

May 25, 2021

Project No. 213675-11A  
Confirmation No. PR 6387

Mr. Peter Nora

**U-Store-It**

501 West Broadway, Suite 2020  
San Diego, CA 92101

**Subject: Onsite Wastewater Treatment System Report, Proposed Storage Facility Development, Assessor's Parcel Number 472-110-038-4, Located at 33890 Winchester Road, Winchester Area, Riverside County, California**

Reference: County of Riverside, Community Health Agency, Department of Environmental Health, *Onsite Wastewater Treatment Systems, Technical Guidance Manual, Version A, undated.*

County of Riverside, Community Health Agency, Department of Environmental Health, *Local Agency Management Program for Onsite Wastewater Treatment Systems, 2016.*

Earth Strata Geotechnical Services, Inc. is pleased to present this onsite wastewater treatment system (OWTS) report for the proposed storage facility development, referenced above. The purpose of our feasibility study was to determine the percolation rates and physical characteristics of the subsurface earth materials within the vicinity of the proposed leach lines. We have provided guidelines for the design of an onsite wastewater treatment system, where applicable. This evaluation is intended to provide adequate data to satisfy the County of Riverside, Community Health Agency, Department of Environmental Health and the Local Agency Management Program (LAMP) guidelines for single-family dwelling approval.

**PROPERTY DESCRIPTION AND LOCATION**

The subject property is located at 33890 Winchester Road in the Winchester area of Riverside County, California. The approximate location of the site is shown on the Vicinity Map, Figure 1.

The subject property is comprised of approximately 11.12 acres of previously developed parcel of land. The site has not been graded. Topographic relief at the subject property is relatively low with the terrain being generally flat. Elevations at the site range from approximately 1,425 to 1,443 feet above mean sea level (msl), for a difference of about 18± feet across the entire site. Drainage within the subject property generally flows to the south.

The site is currently bordered by residential development to the southwest, Highway 79 to the northwest, Elmhurst Lane to the northeast, and vacant property to the southeast. Most of the vegetation on the site consists of moderate to dense amounts of annual weeds/grasses, along with small to large trees throughout the subject site.

## **PROPOSED CONSTRUCTION**

Based on plans provided by the owner, the proposed development as illustrated on the conceptual grading plans will consist of a storage facility development complete with interior streets, utilities, driveways, park and one (1) onsite wastewater treatment system.

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## **SUBSURFACE EXPLORATION AND PERCOLATION TESTING**

### **SUBSURFACE EXPLORATION**

Subsurface exploration of the subject site consisted of one (1) deep exploratory test hole to a depth of fifteen (15) feet, conducted on May 5, 2021. The deep exploratory test hole was excavated to interpret whether groundwater or impermeable soil layers were present. Earth materials encountered within the deep exploratory test hole were classified and logged using the guidelines of ASTM 2487. The approximate location of the deep exploratory test hole is shown on the attached Percolation Location Map, Plate 1. The exploratory log has been included within Appendix A.

### **PERCOLATION TESTING**

A total of six (6) percolation tests were conducted on May 6, 2021 to evaluate the feasibility of utilizing leach fields for onsite wastewater treatment. The percolation tests were performed in general accordance with the referenced guidelines.

The percolation tests were performed at the bottom of 5-foot-deep test pits in 8- inch diameter tests holes. The exploratory log and locations of the percolation test holes are indicated on the attached Percolation Location Map, Plate 1. The percolation and deep exploratory test holes were located by property boundary measurement on the site plan and by using geographic features. Each percolation test hole was cleaned of loose materials prior to performing the percolation testing and presoaked. The percolation testing was performed per the Riverside County Local Area Management Plan (LAMP) Guidelines.

Upon completion of the presoak, testing was performed by adjusting the water level to be 6 inches over the bottom of the hole for six (6) hours. The drop in water level was measured from a fixed initial reference point for more reliable readings, with measurements having an accuracy of 0.25-inch. After each measurement, the water level was brought up to approximately 6 inches over the bottom of the hole. The final stabilized percolation test reading is summarized in the following table and the test data recorded in the field is included in Appendix B.

## PERCOLATION TEST SUMMARY

TEST NUMBER	PERCOLATION HOLE DIAMETER (IN.)	HOLE DEPTH (FT.)	FINAL PERCOLATION RATE (MPI)	EARTH MATERIAL DESCRIPTION
P-1	8	5	30.0	Silty SAND
P-2	8	5	30.0	Silty SAND
P-3	8	5	15.0	Silty SAND
P-4	8	5	17.2	Silty SAND
P-5	8	5	20.0	Silty SAND
P-6	8	5	30.0	Silty SAND

## FINDINGS

### **EARTH MATERIALS**

A general description of the earth materials observed on site is provided below:

- Quaternary Very Old Axial Channel Deposits (map symbol Qvoa): Quaternary very old axial channel deposits were encountered within the upper 5 to 7 feet. These alluvial deposits consist predominately of brown to light brown, fine to coarse grained silty sand and sandy silt. These deposits were generally noted to be in a dry to moist, loose to dense state and soft to hard state.
- Triassic Phyllite (map symbol Trmp): Phyllite was encountered below the channel deposits to the maximum depth explored of 15 feet. This unit was generally noted to be weathered, slightly moist to very moist, and in a hard state.

### **GROUNDWATER**

Groundwater was not observed within the deep exploratory hole (MW-1) excavated to a depth of 15 feet.

### **PERCOLATION TEST RESULTS**

The final measured percolation test design rate is 30 minutes per inch (mpi). Per the referenced design standards, a loading rate of 65 Sq Ft/ 100 Gallons / Day should be used. To ensure a conservative design, a safety factor of 1.2 will be applied. The loading rate used for design is 78 Sq Ft/ 100 Gallons / Day.

## CONCLUSIONS AND RECOMMENDATIONS

### GENERAL

Based on the data presented in this report and using the recommendations set forth, it is the judgment of this professional that there is sufficient area on the lot to support a primary and expansion OWTS that will meet the current standards of the Department of Environmental Health and the Regional Water Quality Control Board (RWQCB) and the LAMP. The design system shall be located in natural undisturbed soil at the depth of the tests performed. The natural occurring body of minerals and organic matter at the proposed wastewater disposal area contains earthen materials having more than 50% of its volume composed of particles smaller than 0.08 inches (2mm) in size.

Based on the data presented in this report and the testing information accumulated, it is the judgment of this professional that the groundwater table will not encroach within the current allowable limit set forth by County and State requirements.

### SEWAGE DISPOSAL DESIGN RECOMMENDATIONS

The proposed sewage disposal system should consist of leach lines utilizing plastic (polyolefin) Standard Infiltrator® chambers manufactured by Infiltrator® Systems, Inc. The areas for both a primary system and a 100 percent expansion system are required. Septic tanks should be located upslope from the leach fields to provide gravity flow from the septic tank to the leach lines. Descriptions of the general design and construction of the wastewater treatment systems is provided below.

**Septic Tank Capacity:** The minimum septic tank capacity is determined, in accordance with the referenced guidelines, by the total fixture count within the proposed design and the number of employees. Based on the proposed plans, a septic tank size of 1,000 gallons should be utilized for design.

**Allowable Design Percolation Rate:** To determine the approximate square footage of each leaching area, the individual percolation rate test for each area that meet the requirements may be used as a guideline.

**Primary System:** Primary systems consist of a 1,000-gallon septic tank and leach field composed of subsurface leach lines. The minimum leach field absorption area is based upon the proposed septic tank capacity and the percolation rate of the proposed leach field area. The dimensions for individual leach field absorption areas are based on the total trench bottom area only and the areas between the leach line trenches are not included. In addition, the total linear footage can be reduced by 20 percent for designs utilizing plastic Infiltrator® chambers, as long as each line is of equal length.

**Trench Width, Depth, and Minimum Soil Cover:** For leach field areas having a slope of 10 percent, a minimum soil cover of 1½ feet over the leach lines is required. This soil cover is required to maintain a 15 feet minimum horizontal distance from the slope face to any portion of the leach lines. In order to provide a ±1½ foot soil cover, the trenches should be excavated to a depth on the order of 3 to 3½ feet below the surface. It should be noted that the required depth of cover is greater for those areas where the slope is steeper than 10 percent.

Individual leach line trenches should be excavated along the contours of the property which will maintain approximately the same elevation at the top of the trench. The leach line trench should be 18 to 36 inches wide, with a minimum center to center spacing of 6 to 7 feet, respectively.

TANK SIZE (gal)	DESIGN RATE (mpi)	MIN FT <sup>2</sup> /100 GALLONS	MIN SQUARE FEET	MIN LINEAR FEET	REDUCED BY 20% (feet)	TOTAL LENGTH OF LINES (feet)
1,000	30.0	78	780	260	-52	208

As a result, the recommended leach field design consists of two hundred and eight (208) foot long leach lines with Infiltrator® chambers for both the primary and expansion system disposal areas. The proposed location for each system shall provide sufficient areas for both primary and 100% expansion.

**100 Percent Expansion System:** Sufficient area must be set aside for future construction of a backup system of equal size in the event the primary system fails. The area required for the 100 percent expansion system is identical to that of the primary system.

#### **ADDITIONAL DESIGN CONSIDERATIONS AND RECOMMENDATIONS**

To encourage the maximum loss of sewage effluent through evaporation and transpiration, the leach lines should be installed at the recommended depth and as close to the ground surface as possible. As noted above, leach lines should also be installed within trenches excavated along ground contours of equal elevation to maintain a relatively consistent trench depth. The minimum center to center spacing between the leach line trenches is 7 feet for 36-inch wide trenches.

Backfill materials placed over the leach lines should not be compacted but slightly mounded to allow for settlement and to minimize infiltration of surface water. To prevent collapse or crushing of the chambers, cobbles and boulders should be removed from the backfill soils over the plastic Infiltrator® chambers.

A minimum horizontal clearance of 5 feet is required between the leach lines and property lines. A minimum horizontal clearance of 5 feet is also required between the septic tank and proposed structures. A minimum horizontal clearance of 8 feet is required between the leach lines and proposed structures.

In the event that future access to the 100 percent expansion area is compromised by development (ie., garden walls, etc.), consideration should be given to constructing the expansion system at the same time as the primary system. If the systems are not constructed concurrently, consideration should be given to accessibility of the 100 percent expansion area after all site improvements are constructed.

The leach line trenches should be observed by the geotechnical consultant during and after excavation, as well as before the placement of perforated pipe or plastic Infiltrator® chambers. The site observations are to verify the suitability of the exposed earth materials. Necessary revisions or modifications may be needed if unforeseen conditions exposed during construction, such as hard impermeable rock. Revisions could include adding additional lines or a redesign of the system that conforms to the site conditions.

The leach field areas should not be used for recreation, horse corrals or other uses that would compact the earth materials at the surface. The ground surface over the disposal areas should be seeded or sodded to mitigate erosion.

The property owners should take note that proper use and maintenance are crucial to extending the effective design life of the sewage disposal system. The use of excessive water, introduction of detergents or chemicals, and solid food waste from garbage disposals can cause premature system failures. Properly maintained sewage disposal systems can function for many years. However, a rest period of roughly 10 to 15 years is generally needed to promote bacterial decay and a chance to dry up. After this resting period, the primary system can often be reactivated and alternated with the 100 percent expansion system.

### **GRADING PLAN REVIEW AND CONSTRUCTION SERVICES**

This report has been prepared for the exclusive use of **U-Store-It** and their authorized representative. It likely does not contain sufficient information for other parties or other uses. Earth-Strata should be engaged to review the final design plans and specifications prior to construction. This is to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. Should Earth-Strata not be accorded the opportunity to review the project plans and specifications, we are not responsible for misinterpretation of our recommendations.

Earth-Strata should be retained to provide observations during construction to validate this report. In order to allow for design changes in the event that the subsurface conditions differ from those anticipated prior to construction.

Earth-Strata should review any changes in the project and modify and approve in writing the conclusions and recommendations of this report. This report and the drawings contained within are intended for design input purposes only and are not intended to act as construction drawings or specifications. In the event that conditions encountered during grading or construction operations appear to be different than those indicated in this report, this office should be notified immediately, as revisions may be required.

### **REPORT LIMITATIONS**

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists, practicing at the time and location this report was prepared. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

Earth materials vary in type, strength, and other geotechnical properties between points of observation and exploration. Groundwater and moisture conditions can also vary due to natural processes or the works of man on this or adjacent properties. As a result, we do not and cannot have complete knowledge of the subsurface conditions beneath the subject property. No practical study can completely eliminate uncertainty with regard to the anticipated geotechnical conditions in connection with a subject property. The conclusions and recommendations within this report are based upon the findings at the points of observation and are subject to confirmation by Earth-Strata during construction. This report is considered valid for a period of one year from the time the report was issued.

This report was prepared with the understanding that it is the responsibility of the owner or their representative, to ensure that the conclusions and recommendations contained herein are brought to the attention of the other project consultants and are incorporated into the plans and specifications. The owners' contractor should properly implement the conclusions and recommendations during grading and construction, and notify the owner if they consider any of the recommendations presented herein to be unsafe or unsuitable.

Respectfully submitted,

EARTH STRATA GEOTECHNICAL SERVICES, INC.

Stephen M. Poole, PE 40219  
President  
Principal Engineer

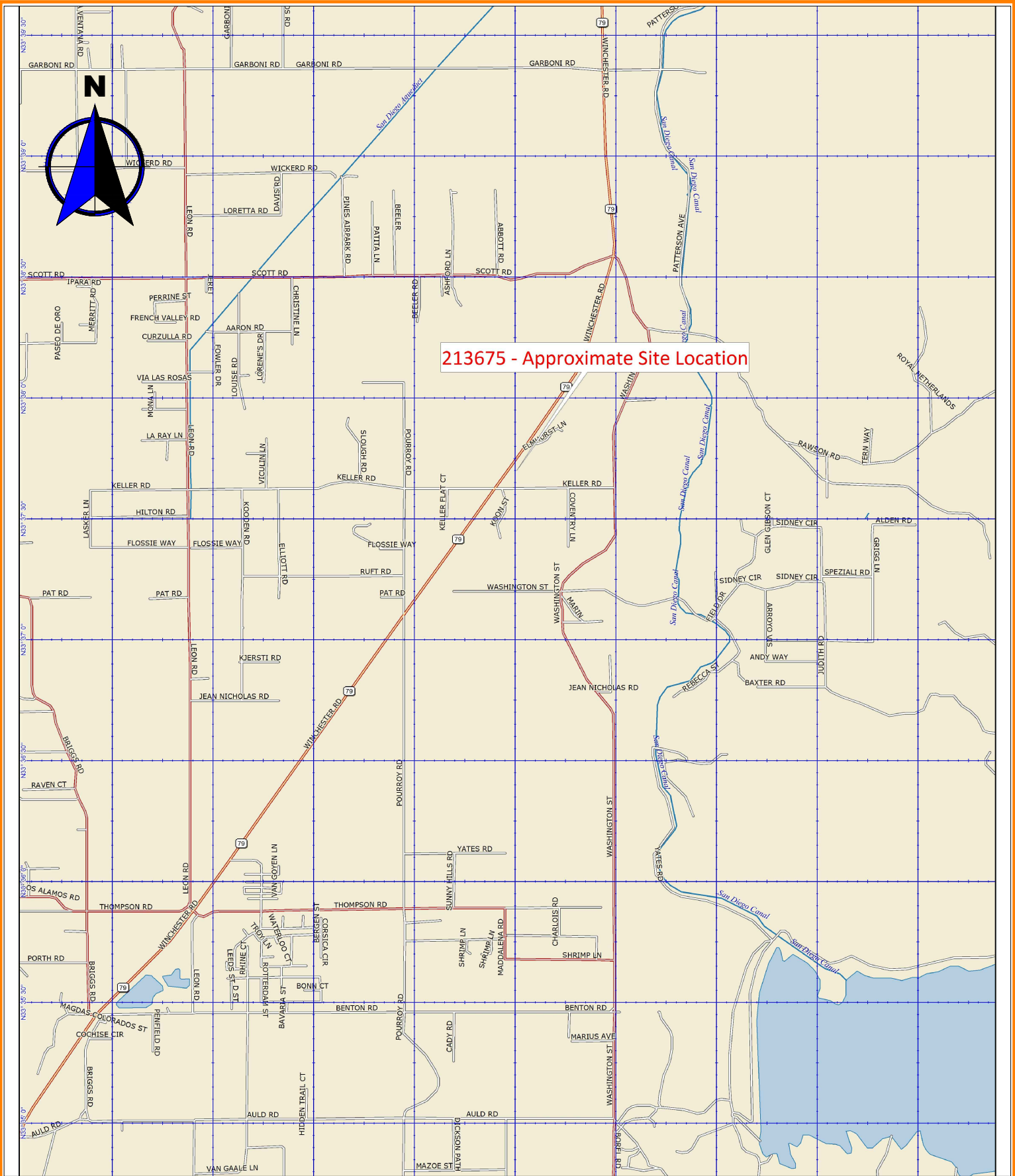
I, Stephen M. Poole, am duly registered in the State of California and hereby attest that I have personally prepared this report, assume full professional responsibility for its validity, and for any errors or omissions herein.

SMP/jmr

Distribution: (2) Addressee

Attachments: Figure 1 – Vicinity Map (*Rear of Text*)  
Appendix A – Exploratory Logs (*Rear of Text*)  
Appendix B – Percolation Test Results (*Rear of Text*)  
Plate 1 – Percolation Location Map (*Rear of Text*)

**FIGURE 1**  
VICINITY MAP



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Earth Strata Geotechnical Services, Inc.  
 Geotechnical, Environmental and Materials Testing Consultants  
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PROPOSED STORAGE FACILITY DEVELOPMENT		213675-10A
VICINITY MAP		SCALE 1:40,625
MAY 2021		FIGURE 1

**APPENDIX A**  
**EXPLORATORY LOGS**



















**APPENDIX B**  
**PERCOLATION TEST RESULTS**

# LEGEND

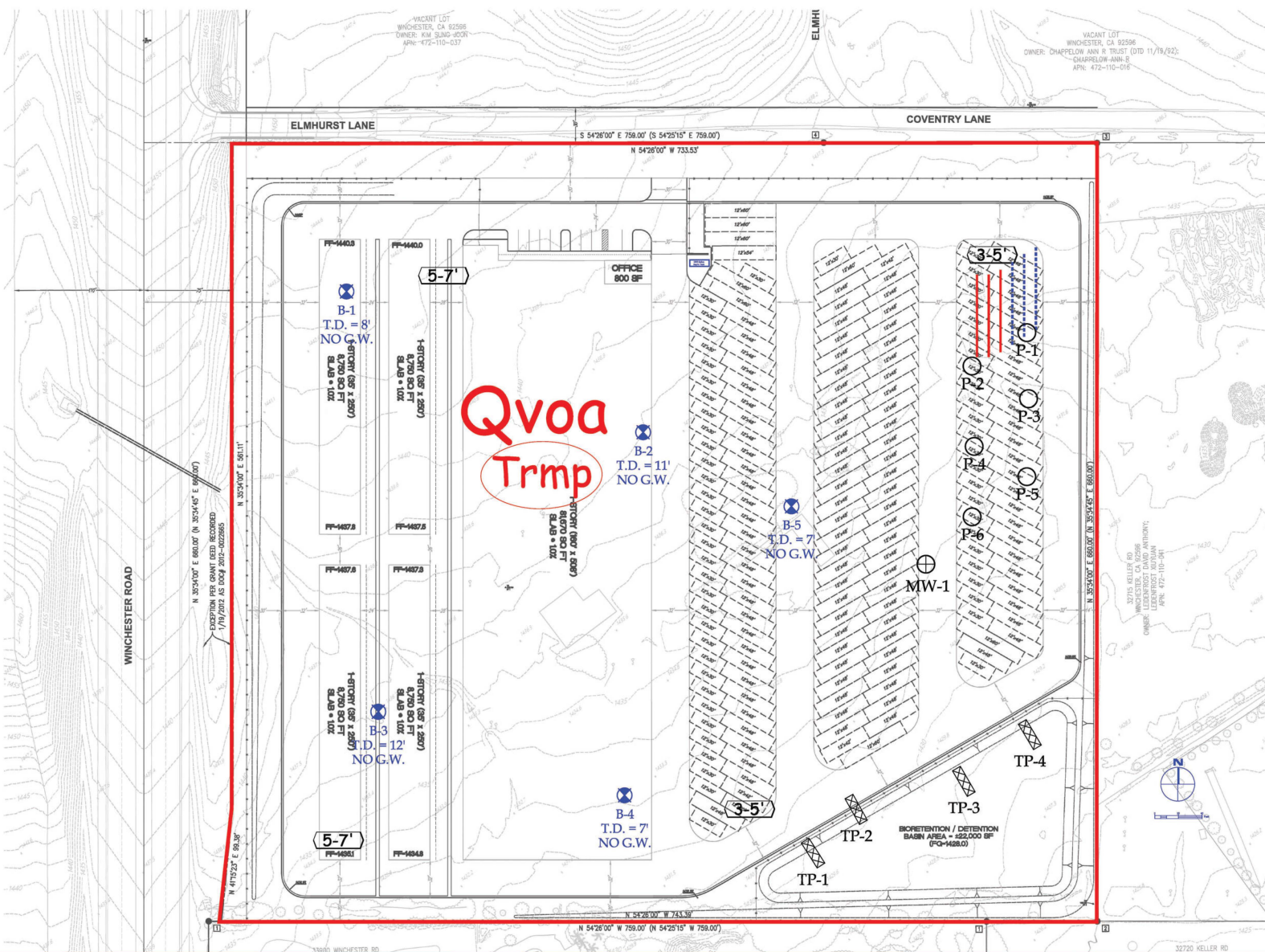
Locations are Approximate

## Symbols

-  - Limits of Report
-  P-6 - Percolation Test Location
-  MW-1 - Percolation Monitoring Well Location
-  B-5  
T.D. = 7'  
NO G.W. - Geotechnical Boring Location
-  - Primary Leach Lines
-  - 100% Expansion Leach Lines

## NOTES:

- 1000 GALLON
  - DESIGN RATE = 30 MPI
  - LOADING RATE = 78 SQFT / 100 GALLONS / DAY
  - TOTAL LENGTH = 260 FEET
  - INFILTRATION CHAMBER (20% REDUCTION) = 208 FEET
  - PRIMARY: 3 LINES @ 70 FEET LONG (INFILTRATION CHAMBERS)
  - 100% EXPANSION: 3 LINES @ 70 FEET LONG (INFILTRATION CHAMBERS)
1. 1000 GALLON SEPTIC TANK (Traffic Rated)
  2. DISTRIBUTION BOX
  3. PRIMARY LEACH LINES
  4. 100% EXPANSION AREA



**PERCOLATION MAP**  
 LOCATED AT 33890 WINCHESTER ROAD  
 WINCHESTER AREA, CALIFORNIA  
 APN 472-110-038

PROJECT	MR. PETER NORA
CLIENT	U-STORE IT
PROJECT NO.	213675-11A
DATE	MAY 2021
SCALE	1:40
DWG XREFS	
REVISION	
DRAWN BY	GW
PLATE	1 OF 1