintain disposal area minimum <u>12</u> ft setback from <u>Seepage pit to seepage pit.</u> | | |
| <input type="checkbox"/> New construction requires perc test <input type="checkbox"/> Clearance from _____ RWQCB | | |
| <input type="checkbox"/> EHS special conditions apply | | |
| CONSTRUCTION DETAILS SUBJECT TO BUILDING AND SAFETY APPROVAL | | |
| Design Rate Issued By: <u>Scott Maass, REHS</u> <i>Scott Maass</i> Date: <u>02/14/23</u> | | |



April 20, 2023

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

| | | |
|---|---|--|
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| CONSTRUCTION DETAILS SUBJECT TO BUILDING AND SAFETY APPROVAL | | |
| Design Rate Issued By: <u>Scott Maass, REHS</u> <i>Scott Maass</i> | | Date: <u>02/14/23</u> |

**Subject: Updated Percolation Test Report for Onsite Wastewater Treatment System
Proposed Civic Center (Phase 1) | 9535 Sheep Creek Road, Phelan, CA
APN 3066-261-10 | M.J.G. Project No. 3103.007.500**


Mr. Cardenas:

Per your authorization, Merrell Johnson Geotechnical (MJG) has reviewed and updated herein ALR Engineering & Testing's (ALR) December 16, 2013, Amended Percolation Test Report for the proposed Administration Building with Future Services Building and Gymnasium Development.

This Updated Percolation Test Report addresses only the proposed onsite wastewater treatment system (OWTS) for the Civic Center Building (formerly Administration Building). MJG 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 Geotechnical


Brad S. Merrell, P.E.
President
R.C.E. 49423



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References

- A. Percolation Test Report, Proposed Administration Building, with Future Services Building and Gymnasium Development, APN 3066-261-10, East Side of Sheep Creek Road, approximately 300' North of Warbler Road, Phelan, CA, ALR Engineering & Testing, Project No. 1308020, November 5, 2013, Amended December 16, 2013.
- B. Site Plan, Civic Center Building, Page A-0, Steeno Design Studio, Job No. COM20-L01/01, May 2022 (Last Revised on 10/27/22).
- C. Percolation Test Report, Proposed 14.22-acre Park, Restroom Building, Phase 3, Warbler Road, East of Sheep Creek Road, Phelan, CA, APN 3066-251-14 & 3066-261-08, Merrell Johnson Companies, April 21, 2022.
- D. 2019 California Plumbing Code, California Code of Regulations, Title 24, Part 5, California Building Standards Commission
- E. 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>
- F. How to Size Your Leach Lines, Infiltrators, or Pits, San Bernardino County Division of Environmental Health (DEHS), Not Dated
- G. Minimum Setback and Location of Septic System, including distribution box and leach line cross-sections -DEHS Publication, Not Dated

INTRODUCTION - Proposed Development

Proposed at this time is the construction of a Civic Center Building at the subject site. The proposed single-story building will be constructed in the approximate center of the Phase 1 development area of the site and will occupy a plan area of 14,034 square feet. Associated driveways, parking, walkways, and other ancillary improvements will also be constructed. The OWTS will include a septic tank, distribution box and seepage pits.

The Civic Center is the first phase (Phase 1) of a larger two phased project. This report provides OWTS recommendations for the Civic Center (Phase 1) portion of this project only. Phase 2 will include the construction of a Community Center/Gymnasium Building. The Phase 2 construction is planned for the future and is not a part of this report. The Site Plan presented in Appendix A, Figure 2, illustrated the proposed development of both Phase 1 and Phase 2.

DESCRIPTION OF SITE

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

| Site Address | Project Owner | Report Prepared For |
|------------------------------------|--|---|
| Proposed Civic Center (Phase 1) | Phelan Pinon Hills Community Services District | George Cardenas PPHCSD Engineering Manager |
| 9535 Sheep Creek Rd. | 4176 Warbler Road | 4176 Warbler Road |
| Phelan, CA | Phelan, CA 92329 | Phelan, CA 92329 |
| APN 3066-261-10 | -- | -- |
| 34° 25.395' N 117° 34.313' W | (760) 868-1212 gcardenas@pphcsd.org | (760) 868-1212 gcardenas@pphcsd.org |

The 4.65-acre site is located on the east side of Sheep Creek Road about 210 feet north of Warbler Road in the Phelan area of San Bernardino County. The existing Phelan Community Services facility is located adjacent the south side of the proposed Civic Center Phase 1 development.

Previous minor grading has removed the sparse desert vegetation and flattened the site for use as an unpaved service yard. The ground surface slopes towards the northeast at an inclination of about 3 percent.

No blue-lined streams are located on or adjacent the site nor are there any shown on the USGS map. There are also no existing or abandoned water wells within 600 feet of the proposed OWTS.

There are no rock outcrops visible in the vicinity of the site.

GROUNDWATER

Water for the site is provided by a private water purveyor. ALR's Percolation Test Report states that no groundwater was encountered in their two 45-foot-deep percolation test borings. ALR reviewed water district maps and data from adjacent properties and concluded that the approximate groundwater table was 692 feet below the existing grade, (Reference A).

MJG's 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 MJG's and ALR's research of existing water well data in the vicinity of the project, the depth to the historic high groundwater level is 692 feet below the project site's existing ground surface.

ALR ENGINEERING & TESTING' PERCOLATION TEST REPORT SUMMARY

Reference A presents ALR Engineering & Testing's Amended December 16, 2013, Percolation Test Report that was prepared for the proposed Administration Building with Future Services Building and Gymnasium Development. The Administration Building is now referred to as the Civic Center Building and is the subject of this updated report.

ALR's Percolation Test Report was reviewed and approved on January 10, 2014, by San Bernardino County Department of Public Health's Environmental Health Services (EHS), subject to the County's Building and Safety Department's approval.

The design of the proposed Civic Center Building has been revised since ALR prepared their Amended Percolation Test Report in December of 2013. This revision has changed the number of design fixture units (DFUs), which changes the design of the onsite wastewater treatment system (OWTS). Needed at this time are updated recommendations to size the proposed Civic Center's OWTS's septic tank, distribution box, and seepage pits using the currently proposed DFU count.

MJG reviewed ALR's Percolation Test Report and observed that the percolation test data presented therein closely correlates with the percolation test data measured by MJG during its percolation testing for Phelan Pinon Hills Community Services District's 14.22-acre park project (Reference C), which borders the east side of the subject site. Based on this review, MJG concluded that the previous test data collected by ALR (Reference A) remains valid, pending final approval by the County EHS and Building & Safety.

For ease of reference, MJG has included a copy of ALR's Percolation Test Report in Appendix B.

EQUIPMENT

A drill-rig using 8-inch-diameter screw-type augers drilled the percolation test borings for ALR's Percolation Test Report.

METHODOLOGY AND PROCEDURES

Three 45-foot-deep test borings were drilled by ALR to test the soil percolation rates. Boring Nos. 1 and 2 were drilled on the east side of the proposed Civic Center. Boring No. 2 was drilled at the northeast corner of the Civic Center where the currently proposed seepage pits will be constructed. Boring No. 3 was drilled within the Phase 2 area between the then proposed Service Building and Gymnasium. The approximate locations of the test borings are shown on the attached Site Plan, Appendix A, Figure 2 and in ALR's Percolation Test Report, Appendix B.

The soil profile of each percolation test boring was logged by ALR's 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

All the three of ALR's test borings encountered well graded sands with silt and some small gravel. These soils were medium dense and dry becoming moister with depth. These soils were considered favorable as defined by the County's Percolation Testing and Reporting Standards, Reference E. The boring test logs are presented in ALR's Percolation Test Report, Appendix B.

PERCOLATION TEST PROCEDURES

ALR's percolation test procedures listed in their Percolation Test Report (Reference A), are copied below:

Seepage Pit Falling Head Percolation Test Procedure

Test Holes:

1. Test holes were 8-inch diameter
2. All three borings were drilled to a depth of 45 feet below the ground surface
3. No gravel packing was used for these boring

Measurements:

1. The borings were filled with clear water until the water level was at the surface of the ground. The borings were refilled to the surface for all but the last two (2) reading. The final refills were to the proposed inlet depth of 48 inches below the ground surface.
2. The test borings exposed well graded sand with silts and gravel. The water level in two consecutive 30-minute readings did seep faster than half the initial wetted depth in 30 minutes. The time interval used after the first two 30-minute readings was 10 minutes for approximately one hour, until two consecutive readings did not vary by more than 10 percent.
3. Since the borings did not encounter clays or silts, we did not presoak the holes overnight and began testing the same day as the presoak.
4. The test borings were remeasured after each reading to check for caving. Only minimal caving was measured, as described on the boring logs.

DISCUSSION OF RESULTS

The disposal area for the seepage pits will be located NE of the proposed Civic Center's northeast corner. The well graded sands with silt and gravel 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 in ALR's Percolation Test Report, Appendix B.

PERCOLATION TEST RESULTS

The percolation tests results presented in ALR's Percolation Test Report for borings Nos. 1 and 2, located adjacent the east side of the proposed Civic Center, exhibited percolation rate results as follows:

| Boring Number | Q gal/sf/day | MPI Pit Minutes Per Inch (180/Q) |
|---|-----------------|-------------------------------------|
| B-1 42' East and 150' South of the Civic Center's NE Corner | 5.485 | 32.82 |
| B-2 25' East of Civic Center's NE Corner | 6.50 | 27.7 |

ALR's percolation test result logs and calculations are presented in ALR's Percolation Test Report included with this report as Appendix B.

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 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.G. 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 (April 20, 2023 Revisions shown in red below)

| | Fixture Unit Count Method | | | | | | |
|--|---------------------------|---------|-------|----------|---------------------------|-------------------------------|---------------|
| | Toilets | Urinals | Sinks | Mop Sink | Low Demand Indirect Waste | Dishwasher or Commercial Sink | Totals |
| Civic Center | 10 | 3 | 14 | 1 | 4 | 0 | 32 |
| D.F.U. per C.P.C. Table 702.1 | 6 | 5 | 1 | 3 | 3 | 4 | -- |
| Total Fixture | 60 | 15 | 14 | 3 | 12 | 0 | 104 |
| Min. Septic Tank Capacity, C.P.C. Table H201.1 (1) | | | | | | | 3,600-gallons |

CPC Table 201.1 (1) lists the maximum septic tank capacity (gallons) for 100 fixture units at 3,500 gallons. Footnote No. 3 from Table 201.1 (1) states "Extra fixture units over 100: 25 gallons per fixture unit." Because there are 104 fixture units planned for the Civic Center, the minimum septic tank capacity is $3500 + (4 \times 25 \text{ gallons}) = 3,600$ gallons.

Use/Occupancy Method

Table 201.1 (4) of the 2019 California Plumbing Code (CPC) lists the estimate sewage flow rates for a variety of occupancy types. The project plans list the Civic Center Building's occupancy type as (B) Business, (A) Assembly and (S) Storage. The CPC Table 201.1 (4) does not list an occupancy that matches the combination of these three categories.

To develop an approximate flow rate using the Use/Occupancy method, MJG concluded that the Business Occupancy correlates with the Office Occupancy and the Assembly Occupancy correlates with the Theater/Auditorium Occupancy listed on the CPC Table 201.1 (4). MJG assumed the office employees will also perform the storage tasks; therefore, the Storage Occupancy was not included in the wastewater flowrates calculations tabulated below. The Use/Occupancy Method is summarized in the following table.

| Use/Occupancy Method - Civic Center Building (Phase 1) | | | | |
|--|---------------------|-----------------|-----------------|-----------------------|
| Type of Occupancy | Number of Employees | Number of Seats | Gallons Per Day | Total Gallons Per Day |
| Office | 16 | -- | 20 | 320 |
| Theater/Auditorium | -- | 50 | 5 | 250 |
| Total Daily Flow Rate | | | | 570 gal/day |

The minimum septic tank capacity was calculated for the Civic Center Building using the formula from C.P.C. Table H201.1(4), Note a.

Flow x 1.5 = septic tank capacity

570 g/d x 1.5 gallons = 855 gallons per day

1,000-gallons would be the commonly available septic tank capacity

| Fixture Unit and Use/Occupancy Method Septic Tank Capacity Comparisons | | | |
|---|---------------------------|---------------------------|----------------------|
| Building | Fixture Unit Count Method | Use/Occupancy Type Method | Septic Tank Capacity |
| Civic Center | X | | 3,600-gallons |
| Civic Center | | X | 1,000-gallons |

The C.P.C. requires the designer to use the fixture unit count or use/occupancy method, whichever septic tank capacity is greater. As shown above, the 3,600-gallon capacity septic tank size derived using the Fixture Unit Count Method is larger than the 1,000-gallon derived using the Use/Occupancy Method; therefore, MJG recommends the septic tank for the Civic Center's OWTs have a capacity of at least 3,600-gallons.

If a larger septic tank is used than the 3,600-gallon tank recommended herein, the County EHS will likely require the seepage pit sizes be calculated using the larger septic tank capacity, which will increase the sizes of the seepage pits calculated below.

Seepage Pit Depth Below Inlet Pipe Calculations

The total seepage pit depths below the inlet pipe.

Septic Tank Size / (Q x diameter of seepage pit x 3.14).

- Four-foot (4) seepage pit diameter = $3,600 \text{ g} / (4 \text{ g/sf/d} \times 4.0' \times 3.14) = 72'$
- Five-foot (5) seepage pit diameter = $3,600 \text{ g} / (4 \text{ g/sf/d} \times 5.0' \times 3.14) = 57'$
- Six-foot (6) seepage pit diameter = $3,600 \text{ g} / (4 \text{ g/sf/d} \times 6.0' \times 3.14) = 48'$

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

- $72'/3' =$ three (3) 4-foot-dia. pits, each 24' deep below the inlet pipe

Option No. 2 – 5.0' diameter seepage pit

- $57'/2' =$ two (2) 5-foot-dia. pits, each 28.5' deep below the inlet pipe.

Option No. 3 – 6.0' diameter seepage pit

- $(48'/2') =$ two (2) 6-foot-dia. pits, each 24' deep below the inlet pipe.

Seepage Pit Recommendation Summary

- Option No. 1 – 3,600-gallon septic tank, distribution box, and three (3) 4-foot-diameter by 24-feet-deep seepage pits below the inlet pipe.
- Option No. 2 – 3,600-gallon septic tank, distribution box, and two (2) 5-foot-diameter by 28.5-feet-deep seepage pits below the inlet pipe.
- Option No. 3 – 3,600-gallon septic tank, distribution box, and two (2) 6-foot-diameter by 24-feet-deep seepage pits below the inlet pipe.

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 groundwater table is about 692 feet below the ground surface at the site; therefore, the separation between the bottoms of the recommended seepage pits and the groundwater is at least 650 feet. 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 wall.
- 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 in 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 $\frac{3}{4}$ -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 than 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, see Appendix C.

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 |
| Public Water Wells | 100 | 150 | 600 |
| 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

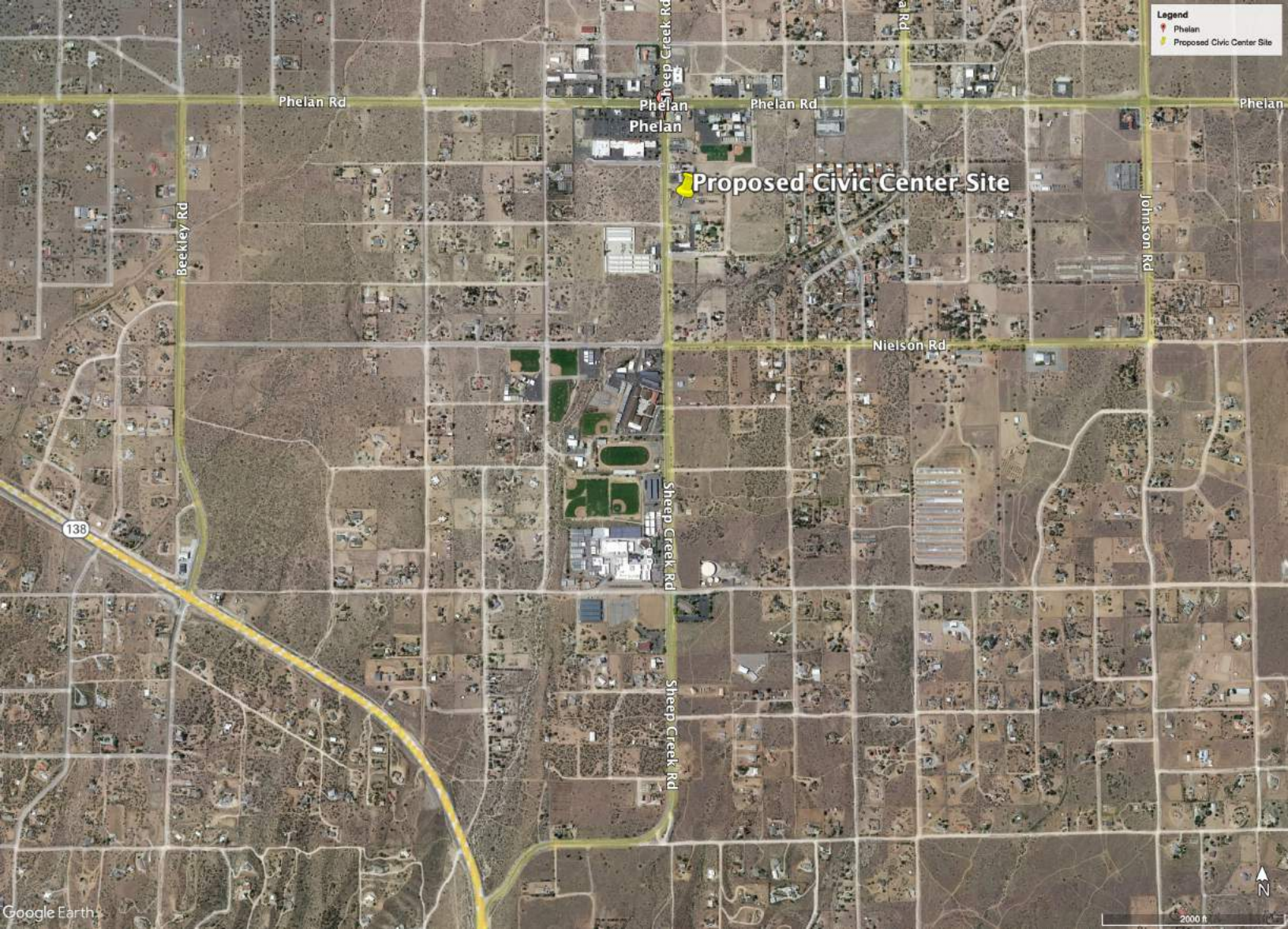
It is possible that variations in the soil conditions could exist between the areas explored and tested. Therefore, if any soil conditions are encountered at the site that is different from those assumed in the preparation of this report; our firm should be notified so that we may review the situation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

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



Legend

- Phelan
- Proposed Civic Center Site

Proposed Civic Center Site

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Legend
Phelan
Proposed Civic Center Site

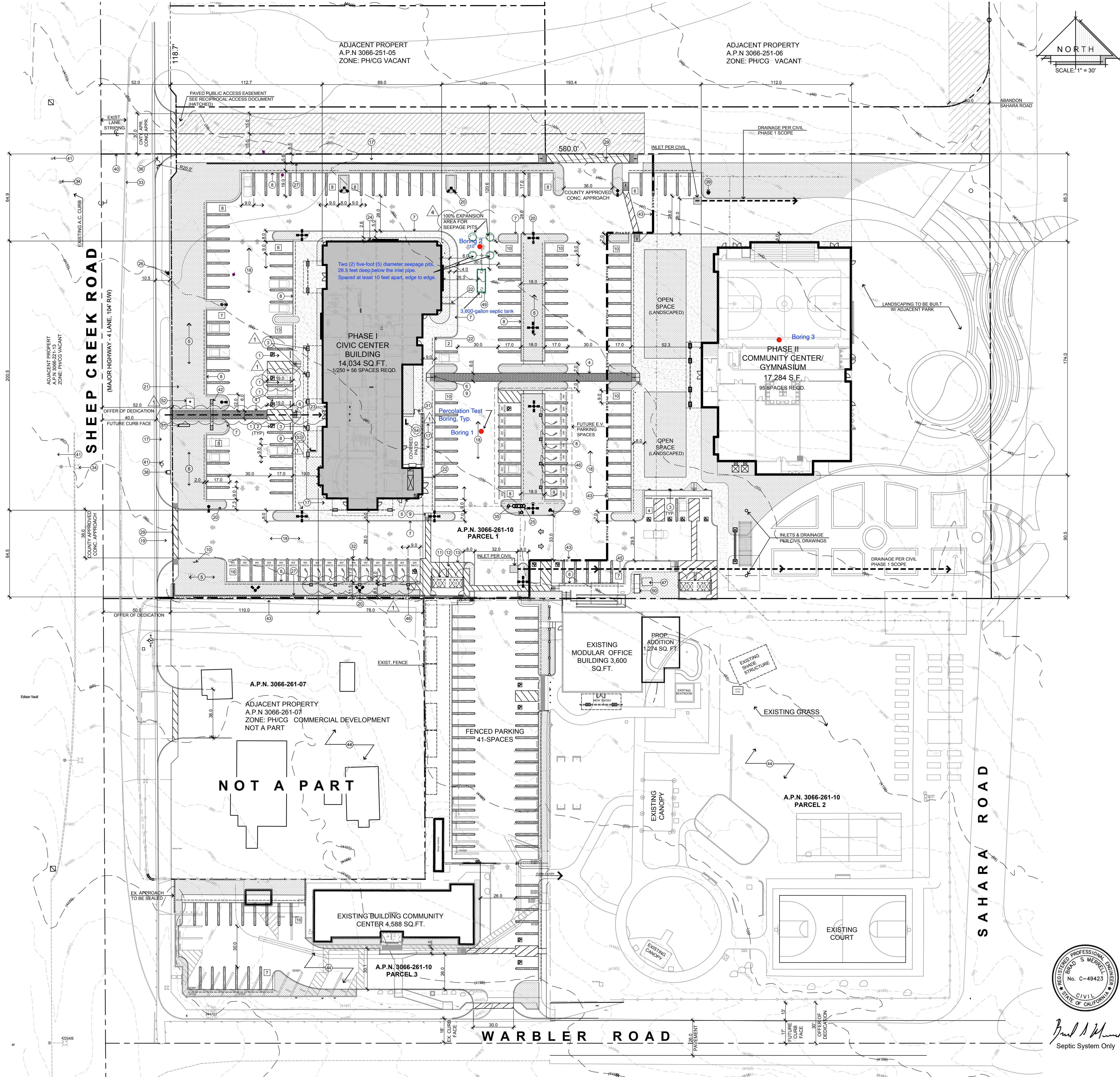
Sheep Creek Rd

Sahara Rd

Proposed Civic Center Site

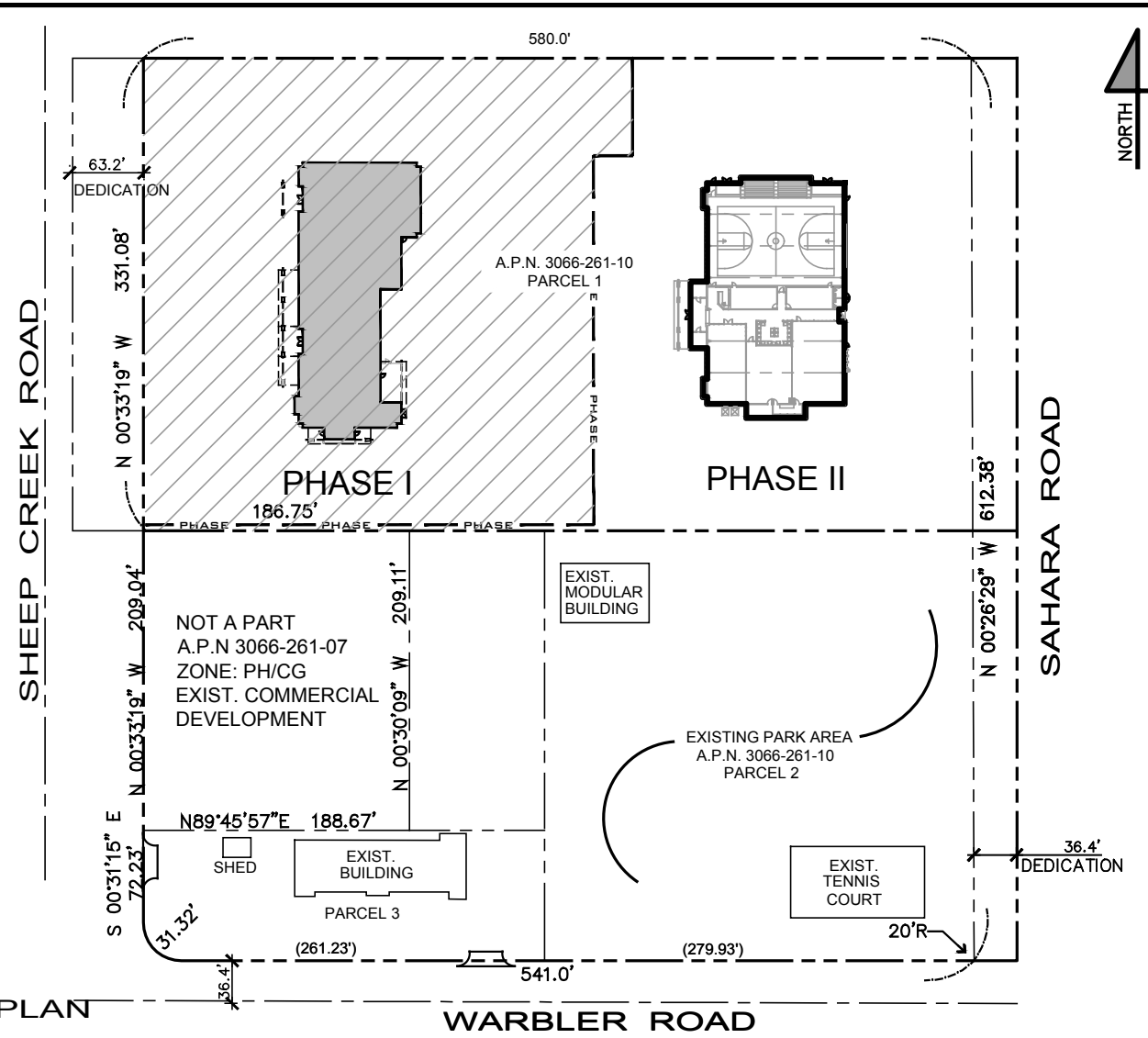
N

200 ft



| PROJECT DATA | | | |
|--|--|---|--|
| ZONE: | PER COUNTY MAP (PHICG) GENERAL COMMERCIAL | PARKING INFORMATION: | SYMBOL INDICATING QTY OF STALLS: <input checked="" type="checkbox"/> |
| OVERLAYS: | FLOOD PLAIN 1 (FP1) / FIRE SAFETY 2 (FS2) | REQUIRED PARKING STALLS: | |
| OCCUPANCY: | (B) BUSINESS | PHASE 1: | |
| CONSTRUCTION TYPE: | (A) ASSEMBLY & (S) STORAGE | ADMIN BLD'G @ 1/250 GROSS FLR. AREA | = 56 SPACES |
| STORIES: | 1-STORY | 708 SQ. FT. OF SEATING @ 1/250 SQ. FT. | = 29 SPACES |
| FIRE SPRINKLERS: | YES | REMAINING BUILDING AREA = 1/250 | = 66 SPACES |
| A.P.N.: | 3066-261-10 | TOTAL REQUIRED PARKING STALLS (9'x19') | = 151 SPACES |
| PTN. N.W. 1/4, SEC. 24 T.4N., R.7W. | UNKNOWN | PROPOSED PARKING STALLS @ MIN. 9'x19' | = 155 SPACES |
| SITE ADDRESS: | | INCLUDES EV REQUIRED PARKING STALLS @ 9'x19' | = 16 SPACES |
| ZONING SETBACKS: | | PROPOSED 'ACCESSIBLE' PARKING STALL @ 9'x19' W/ 8' UNLOADING ZONE | = 11 SPACES |
| F.E.M.A. FLOOD ZONE: | | TOTAL PROVIDED PARKING STALLS | = 165 SPACES |
| APPLICANT/OWNER: | ARCHECT/REPRESENTATIVE: STEENO DESIGN STUDIO, INC. ARCHITECT: TOM STEENO | ALLOCATED SPACES FOR EXISTING ADMIN BLDG. | = 7 SPACES |
| PHELAN PIÑON HILLS C.S.D. PO BOX 28049 4178 WARBLER RD. PHELAN, CA 92329-4049 PH: 760-868-1212 FAX: 760-868-2323 | PH: 760-244-5001 FAX: 760-244-1948 | SURPLUS OF STALLS | = 15 SPACES |
| SITE INFORMATION: | | FUTURE EVSE PARKING STALLS | = 20 SPACES |
| PARCEL 1 GROSS AREA (4.85 AC.) | = 202,925 SQ. FT. 100% | SITE ENGINEERING - PHASE 1 | |
| PROPOSED: | | IMPERVIOUS SURFACE | = 99,543 SQ. FT. |
| PROP. BUILDING AREA | = 31,318 SQ. FT. 15.4% | NON-IMPERVIOUS SURFACE | = 19,002 SQ. FT. |
| ADMINISTRATIVE & REC BUILDING | = 35,654 SQ. FT. 17.6% | DEVELOPED AREA | = 118,543 SQ. FT. |
| PROP. LANDSCAPED AREA | = 138,092 SQ. FT. 67% | GRADING LIMITS | = 515,432 SQ. FT. |
| PROP. PAVING & CONC. (TOTAL) | = 811 SQ. FT. NAP | | |
| PROP. LANDSCAPING WITH-IN R/W | | | |

| KEYED NOTES | | |
|-------------|---|--------|
| # | DESCRIPTION | SYMBOL |
| 1 | VAN ACCESSIBLE PARKING SPACE. SEE DETAIL 4A ON SHEET AC-1 | |
| 2 | ACCESSIBILITY STALL EMBLEM PAINTED AS SHOWN | |
| 3 | DISABLED ACCESSIBLE PARKING ONLY SIGN. SEE DETAIL 13 ON SHEET AC-1. | |
| 4 | 72" WIDE ADA PATH OF TRAVEL W/ DECORATIVE PAVERS | |
| 5 | LANDSCAPED AREA | |
| 6 | TRUNCATED DOMES 30" DEEP X WIDTH OF RAMP OR LANDING | |
| 7 | 6" WIDE CONCRETE CURB. | |
| 8 | 6" WIDE CONCRETE CURB. W/ 2" PARKING NOSE OVER | |
| 9 | ACCESSIBLE RAMP NOT TO EXCEED 8% SLOPE IN DIRECTION OF RUN AND 2% MAX CROSS SLOPE | |
| 10 | WARNING SIGNAGE REGARDING UNAUTHORIZED USE OF DISABLED PARKING SPACES | |
| 11 | DBL. 5YD. BIN TRASH ENCLOSURE PER COUNTY STANDARDS (6' HIGH) | |
| 12 | REINFORCED CONCRETE PAD W/ 2% MAXIMUM SLOPE AWAY FROM T/E | |
| 13 | STRIPPED LOADING ZONE | |
| 14 | TRAFFIC FLOW DIRECTIONAL ARROWS PAINTED ON PAVING AS SHOWN ON PLAN | |
| 15 | DOUBLE STRIPPED PAINTED PARKING STALL STRIPE | |
| 16 | BUILDING COLUMNS AND OVERHANG | |
| 17 | PROPOSED CONC. SIDEWALK | |
| 18 | PROPOSED CONCRETE OR A.C. PAVING PER GEO-TECH REPORT | |
| 19 | PROPOSED CONC. APPROACH PER COUNTY STANDARD 129-B | |
| 20 | 20' HIGH SITE LIGHT STANDARD | |
| 21 | PROPOSED MONUMENT SIGN 4' HIGH & 36SQ.FT., MAX UNDER SEPARATE PERMIT | |
| 22 | ROOF DRAIN PIPES UNDER SIDEWALK | |
| 23 | S.B.C.F.D. KNOX BOX | |
| 24 | PROPOSED GAS METER | |
| 25 | PROPOSED DOUBLE DETECTOR CHECK VALVE ASSEMBLY | |
| 26 | RELOCATED EX. FIRE HYDRANT | |
| 27 | PROPOSED MASONRY BLOCK WALL MAX. 6' HI. SEE GRADING PLAN FOR HEIGHTS. UNDER SEPARATE PERMIT | |
| 28 | 6" DIA. CONC. FILLED STEEL BOLLARDS | |
| 29 | ACCESSIBILITY EASEMENT ACROSS DRIVE APPROACH @ HATCHED AREA | |
| 30 | DASHED LINE OF EASEMENT / B.S.L. | |
| 31 | 5' HIGH WROUGHT IRON FENCE W/ GATE W/ PANIC HARDWARE | |
| 32 | PROVIDE (16) DESIGNATED PARKING STALL FOR FUEL EFFICIENT VEHICLES WITH THE WORDS "CLEAN AIR VEHICLE" PAINTED IN THE SAME STALL STRIPING PAINT & SUCH THAT THE LAST WORD ALIGNS WITH THE END OF THE STALL STRIPING AND IS VISIBLE BENEATH A PARKED VEHICLE. GREEN CODE 5.106.5.2 | |
| 33 | EXISTING EDGE OF PAVEMENT | |
| 34 | EX. STREET LIGHT TO REMAIN | |
| 35 | PROPOSED F.D.C. & P.I.V. FOR FIRE SPRINKLERS | |
| 36 | EX. FIRE HYDRANT TO BE RELOCATED | |
| 37 | FLOW LINE. SEE GRADING PLANS | |
| 38 | EX. WATER METER | |
| 39 | PROPOSED FIRE HYDRANT | |
| 40 | LINE OF EXISTING PROPERTY LINE TO BE DEDICATED | |
| 41 | EX. FIRE HYDRANT TO REMAIN | |
| 42 | PROJECT ENTRY PORTAL. SEE SHEET A-1.1 | |
| 43 | LINE OF PROJECT PHASING | |
| 44 | EXISTING DEVELOPMENT | |
| 45 | 7 PARKING SPACES RESERVED FOR EXISTING OFFICE | |
| 46 | PROVIDE 10 - 40 AMP. DUAL EVSE CHARGING PEDESTAL FOR (20) OVERALL EV PARKING STALL. GREEN CODE 5.106.5.3.3 | |
| 47 | EXISTING ELECTRICAL TRANSFORMER. SEE ELECTRICAL SHEETS | |
| 48 | NOT USED | |
| 49 | XXXX GALLON TRAFFIC RATED SEPTIC TANK W/ 210" DEEP 4' DIAMETER SEEPAGE PITS, WITH DISTRIBUTION BOX AND 100% EXPANSION AREA PER EHS APPROVED PERC REPORT. THE DEPTH OF THE SEEPAGE PIT SHALL BE MEASURED BELOW THE SEWER PIPING INLET. ALL COMPONENTS TO BE DESIGNED FOR VEHICULAR TRAFFIC FOR STANDARD H-20 WHEEL LOADING | |
| 50 | 3,600-gal septic tank & two 5' dia. x 28.5' deep below the inlet pipe seepage pits recommended in Updated Percolation Report | |
| 51 | REPLACE EXISTING 800 AMP SERVICE W/ NEW 3000 AMP SERVICE | |
| 52 | PROPOSED INTERNALLY LIT MONUMENT SIGN - UNDER DEFERRED SUBMITTAL | |
| 53 | 50' TAPERED FLAG POLE ON 6'-0" X 8'-0" CONCRETE PAD | |
| 54 | SHORT-TERM BICYCLE PARKING - PROVIDE PERMANENTLY ANCHORED BICYCLE RACKS WITHIN 200 FT. OF THE VISITORS' ENTRANCE. READILY VISIBLE TO PASSENGERS BY, FOR 5% OF NEW VISITOR MOTORIZED VEHICLE PARKING SPACES BEING ADDED. WITH A MIN. OF 10 TWO-BIKE CAPACITY RACK | |
| 55 | LONG-TERM BICYCLE PARKING - PROVIDE SECURE BICYCLE PARKING FOR 5% OF MOTORIZED VEHICLE PARKING CAPACITY W/ A MIN. OF (1) SPACE. ACCEPTABLE PARKING FACILITIES SHALL BE CONVENIENT FROM THE STREET. | |



NOTE:
1. 5.106.5.2.1 PARKING STALL MARKING.
PAINT, IN THE PAINT USED FOR STALL STRIPING, THE FOLLOWING CHARACTERS SUCH THAT THE LOWER
EDGE OF THE LAST WORD ALIGNS WITH THE END OF THE STALL STRIPING AND IS VISIBLE BENEATH A PARKED
VEHICLE: CLEAN AIR
VEHICLE
2. AN ACCESSIBLE ROUTE SHALL NOT TRAVEL BEHIND PARKING OTHER THAN HIS/HER OWN.

STEENO

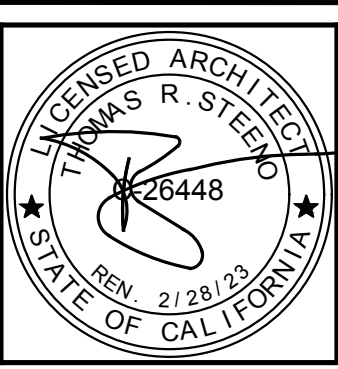
DESIGN STUDIO INC.
ARCHITECTURE • DESIGN • PLANNING
11774 HESPERIA ROAD, SUITE B • HESPERIA, CA 92345
PHONE (760) 244-5001 • FAX (760) 244-1948
www.steenodesign.com

| | |
|---------------------|----------|
| DATE FINISHED | MAY 2022 |
| REVISIONS | |
| DEV. CODE 02/14/22 | |
| BLOG. CODE 02/14/22 | |
| BLOG. CODE 08/08/22 | |
| ELECTRICAL_09/30/22 | |
| SEPTIC_10/27/22 | |

THESE PLANS SHALL COMPLY WITH THE 2019 CALIFORNIA BUILDING CODE WITH CAPACITY FOR 20% OVERLOADING AND THE 2019 ENERGY STANDARDS. THESE DOCUMENTS AND THE DESIGN AND BEARS INCORPORATED HEREIN, AS AN INSTRUMENT OF SERVICE, ARE THE SOLE PROPERTY OF STEENO DESIGN STUDIO, INC. ANY USE, IN WHOLE OR IN PART, FOR WHICH THEY WERE NOT PROVIDED SHALL BE UNLAWFUL.



Septic System Only



| | | |
|---|-----------------------|------|
| PROJECT: CIVIC CENTER BUILDING | JOB NO. COM20-L01/01 | PAGE |
| PHELAN PIÑON HILLS C.S.D. | SHEET NAME: SITE PLAN | A-0 |
| SITE ADDRESS: A.P.N. 3066-261-10 9535 SHEEP CREEK ROAD PHELAN, CA 92329 | CONTACT: DON BARTZ | |

Appendix B
ALR Engineering & Testing's
Percolation Test Report
Dated November 5, 2013
Amended December 16, 2013

ALR ENGINEERING & TESTING

Civil & Geotechnical Engineering w/ Material Testing

18361 Symeron Road, Apple Valley, Ca. 92307

760-810-2031 Cell # - 760-242-3130 Office #

(alrengineeringtesting@gmail.com)

November 5, 2013

Amended December 16, 2013

PERCOLATION TEST

APN 3066-261-10

PROPOSED ADMINISTRATION BUILDING, WITH FUTURE SERVICE BUILDING AND GYMNASIUM DEVELOPMENT

Seepage Pit test on a 8.14 acre parcel.

Located on the East side of Sheep Creek Road,
and approximately 300' North of Warbler Road, in
Phelan, San Bernardino County, California

Prepared for

PHELAN PINON HILLS CSD

Project No. 1308020

Engineers Do It To Your Specifications – Engineering Excellence

| | |
|---|--|
| Plot Plan or Percolation Report | EHIS REF# 13-01532 |
| DESIGN RATE: 25 square feet per 100 gallons septic tank capacity | |
| This rate applies to: | <input checked="" type="checkbox"/> leach lines/bed <input checked="" type="checkbox"/> seepage pits |
| <input type="checkbox"/> location(s) where tested | <input type="checkbox"/> entire lot/subdivision <input type="checkbox"/> limited to: |
| Additional requirements prior to issuance of building permits: | |
| <input checked="" type="checkbox"/> EHS plot plan approval | <input type="checkbox"/> Clearance from _____ |
| <input type="checkbox"/> Special EHS Conditions of Approval | |
| County of San Bernardino • Department of Public Health Division of Environmental Health Services | |
| CONSTRUCTION DETAILS SUBJECT TO BUILDING AND SAFETY APPROVAL | |
| Approved By: <i>[Signature]</i> | Date: 01-10-14 |

I. DESCRIPTION OF SITE AND OF PROPOSAL:

- 1.0 Notification:** Patty Granado-Alvarez on 10-30-2013
per NOI e-mail address
- 1.1 Prepared for:** PHELAN PINON HILLS CSD
4037 Phelan Road
Phelan, Ca. 92329-4049
- 1.2 Location of Land:**
- a) See attached **Figure No. 1 thru 3.**
- 1.3 Proposed Development:**
- a) Administration Building 8,324 sqft to be built initially with
Future Expansion to Administration Building 5,000 sqft
Future Service Building 10,000 sqft
Future Gymnasium Building 12,000 sqft
- b) 1 Lot, **8.14** acres per county APN map
- c) **Type of Disposal:** Septic Tanks with seepage pits
- d) **Plot Plan:** See attached **Figure No.3.** some minor grading may be necessary.
- 1.4 Description of Site and Surroundings:**
- a) **Topography:** This area is sloping with a downward slope to the Northeast at approximately 1%.
- b) **Water Courses:** There are no drainage courses crossing this property.
- c) **Vegetation:** There is no vegetation on site.
- d) **Existing Structures:** There are no existing structures on this property.
- e) **Existing or abandoned wells within 200 feet:** None
- f) **Rock Outcroppings:** None
- g) **Depth to water:** Approximate water table is **692'** below existing grade.
This depth is taken from the water district maps and adjacent properties tested.
- h) **Any Feature that may affect sewage disposal:** None

II. EQUIPMENT:

Drill Rig with 8" screw-type auger, shovel, and measuring tape with 1/16" divisions.

III. METHODOLOGY AND PROCEDURES:

- 3.1 Location of borings or trenches:** See attached **Figure No. 3,** the location of the borings which were chosen in the area of the proposed septic tank placement.
- 3.2 Soil characteristics to determine number of borings and tests:**
- 3.2.1** Three (3) borings were drilled to explore the soil and with all to test.
The soils were consistent well graded **SANDS** with silts and some small gravel as shown on **Figure A-1, A-2, and A-3.**
- 3.2.2 Seepage Pit Test Holes:** Three (3) borings were drilled, all test borings were drilled to a depth of 45'.

3.3 Minimum number of exploratory borings: Per table 3.3 in favorable soil for a commercial lot, we are shown 1 boring for 4,000 gsc. These borings were drilled in the center of the disposal area.

3.3.1 Boring Results: All of the borings were consistent.

- a. Soil descriptions are included on Figure No. A-1 and A-2.
- b. The predominant soils were that of well graded SAND with silts and some small gravel.
- c. The soil colors ranged from Light Tan to Dark Tan.
- d. The only roots visible were on the surface.
- e. The soils were in the Loose to Medium Dense range.
- f. The soils encountered were Damp.
- g. The groundwater depth is approximately 692' by the water agency plans.
- h. N/A
- i. The borings were abandoned by burying the holes with a shovel.

3.4 Leach line Testing: None done.

3.5 Minimum number of tests for Seepage Pits: Per the table, in favorable soils for a commercial lot, 2 tests per 4000 gallon.

3.5.1 Seepage Pit, Weighted Average Percolation Test Procedure: N/A

3.5.2 Seepage Pit, Falling Head Percolation Test Procedure:

Test Holes:

- a. Test holes were 8" in diameter.
- b. All of the borings were drilled to a depth of 45'
- c. No gravel packing was used for these borings.

Measurements:

- a. We filled the borings with clear water until the water level was at the surface of the ground. We refilled to the surface for all but the last **two (2)** readings. The final refills shall be to the proposed depth of the inlet which would be about 48" below the ground surface.
- b. Our test borings were in well graded SAND with silts and gravel, our water level in two consecutive 30 minute readings did seep faster than half the initial wetted depth in 30 minutes.
The time intervals we used after the first two tests was 10 minutes for approximately 1 hour, until **two** consecutive readings did not vary by more than 10%.
- b. Since our holes did not have an abundance of clays or silts we did not presoak overnight before testing began.
- c. We remeasured the depth of each test hole with each reading to see if caving had occurred. We had minimal caving as shown on **Figures B-1 thru B-3**.

3.5.3 Seepage Pit Test Results:

3.5.3.1 The results were tabulated and are shown on **Figure B-1 thru B-3**.

3.5.3.2 All information is shown on **Figures B-1 thru B-3**.

IV. DISCUSSION OF RESULTS:

- 4.1 All of the test borings were of consistent soil classification of favorable and described as well graded SANDS and with silts and gravel. The percolation times obtained were fairly uniform and are considered valid for basing a design.
- 4.2 The results and measurements were accurate.
- 4.3 The test results we obtained from the falling head method were accurate.

V. DESIGN:

Based upon the percolation test data, we are recommending **Q = 4.00** g/sf/day.

Square feet / gallons septic tank capacity (sf/gstc)

$$1 / Q * 100 = \text{sf}/100 \text{ gstc} \quad 1 / 4.00 * 100 = \mathbf{25.0 \text{ sf}/100 \text{ gstc}}$$

$$\text{Design depth below inlet} = \frac{\text{septic tank capacity}}{Q * D * 3.14} = 2250 / (4)(5)(3.14) = \mathbf{36 \text{ ft}}$$

The FU quantities total **52**, which rounds up to a septic tank size of **2250** gallons.

MAXIMUM SEWAGE CAPACITY:

$$(\mathbf{2250 \text{ gstc}} / \mathbf{4.00 \text{ g/sf/day}}) = \mathbf{562.50 \text{ sf/day}} \quad (\mathbf{562.50 \text{ sf}} / \mathbf{15.7 \text{ sf/ft depth}} = \mathbf{36'})$$

Use a **2250** gallon septic tank for the proposed administration building and
[**2-18'** deep seepage pits from the outlet of the septic tank]

VI. PLOT PLAN PER CURRENTLY ADOPTED UPC


The plot plan shows the approximate location of the designed system with 100% expansion. This development has sufficient area to install the designed system with no foreseeable complications. Mounding is not anticipated due to the soils observed and tested as described within this report.

VII. DISCUSSION AND REQUIREMENTS:

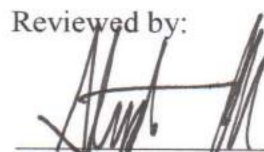
This lot has **sufficient** area to handle the anticipated liquid waste without creating a nuisance or contaminating groundwater. The groundwater is estimated to be at a depth of **692'** below the surface gradient. The effluent anticipated from this development will be normal waste with no food or other discharge.

All requirements of the **CRWQCB** will be complied with per these test and design parameters.

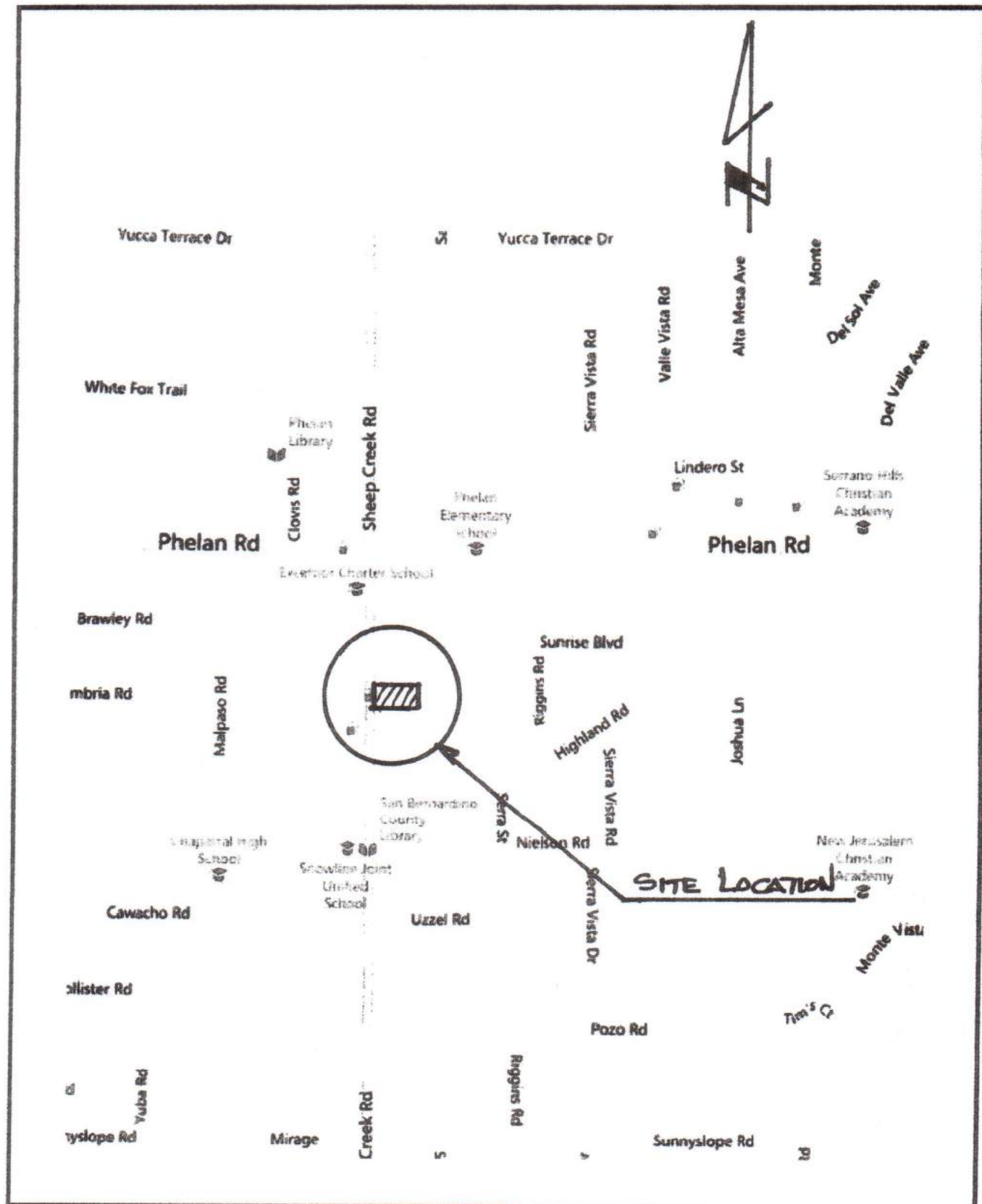
Prepared by:


John Longoria, EIT, NICET III
Senior Associate Engineer

Reviewed by:


Stephan M. Longoria, PE 74782
Registered Civil Engineer





ALR ENGINEERING & TESTING

Civil & Geotechnical Engineering w/ Material Testing

18361 Symeron Road

Apple Valley, Ca. 92307

(760) 810-2031 Cell # (760) 242-3130 Office #

Phelan

Project No. 1308020

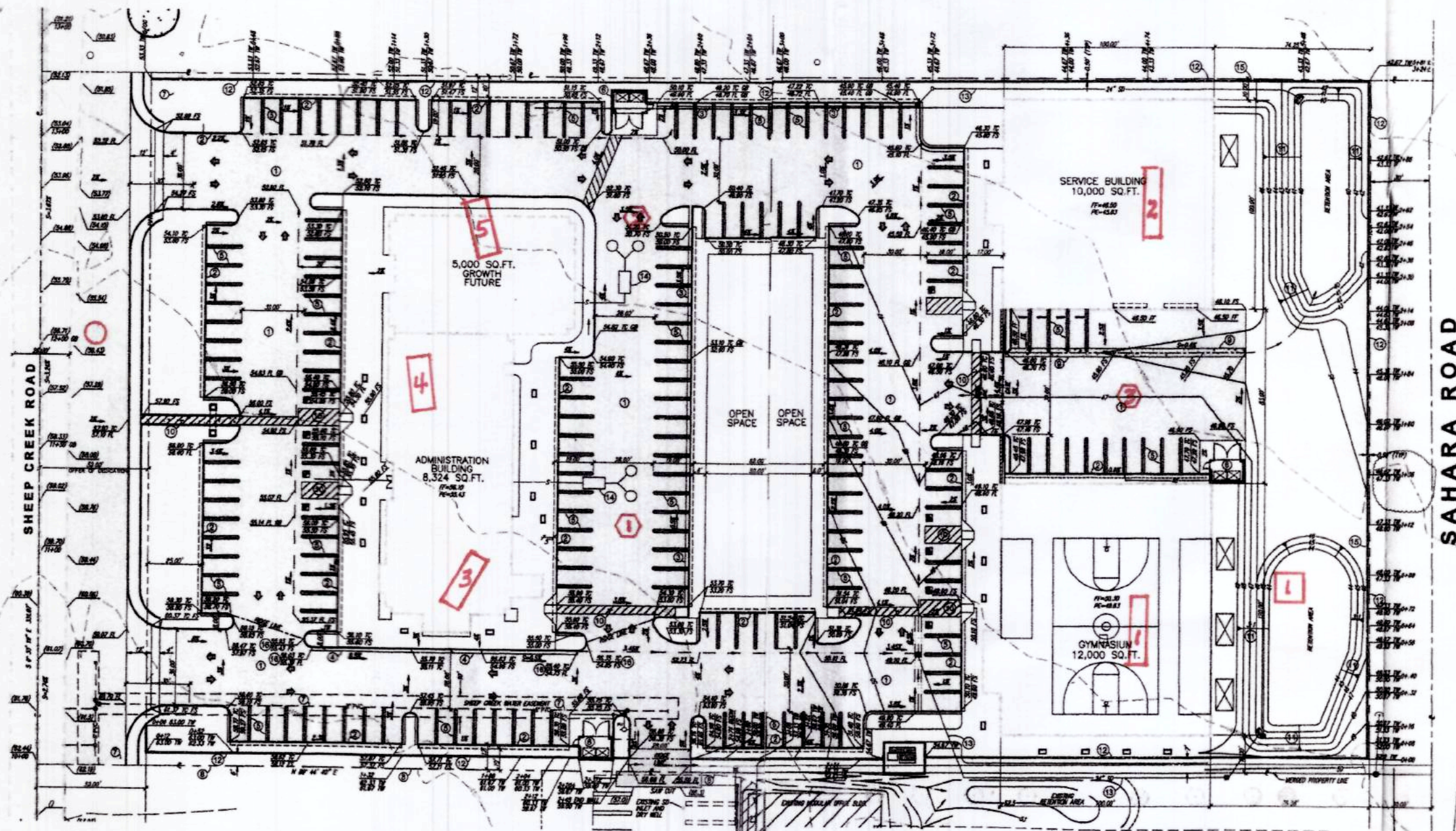
APN 3066-261-10

PHELAN PINON HILLS CSD

VICINITY MAP

Figure No.

1



- DENOTES APPROXIMATE LOCATION OF PERCOLATION BY SEEPAGE PIT METHOD BORINGS
- DENOTES APPROXIMATE LOCATION OF EXPLORATORY TRENCHES
- DENOTES APPROXIMATE LOCATION OF INFILTRMETER TEST TRENCH
- DENOTES APPROXIMATE LOCATION OF "R" VALUE SAMPLE

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 (760) 810-2031 Cell # (760) 242-3130 Office #

| | |
|------------------------------|---------------------|
| Phelan | Project No. 1308020 |
| APN 3066-251-10 | |
| PHELA PINON HILLS CSD | |
| PLOT PLAN | Figure No. 3 |

TABLE 1 Soil Classification Chart

| Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A | | | | Soil Classification | |
|--|--|--|--|---------------------|--|
| | | | | Group Symbol | Group Name ^B |
| Coarse-Grained Soils More than 50 % retained on No. 200 sieve | Gravels More than 50 % of coarse fraction retained on No. 4 sieve | Clean Gravels Less than 5 % fines ^C | $Cu \geq 4$ and $1 \leq Cc \leq 3^E$ | GW | Well-graded gravel ^F |
| | | | $Cu < 4$ and/or $1 > Cc > 3^E$ | GP | Poorly graded gravel ^F |
| | | Gravels with Fines More than 12 % fines ^C | Fines classify as ML or MH | GM | Silty gravel ^{F,G,H} |
| | | | Fines classify as CL or CH | GC | Clayey gravel ^{F,G,H} |
| | Sands 50 % or more of coarse fraction passes No. 4 sieve | Clean Sands Less than 5 % fines ^D | $Cu \geq 6$ and $1 \leq Cc \leq 3^E$ | SW | Well-graded sand |
| | | | $Cu < 6$ and/or $1 > Cc > 3^E$ | SP | Poorly graded sand ^I |
| | | Sands with Fines More than 12 % fines ^D | Fines classify as ML or MH | SM | Silty sand ^{G,H,I} |
| | | | Fines classify as CL or CH | SC | Clayey sand ^{G,H,I} |
| Fine-Grained Soils 50 % or more passes the No. 200 sieve | Silts and Clays Liquid limit less than 50 | inorganic | PI > 7 and plots on or above "A" line ^J | CL | Lean clay ^{K,L,M} |
| | | | PI < 4 or plots below "A" line ^J | ML | Silt ^{K,L,M} |
| | | organic | Liquid limit – oven dried Liquid limit – not dried < 0.75 | OL | Organic clay ^{K,L,M,N} Organic silt ^{K,L,M,O} |
| | | | | | |
| | Silts and Clays Liquid limit 50 or more | inorganic | PI plots on or above "A" line | CH | Fat clay ^{K,L,M} |
| | | | PI plots below "A" line | MH | Elastic silt ^{K,L,M} |
| | | organic | Liquid limit – oven dried Liquid limit – not dried < 0.75 | OH | Organic clay ^{K,L,M,P} Organic silt ^{K,L,M,O} |
| | | | | | |
| Highly organic soils | Primarily organic matter, dark in color, and organic odor | | | PT | Peat |

^A Based on the material passing the 3-in. (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12 % fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

^D Sands with 5 to 12 % fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

$$^E Cu = D_{60}/D_{10} \quad \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

^F If soil contains ≥ 15 % sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains ≥ 15 % gravel, add "with gravel" to group name.

^J If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29 % plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains ≥ 30 % plus No. 200, predominantly sand, add "sandy" to group name.

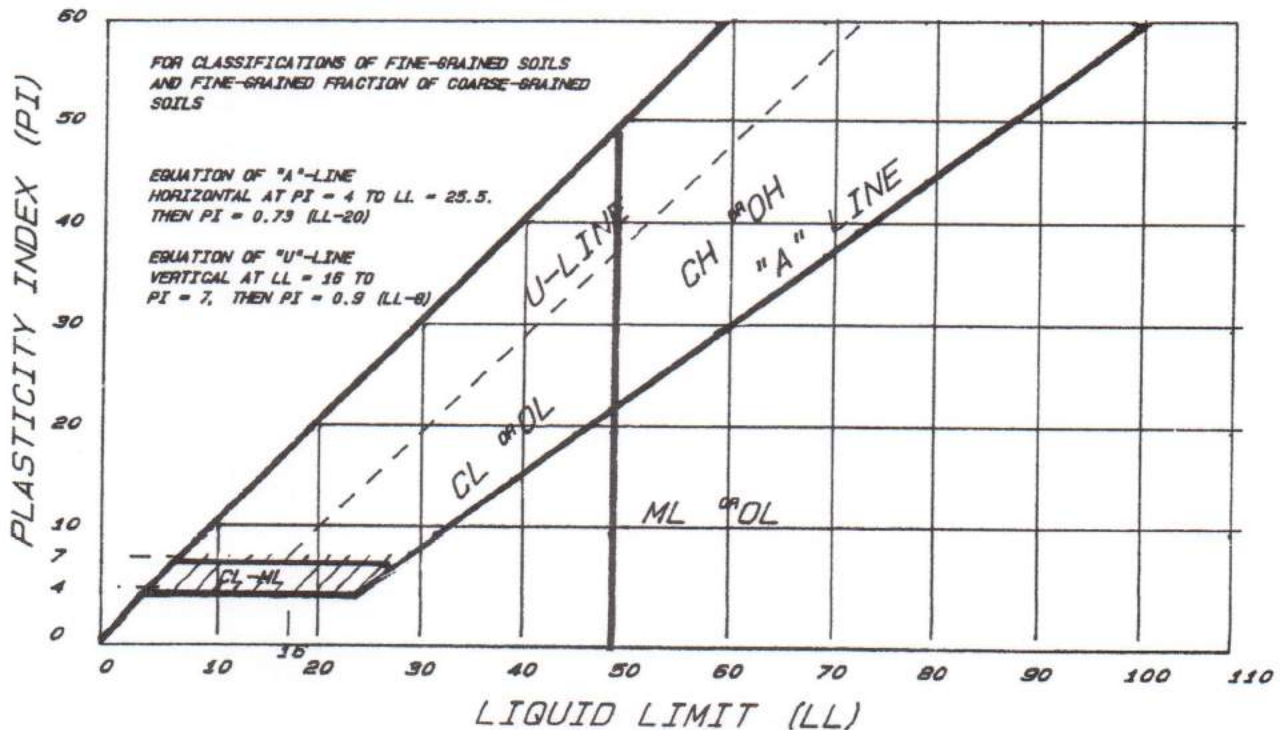
^M If soil contains ≥ 30 % plus No. 200, predominantly gravel, add "gravelly" to group name.

^N PI ≥ 4 and plots on or above "A" line.

^O PI < 4 or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.



ALR ENGINEERING TESTING

BORING LOG NO. B-1

Project: APN 3066-261-10

Project # 1308020

Client: PPHCSD

Date: 11-4-13

| Depth Feet | Sample Type | Blows per Foot | Sand Equivalent SE | Lab Test Type | USCS Soil Classification | Geotechnical Description |
|---------------|----------------|----------------------|--------------------------|---------------------|--------------------------------|--|
| --- | | | | | SW-SM | Well graded SAND, with silts and traces of gravel, Coarse to Medium, Tan, Dry, Medium Dense |
| 5'-- | | | | | SW-SM | Well graded SAND, with silts and much gravel, Coarse to Medium, Dark Tan, Damp, Medium Dense |
| 10'-- | | | | | | |
| 15'-- | | | | | | |
| 20'-- | | | | | | |
| 25'-- | | | | | | |
| 30'-- | | | | | | |
| 35'-- | | | | | SW-SM | Well graded SAND, with silts and some small gravel, Coarse to Medium, Dark Tan, Damp, Medium Dense |
| 40'-- | | | | | | |
| 50'-- | | | | | | Bottom of Exploratory Boring No Groundwater Present |

ALR ENGINEERING TESTING

BORING LOG NO. B-2

Project: APN 3066-261-10

Project # 1308020

Client: PPHCSD

Date: 11-4-13

| Depth Feet | Sample Type | Blows per Foot | Sand Equivalent SE | Lab Test Type | USCS Soil Classification | Geotechnical Description |
|---------------|----------------|----------------------|--------------------------|---------------------|--------------------------------|--|
| 5' | | | | | SW-SM | Well graded SAND, with silts and traces of gravel, Coarse to Medium, Tan, Dry, Medium Dense |
| 10' | | | | | | |
| 15' | | | | | | |
| 20' | | | | | SW-SM | Well graded SAND, with silts and much gravel and rock to 3", Coarse to Medium, Tan, Damp, Medium Dense |
| 25' | | | | | | |
| 30' | | | | | | |
| 35' | | | | | SW-SM | Well graded SAND, with silts and some small gravel, Coarse to Medium, Dark Tan, Damp, Medium Dense |
| 40' | | | | | | |
| 50' | | | | | | Bottom of Exploratory Boring No Groundwater Present |

ALR ENGINEERING TESTING

BORING LOG NO. B-3

Project: APN 3066-261-10

Project # 1308020

Client: PPHCSD

Date: 11-4-13

| Depth Feet | Sample Type | Blows per Foot | Sand Equivalent SE | Lab Test Type | USCS Soil Classification | Geotechnical Description |
|---------------|----------------|----------------------|--------------------------|---------------------|--------------------------------|---|
| --- | | | | | SW-SM | Well graded SAND, with silts and traces of gravel, Coarse to Medium, Tan, Dry, Medium Dense |
| 5'--- | | | | | | |
| 10'--- | | | | | | |
| 15'--- | | | | | SW-SM | Well graded SAND, with silts and much gravel and rock to 3", Coarse to Medium, Dark Tan, Damp, Medium Dense |
| 20'--- | | | | | SW-SM | Well graded SAND, with silts, Medium to Fine, Dark Tan, Damp, Medium Dense |
| 25'--- | | | | | | |
| 30'--- | | | | | | |
| 35'--- | | | | | SW-SM | Well graded SAND, with silts, Coarse to Medium, Dark Tan, Damp, Medium Dense |
| 40'--- | | | | | | |
| 50'--- | | | | | | Bottom of Exploratory Boring No Groundwater Present |

PERCOLATION TEST RESULTS

| | Time | Test Time (hr) | Final Water level Reading (ft) | Water Level (ft) | Actual Depth of Hole (ft) | Average Depth of Hole (ft) | Diameter of Hole (ft) | Initial Water level Reading (ft) | g/sf/d | 180/Q |
|----------|------|-------------------|--------------------------------------|---------------------|---------------------------------|-------------------------------------|-----------------------------|---|--------|-------|
| | | t | d_f | F | d_b | L_{ave} | D | d_i | Q | MPI |
| Begin | | | | | | | | | | |
| Test # 1 | | 0.5 | 32.50 | 32.50 | 37.67 | 21.42 | 0.67 | 0.0 | 18.30 | 9.8 |
| Refill | | | | | | | | | | |
| Test # 2 | | 0.5 | 22.33 | 22.33 | 37.25 | 26.09 | 0.67 | 0.0 | 10.32 | 17.4 |
| Refill | | | | | | | | | | |
| Test # 3 | | 0.2 | 10.58 | 10.58 | 35.25 | 29.96 | 0.67 | 0.0 | 12.53 | 14.4 |
| Refill | | | | | | | | | | |
| Test # 4 | | 0.2 | 10.00 | 10.00 | 35.08 | 30.08 | 0.67 | 0.0 | 11.79 | 15.3 |
| Refill | | | | | | | | | | |
| Test # 5 | | 0.2 | 9.17 | 9.17 | 35.17 | 30.59 | 0.67 | 0.0 | 10.63 | 16.9 |
| Refill | | | | | | | | | | |
| Test # 6 | | 0.2 | 8.75 | 8.75 | 34.50 | 30.13 | 0.67 | 0.0 | 10.30 | 17.5 |
| Refill | | | | | | | | | | |
| Test # 7 | | 0.2 | 8.42 | 4.42 | 34.25 | 28.04 | 0.67 | 4.0 | 5.59 | 32.2 |
| Refill | | | | | | | | | | |
| Test # 8 | | 0.2 | 8.33 | 4.33 | 34.17 | 28.00 | 0.67 | 4.0 | 5.49 | 32.8 |
| Refill | | | | | | | | | | |
| Test # 9 | | 0.2 | 8.33 | 4.33 | 34.17 | 28.00 | 0.67 | 4.0 | 5.49 | 32.8 |
| Refill | | | | | | | | | | |
| Test #10 | | | | | | | | | | |
| Refill | | | | | | | | | | |
| Test #11 | | | | | | | | | | |
| Refill | | | | | | | | | | |
| Test #12 | | | | | | | | | | |

$$Q = (F)(D)(9) / (L_{avg}) (t)$$

$$Q = (4.33')(0.67')(9) / ((28.00')(0.17))$$

$$MPI = 180 / Q$$

$$F = d_f - d_i$$

$$Q = (26.11) / (4.76)$$

$$MPI = 180 / 5.485$$

$$L_{avg} = [d_b - (d_i + d_f)] / 2$$

$$Q = (5.485)$$

$$MPI = 32.82$$

Hole # B - 1 Date Tested: 11/4/2013

Dimension of Hole: 0.67' Boring Depth: 45'

Soil Type Encountered: Coarse to medium Well graded SAND w/silts (SW-SM)

Date Drilled: 11/4/2013

Client: PPHCSD APN: 3066-261-10

| | | |
|--|--------------------------|---------------------|
| ALR Engineering & Testing Civil & Geotechnical Engineering w/ Material Testing 18361 Symeron Road Apple Valley, Ca. 92307 (760) 810-2031 Cell # (760) 242-3130 Office # | Phelan | Project No. 1308020 |
| | PERCOLATION TEST RESULTS | B - 1 |

PERCOLATION TEST RESULTS

| | Time | Test Time (hr) | Final Water level Reading (ft) | Water Level (ft) | Actual Depth of Hole (ft) | Average Depth of Hole (ft) | Diameter of Hole (ft) | Initial Water level Reading (ft) | g/sf/d | 180/Q |
|----------|------|-------------------|--------------------------------------|---------------------|---------------------------------|----------------------------------|-----------------------------|--|--------|-------|
| | | Δt | d_f | F | d_b | L_{ave} | D | d_i | Q | MPI |
| Begin | | | | | | | | | | |
| Test # 1 | | 0.5 | 32.67 | 32.67 | 34.50 | 18.17 | 0.67 | 0.0 | 21.69 | 8.3 |
| Refill | | | | | | | | | | |
| Test # 2 | | 0.5 | 26.48 | 26.48 | 31.67 | 18.43 | 0.67 | 0.0 | 17.33 | 10.4 |
| Refill | | | | | | | | | | |
| Test # 3 | | 0.2 | 9.50 | 9.50 | 30.25 | 25.50 | 0.67 | 0.0 | 13.21 | 13.6 |
| Refill | | | | | | | | | | |
| Test # 4 | | 0.2 | 9.25 | 9.25 | 30.17 | 25.55 | 0.67 | 0.0 | 12.84 | 14.0 |
| Refill | | | | | | | | | | |
| Test # 5 | | 0.2 | 9.00 | 9.00 | 30.00 | 25.50 | 0.67 | 0.0 | 12.52 | 14.4 |
| Refill | | | | | | | | | | |
| Test # 6 | | 0.2 | 8.25 | 8.25 | 29.92 | 25.79 | 0.67 | 0.0 | 11.35 | 15.9 |
| Refill | | | | | | | | | | |
| Test # 7 | | 0.2 | 8.25 | 4.25 | 28.92 | 22.79 | 0.67 | 4.0 | 6.61 | 27.2 |
| Refill | | | | | | | | | | |
| Test # 8 | | 0.2 | 8.17 | 4.17 | 28.83 | 22.75 | 0.67 | 4.0 | 6.50 | 27.7 |
| Refill | | | | | | | | | | |
| Test # 9 | | 0.2 | 8.17 | 4.17 | 28.83 | 22.75 | 0.67 | 4.0 | 6.50 | 27.7 |
| Refill | | | | | | | | | | |
| Test #10 | | | | | | | | | | |
| Refill | | | | | | | | | | |
| Test #11 | | | | | | | | | | |
| Refill | | | | | | | | | | |
| Test #12 | | | | | | | | | | |

| | | |
|--|---|--------------------|
| $Q = (F)(D)(9) / (L_{avg}) (\Delta t)$ | $Q = (4.17') (0.67') (9) / (22.75') (0.17)$ | $MPI = 180 / Q$ |
| $F = d_f - d_i$ | $Q = (25.145) / (3.8675)$ | $MPI = 180 / 6.50$ |
| $L_{avg} = [d_b - (d_i + d_f)] / 2$ | $Q = (6.50)$ | $MPI = 27.7$ |

Hole # B - 2 Date Tested: 11/4/2013
 Dimension of Hole: 0.67' Boring Depth: 45'
 Soil Type Encountered: Coarse to medium Well graded SAND w/silts (SW-SM)
 Date Drilled: 11/4/2013
 Client: PPHCSD APN: 3066-261-10

| | | |
|--|--------------------------|---------------------|
| ALR Engineering & Testing Civil & Geotechnical Engineering w/ Material Testing 18361 Symeron Road Apple Valley, Ca. 92307 (760) 810-2031 Cell # (760) 242-3130 Office # | Phelan | Project No. 1308020 |
| | PERCOLATION TEST RESULTS | B - 2 |

PERCOLATION TEST RESULTS

| | Time | Test Time (hr) | Final Water level Reading (ft) | Water Level (ft) | Actual Depth of Hole (ft) | Average Depth of Hole (ft) | Diameter of Hole (ft) | Initial Water level Reading (ft) | g/sf/d | 180/Q |
|----------|------|-------------------|--------------------------------------|---------------------|---------------------------------|----------------------------------|-----------------------------|--|--------|-------|
| | | Δt | d_f | F | d_b | L_{ave} | D | d_i | Q | MPI |
| Begin | | | | | | | | | | |
| Test # 1 | | 0.5 | 31.92 | 31.92 | 36.25 | 20.29 | 0.67 | 0.0 | 18.97 | 9.5 |
| Refill | | | | | | | | | | |
| Test # 2 | | 0.5 | 29.83 | 29.83 | 34.67 | 19.76 | 0.67 | 0.0 | 18.21 | 9.9 |
| Refill | | | | | | | | | | |
| Test # 3 | | 0.2 | 9.50 | 9.50 | 33.50 | 28.75 | 0.67 | 0.0 | 11.72 | 15.4 |
| Refill | | | | | | | | | | |
| Test # 4 | | 0.2 | 9.25 | 9.25 | 33.33 | 28.71 | 0.67 | 0.0 | 11.43 | 15.7 |
| Refill | | | | | | | | | | |
| Test # 5 | | 0.2 | 8.83 | 8.83 | 32.67 | 28.26 | 0.67 | 0.0 | 11.08 | 16.2 |
| Refill | | | | | | | | | | |
| Test # 6 | | 0.2 | 8.50 | 8.50 | 32.00 | 27.75 | 0.67 | 0.0 | 10.86 | 16.6 |
| Refill | | | | | | | | | | |
| Test # 7 | | 0.2 | 8.42 | 4.42 | 31.75 | 25.54 | 0.67 | 4.0 | 6.14 | 29.3 |
| Refill | | | | | | | | | | |
| Test # 8 | | 0.2 | 8.42 | 4.42 | 31.75 | 25.54 | 0.67 | 4.0 | 6.14 | 29.3 |
| Refill | | | | | | | | | | |
| Test # 9 | | 0.2 | 8.42 | 4.42 | 31.75 | 25.54 | 0.67 | 4.0 | 6.14 | 29.3 |
| Refill | | | | | | | | | | |
| Test #10 | | | | | | | | | | |
| Refill | | | | | | | | | | |
| Test #11 | | | | | | | | | | |
| Refill | | | | | | | | | | |
| Test #12 | | | | | | | | | | |

| | | |
|--|---|--|
| $Q = (F)(D)(9) / (L_{avg}) (\Delta t)$ $F = d_f - d_i$ $L_{avg} = [d_b - (d_i + d_f)] / 2$ | $Q = (4.42') (0.67') (9) / (25.54') (0.17)$ $Q = (26.65) / (4.34)$ $Q = (6.14)$ | $MPI = 180 / Q$ $MPI = 180 / 6.14$ $MPI = 29.32$ |
|--|---|--|

| | | |
|---------------------------------|---|--------------------------|
| Hole # <u>B - 3</u> | Date Tested: <u>11/4/2013</u> | Boring Depth: <u>45'</u> |
| Dimension of Hole: <u>0.67'</u> | Soil Type Encountered: <u>Coarse to medium Well graded SAND w/silts (SW-SM)</u> | |
| Date Drilled: <u>11/4/2013</u> | Client: <u>PPHCSD</u> APN: <u>3066-261-10</u> | |

| | | |
|--|---------------------------------|---------------------|
| ALR Engineering & Testing Civil & Geotechnical Engineering w/ Material Testing 18361 Symeron Road Apple Valley, Ca. 92307 (760) 810-2031 Cell # (760) 242-3130 Office # | Phelan | Project No. 1308020 |
| | PERCOLATION TEST RESULTS | B - 3 |

Appendix C

Minimum Setback and Location of Septic System

SEEPAGE PIT SYSTEM

Appendix D

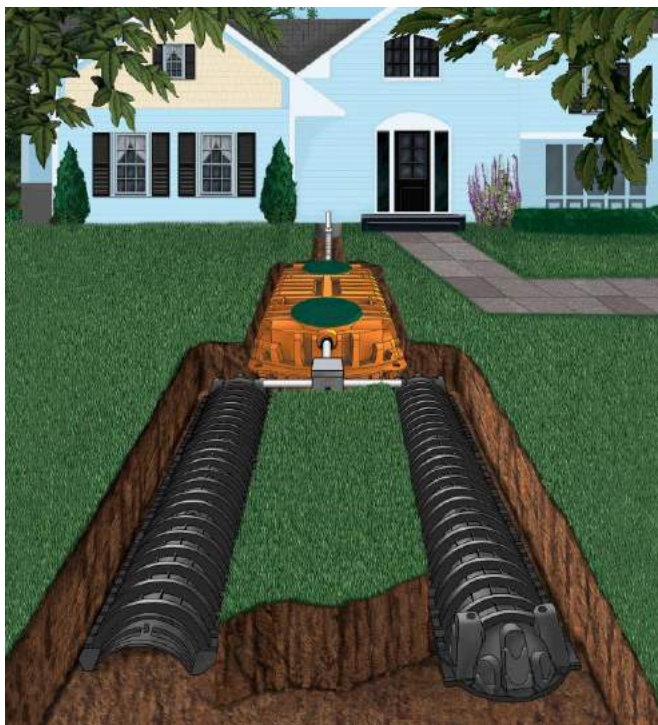
Taking Care of Your Septic System



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

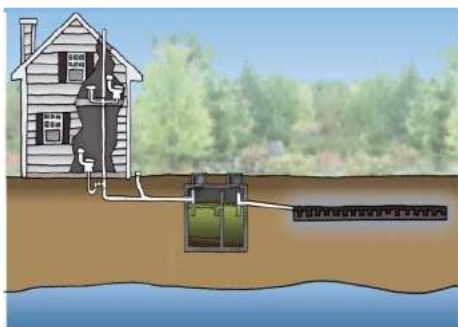
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Reading this brochure could save you a lot of money, time, and trouble. By learning how to take care of your septic system, you can protect your family's health and the value of your home. You can also protect the environment, including your drinking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

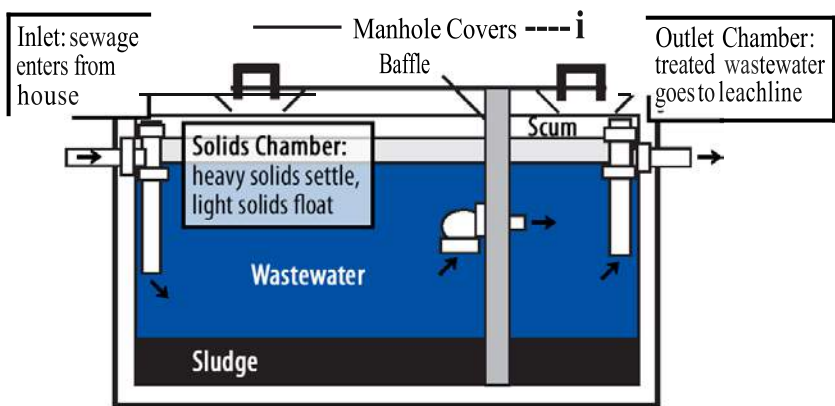
What Does A Septic System Do?

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

| | |
|-------|-------|
| <hr/> | <hr/> |
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SEPTICTANK/SEEPAGE PIT PUMPING

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

