

# Exhibit D

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**REPORT  
to  
MR. & MRS. COOPER  
291 LAURELES GRADE  
CARMEL VALLEY, CALIFORNIA 93924**

**ON-SITE WASTEWATER  
TREATMENT SYSTEM  
FEASIBILITY STUDY  
for the proposed  
RESIDENCE  
LAURELES GRADE  
CARMEL VALLEY, CALIFORNIA 93924  
A. P. N. 416-051-016-000**

**by**

**GRICE ENGINEERING, INC.  
561-A BRUNKEN AVENUE  
SALINAS, CALIFORNIA 93901  
SEPTEMBER 2023**

# GRICE ENGINEERING INC

ENGINEERING      GEOTECHNICS      SEPTIC      HYDROLOGY  
FOUNDATIONS      SOILS      EARTH STRUCTURES

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File No. 7491-21.11  
September 05, 2023

Page i

Mr. & Mrs. Cooper  
291 Laureles Grade  
Carmel Valley, California 93924

Project:      Residence  
                 Laureles Grade  
                 Carmel Valley, California 93924  
                 A. P. N. 416-051-016-000

Subject:      On-Site Wastewater Treatment System Feasibility Study

Dear Mr. & Mrs. Cooper;

Pursuant to your request, we have completed the On-Site Wastewater Treatment System Feasibility Study for the proposed development.

In general, the shallow soils evaluated within the study area have suitable characteristics for dispersal of septic effluent. Those soils have characteristics indicating suitable permeability for dispersal of septic effluent by shallow trench leachfield methods. Some constraints are present such as setbacks from the site features, areas of shallow soils, property boundaries, and proposed structures.

Design recommendations are based on the site characteristics and the proposed improvements given in the following report. A preliminary plan set is provided in Appendix C detailing the site characteristics and the associated setbacks with primary, secondary and tertiary leach field alignments indicated.

References to Chapter 15.20 of the Monterey County Code, last updated on 06/13/2023 are a prefix or suffixes of "15.20".

The system should be constructed in accordance with the recommendations made herein and the Monterey County Health and Building Code. This report should be fully read and understood prior to further planning, design and especially construction.

The findings given forth in this report are applicable only to this property and may not be utilized for any other site or purpose without the written consent of GRICE ENGINEERING, INC.

Please feel free to call this office should you have any questions regarding this report.

Very truly yours,  
GRICE ENGINEERING, INC.



DIGITAL 09052023

Lawrence E. Grice, P.E.  
R. C. E. 66857

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**ON-SITE WASTEWATER  
TREATMENT SYSTEM  
FEASIBILITY STUDY  
for the proposed  
RESIDENCE  
LAURELES GRADE  
CARMEL VALLEY, CALIFORNIA 93924  
A. P. N. 416-051-016-000**

**Introduction, Method and Scope of Investigation**

The purpose of this report is to evaluate the properties of the site relative to the installation of an on-site wastewater treatment system for processing residential sewage from a single family residence.

The study consisted of evaluating the subsurface soil profile, presence or absence of groundwater and evaluation of the soils structure relative to the absorption of septic effluent. In conclusion, recommendations are given for the design of a septic system for the parcel based on the data found. A preliminary design of the system is provided in a detached set of plans.

The findings set forth in this report apply only to the above indicated area on the property and may not be utilized for any other purpose without the written consent of GRICE ENGINEERING, INC.

**Site Description**

The project site is located to the east of Laureles Grade at the intersection with Hidden Hills Road, in an unincorporated area of Carmel Valley located in westernmost Monterey County, California. Please refer to the Vicinity and Location Maps and the Site Map in Appendix "A" for details.

The topography of the 1.023 acre site is located on a shallow bench on the east side of a ridge aligned generally northwest to southeast. The building area descends moderately to east spanning the elevation of approximately 1202 feet in the west to 1157 feet above mean sea level (msl) in the east. The majority of the site, is covered with grass, brush and scattered trees.

The proposed development is to include a single family residence with an attached garage. A shared driveway will provide access to the residence along the southern boundary from Laureles Grade.

The residence, approximately 2,945 square ft, is to be of conventional wood construction with support provided by deep pier or spread footings. The garage is to have a slab-on-grade floor with raised wood utilized in the residential portions.

Domestic sewage from the residential development is to be processed, on-site, with the effluent discharged to the site soil. The proposed area for the leachfield installation is below the residence.

Domestic water will be provided by Cal-Am. The existing lateral and water meter is located near the northwestern corner of the parcel.

### **Field Investigation**

Our field investigation consisted of a site inspection, along with drilling and sampling 13 exploratory bores to establish the subsurface soil profile, and obtain sufficient soil specimens to determine the soil characteristics. Drilling was accomplished by hand and continuous flight auger, with the spoil constantly examined, classified, and logged by field method in accordance with the Unified Soil Classification Chart<sup>1</sup>, which is the basis of ASTM D2487-10. In the hand augured bores, Penetration Resistance Values were obtained through use of a Dynamic Cone Penetrometer (ASTM Special Technical Publication #399). The blow count, as measured in this method is Standard Penetration Resistance.

The site investigation incorporated all boring advanced on this parcel and that adjacent to the west. Both parcels are being developed in parallel by the client. All bores were utilized for the determination of the soils profile and structure. Bores, 1, 2, 3, 4A, 5A, 6, and 8 were utilized for percolation testing. These bores were provided with perforated casing.

For the location of each boring, please refer to the Site Map in Appendix "A."

\* *In-situ* refers to the in place state of soil. *In-situ* native soils are those which are in-place as deposited by nature and have not been disturbed by man's actions in the historic past.

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<sup>1</sup> Adopted 1952 by Corps of Engineers and Bureau of Reclamation. ASTM D2487 was developed as based on the Uniform Soils Classification Chart and System. The methods are equivalent.



### **Site Soils Profile**

As found in the exploratory drilling, the site soils are generally consistent between each of the bores.

The surficial soils were observed to be a very dark greyish brown silty clay containing few to some amount of shale gravels. These loose soils have a granular structure and were observed to be moist to damp.

Monterey Shale is located below the surficial soils at depths ranging from one to twelve feet. The shale bedrock is considered to be moderately deformed and compact.

Complete soil characteristics and comments are reported on the boring logs at the depths observed. The bore logs are located in Appendix "B."

### **Ground Water Conditions**

No groundwater was encountered at this site to the maximum depth of exploration, approximately 39 feet below grade (elevation -6.5 feet)

### **Field Evaluation for Onsite Wastewater Treatment Systems**

The site lithology and topography were evaluated during the site exploration for suitability of onsite wastewater effluent dispersal. For this, thirteen bores were advanced across the site evaluating the lithology for permeability with seven bores selected for percolation testing the most preferable areas for installation of leachfield.

The permeable horizon of the lithology observed the surficial topsoil comprised of a silty clay containing few to some amounts of shale clasts ranging from sand to medium gravel. These granular soils were observed to be soft and contained a high porosity from root activity and burrowing organisms.

This topsoil was thickest along the southern portion of the parcel and extended to depths of approximately 5 feet. Deeper soils continue to contact with the shale positioned at approximately 3 to 12 feet below grade. The subsoils are permeable however tactile evaluation suggests a sufficiently lower permeability and lower application rate. These subsoils were generally only present in the central area of the parcels.

Evaluation of the friable topsoil indicates they have a stabilized infiltration rate of 0.01 to 0.003 cubic feet per square foot per minute or a relative Stabilized Percolation Rate of 1.9 to 5.6 minutes per inch of fall. These values correlate to 126± gallons per square foot per day to 41± gallons per square foot per day. This designates these soils as having an application rate of 1.2 gallons per square foot per day per Table 4 - 15.20.

Evaluation of the weathered surface of the shale was completed in the 2 bores. This horizon was determined to have a stabilized infiltration rate of 0.0007 cubic feet per square foot per minute or a relative Stabilized Percolation Rate of 19 minutes per inch of fall. These values correlate to 8± gallons per square foot per day. This designates these soils as having an average application rate of 0.6 gallons per square foot per day per Table 4 - 15.20.

Preferable location for the OWTS leachfield is below the residence and to the southeast. The area is of acceptable slopes, even terrain and generally free of large bushes or trees leaving less encumbered area for installation of standard leachfield.

Planning of the site improvements and installation of the OWTS leachfields should allow sufficient room on the parcel to accommodate at least one reserve area for the installation of future repair leachfields. All leachfields should be provided with an inspection riser to allow for monitoring of effluent levels.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Septic System Recommendations**

In general, this study indicates that the shallow site soil located in the study area generally have acceptable rates of percolation suitable for dispersal of septic effluent.

The recommended sewage disposal system configuration should be a septic tank, associated piping and shallow leach fields sized as discussed in this report. The construction and operation of the system should conform to the recommendations given in this report and the requirements set forth by the County of Monterey.

### **Nitrogen Loading Balance**

The proposed residence is determined to provide a maximum daily occupancy of 4 people, who are considered to produce 40 grams of nitrogen per day, per the Table 2 - 15.20. The parcel area as determined by the Project Surveyor is 1.023 acres. The Chapter 15.20 allows an application of 40 grams of nitrogen per acre, per day, therefore a maximum of 40.92 grams of nitrogen can be applied per day on the parcel.

This indicates that the proposed improvements will apply less than the allowed nitrogen.

### **Groundwater Recharge**

The project site is not within a Groundwater Recharge Area as defined in Chapter 15.20. Leachfields installed within groundwater recharge areas are limited to a maximum effective depth of 5 feet below grade.

### **Lithology, Percolation Rate and Groundwater Setback**

As discussed the shallow topsoil to approximate depths of 5 feet is considered suitable for infiltration of septic effluent. The estimated percolation rate of these shallow soil averages to 3.1 minutes per inch of fall and an application rate of 1.2 gallons per square foot per day.

No groundwater was observed in any of the exploratory bores. The greatest depth of exploration is approximately 39 feet below grade. Based on the noted percolation rate the setback to groundwater is 20 feet per Table 4 - 15.20.

### **Suitability of Terrain**

The terrain of the proposed leachfield area is of smooth contour. Slopes across the proposed area range from approximately 10% to 30%. In general, Chapter 15.20 allows leachfields to be placed on slopes up to 30% provided lithology or other site conditions which would increase instability or surfacing is not present.

Trees are generally of broad spacing and the undergrowth is typically light and consists of small brush and grasses.

The installation of the leachfields will need to maintain a 10-foot set back from all trees with a trunk diameter greater than 5 inches at a height of 2 feet from grades. Consideration should be given to the type of tree and it's eventual growth.

The groundwater monitoring, advanced to an approximate depth of 39 feet below grade. The bore did not collect free water during the study period.

### **Daily Discharge Rate and Septic Tank Sizing**

The proposed residence contains 3 bedrooms.

As listed in Chapter 15.20, a residence containing this number of bedrooms is considered to produce 375 gallons of sewage per day. An appropriate septic tank would provide a capacity of 1,000 gallons as listed in the Table 6-15.20.

Should the kitchen appliances include a garbage disposal unit it is recommended that an additional capacity of 500 gal. be added to the septic tank.

As discussed the installed tank size can be increased to provide for future additions.

Septic tanks should be installed to provide reasonable access after completion of construction. The code requires installation of an effluent screen in the discharge line.

## **Leachfields**

As discussed, the shallow soils located in the study area are recommended for installation of leachfields and are considered to have an Application Rate of 1.2 gallons per square foot per day.

These soils are of variable thickness across the parcel. In general only sufficient depth exists along the southern area extending from the approximate middle of the parcel to the easement along the southern boundary. Design of the proposed residence must maintain these soils in a natural state otherwise it will most likely be necessary to design an alternative OWTS.

At this time, the maximum daily rate of effluent being generated is 375 gallons. Dividing this value by the application rate indicates an individual leach field should provide 312.5 square feet of effective wall area.

The type of leachfield should be a shallow trench. As listed in Chapter 15.20 the maximum allowable effective wall area per foot of trench is 4 square feet for new systems and a minimum width is listed as 1.5 feet.

An efficient trench cross section would be comprised of an effective depth of 2 feet and width of 1.5 feet providing the maximum effective wall area of 4 square feet per linear foot of trench. Therefore, a complete leachfield will need to be comprised of 78.125 linear feet of trench for the currently proposed development.

The effective depth of each trench should be within the upper 5 feet of the natural soil horizon and preferably as shallow as possible. The top of the effective depth can be positioned at the natural grade with fill providing the required cover depth of 17 inches.

Typically the maximum length of a leachfield is 100 feet from the point of delivery of the effluent. Design of the leachfields can position the effluent delivery to the middle of the leachfields thus allowing a total length of 200 feet.

At least one observation riser should be provided centrally in each leachfield and extend to an approximately 1 foot below the bottom of the field to allow for monitoring of the effluent level for the full depth of the system.

It is recommended that a Secondary System be installed at the same time as the Primary System. If possible, the area for the third system should be designated at that time. The area for the third system should be that which will be most accessible after construction. A diversion valve(s) shall be installed to permit alternating between the systems.

Installation of multiple leachfields is generally considered beneficial. Allowing leachfields to rest for periods of six months to a year, allows for degradation of accumulating biomass, as well as dessication of the soils around the field. This process helps to recover the soils' permeability. Additionally, should the leach field in use fail, an alternate field is available.

In Chapter 15.20, Section 5.4, are the requirements for the installation of a primary and secondary fields as well as designation of reserve areas for repairs or upgrades. The requirements vary depending on the creation date of the parcel.

Under the OWTS-2018 for new construction on lots created prior to June 26, 1981, it is required to install two complete leachfields. For lots created after that date, a tertiary reserve area is also to be provided.

The Primary and Secondary Leachfield Systems are to be connected with a diversion valve(s) to permit alternating between the systems.

The OWTS-2018 requires the installation of tracing wire along the length of all distribution pipes and around inspection ports. It is recommended that the tracing wire be laid along all sewer and effluent lines as well as around all buried tanks or associated valves or distribution boxes.

### **Special Conditions**

Since the proper performance of a septic system depends on many variables, it is recommended that the site development plan allows maximum leachfield areas. This report and recommendations should remain available for future installation of additional leachfields.

It is also recommended that the secondary leachfields be constructed at the time of the initial installation. If this is done, it should be connected by a valve such that leachate may be directed to either system for periods ranging from 4 to 8 months.

### **General**

All installation requirements not specifically mentioned herein should be made in accordance with the requirements set forth by the Monterey County Health Department. The above septic system recommendations are based on the parameters stated and the subsurface soils observed during our investigation, as well as standard practice set forth in the manual "Septic Tank Systems for

Private Homes", available from the Monterey County Health Department - Environmental Health Division, and the manual "Septic Tank Practice", as published by the United States Health Department. Should these factors change or soil conditions not shown be encountered, this office should be notified such that additional requirements may be made, if necessary.

As stated previously, the performance of a septic system depends on many variables including volume of effluent, performance of a septic tank, concentration of leachate, and soil type and density. Consequently, design is based on empirical theory, i.e., successful past experience and collected field data. However, since control of all these elements is impossible, the recommendations stated herein are made to the best of our ability to anticipate these variables.

### **Inspection of Work**

It is recommended that all site work be inspected and tested by this firm during the performance of work to establish compliance with these recommendations:

NOTIFY: GRICE ENGINEERING, INC. SALINAS (831) 422-9619  
561-A Brunken Avenue MONTEREY (831) 375-1198  
Salinas, California 93901

EMAIL ADDRESS: [griceengineering@sbcglobal.net](mailto:griceengineering@sbcglobal.net)

A minimum of one working day prior to commencement of work so that scheduling for testing and inspections can be made.

### **LIMITATIONS AND UNIFORMITY OF CONDITIONS**

The recommendations of this report are based on our understanding of the project as represented by the plans, and the assumption that the soil conditions do not deviate from those represented in this site soil investigation. Therefore, should any variations or undesirable conditions be encountered during construction, or if the actual project will differ from that planned at this time, GRICE ENGINEERING, INC., should be notified and provided the opportunity to make addendum recommendations if required.

NOTIFY: GRICE ENGINEERING, INC. SALINAS (831) 422-9619  
561-A Brunken Avenue MONTEREY (831) 375-1198  
Salinas, California 93901

EMAIL ADDRESS: [griceengineering@sbcglobal.net](mailto:griceengineering@sbcglobal.net)

This report is issued with admonishment to the owner and to his representative(s), that the information contained herein should be made available to the responsible project personnel including the architects, engineers, and contractors for the project. The recommendations contained herein should be incorporated into the plans, the specifications, and the final work.

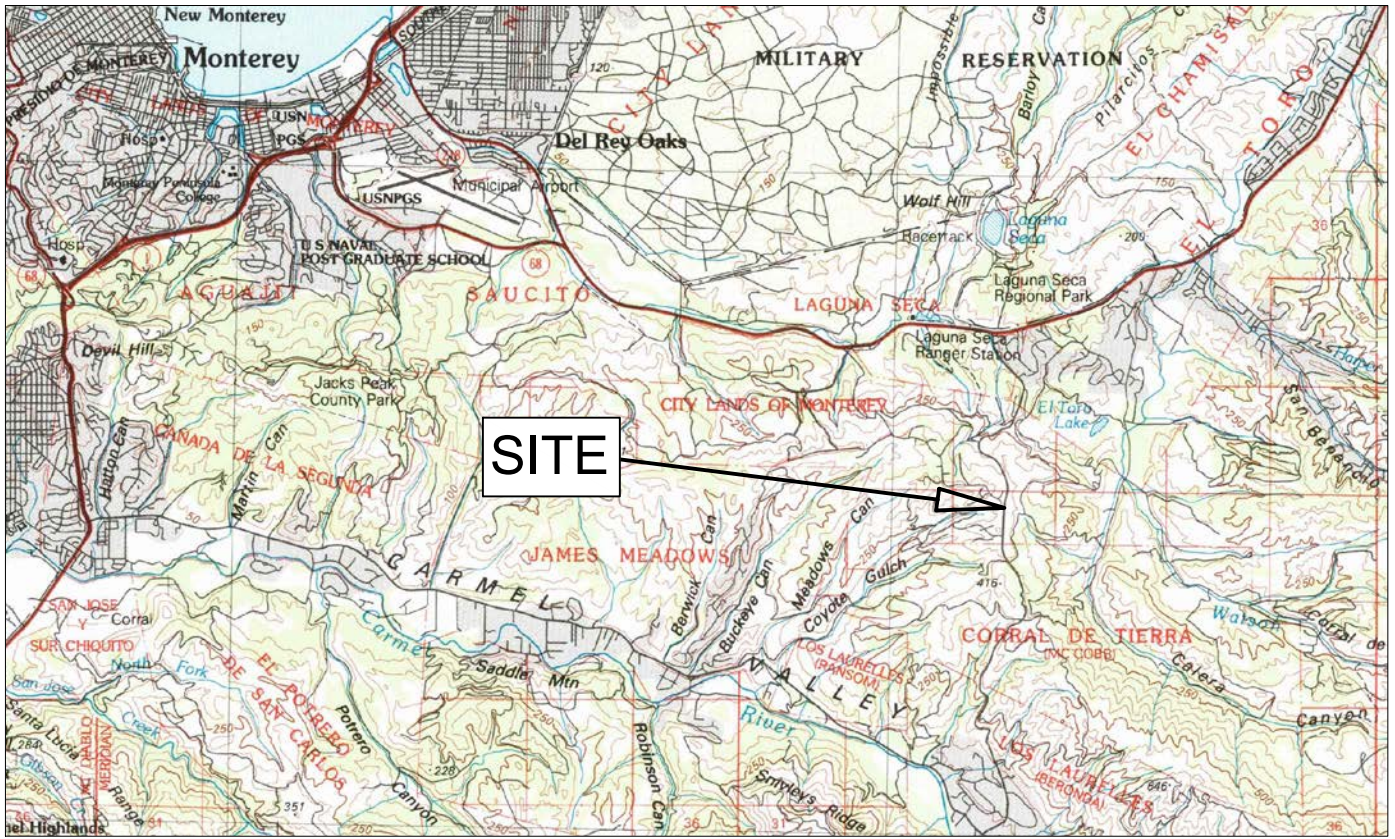
It is requested that GRICE ENGINEERING, INC., be retained to review the project grading and foundation plans to ensure compliance with these recommendations. Further, it is the position of GRICE ENGINEERING, INC., that work performed without our knowledge and supervision, or the direction and supervision of a project responsible professional soil's engineer renders this report invalid.

It is our opinion the findings of this report are **valid** as of the **present date**, **however**, changes in the **Codes and Requirements** can occur and change the recommendations given within this report concerning the property. In addition changes in the conditions of a property can occur with the passage of time, due either to natural processes or to the works of man and may affect this property. In addition, changes in **standards** may occur as a result of legislation, or the broadening of knowledge, and these changes may require re-evaluation of the conditions stated herein. Accordingly, the findings of this report may be invalidated wholly, or partially, by changes beyond our control. Therefore, this report is subject to review and should not be relied upon after a period of **three years**.

REVISED 12-06-2021



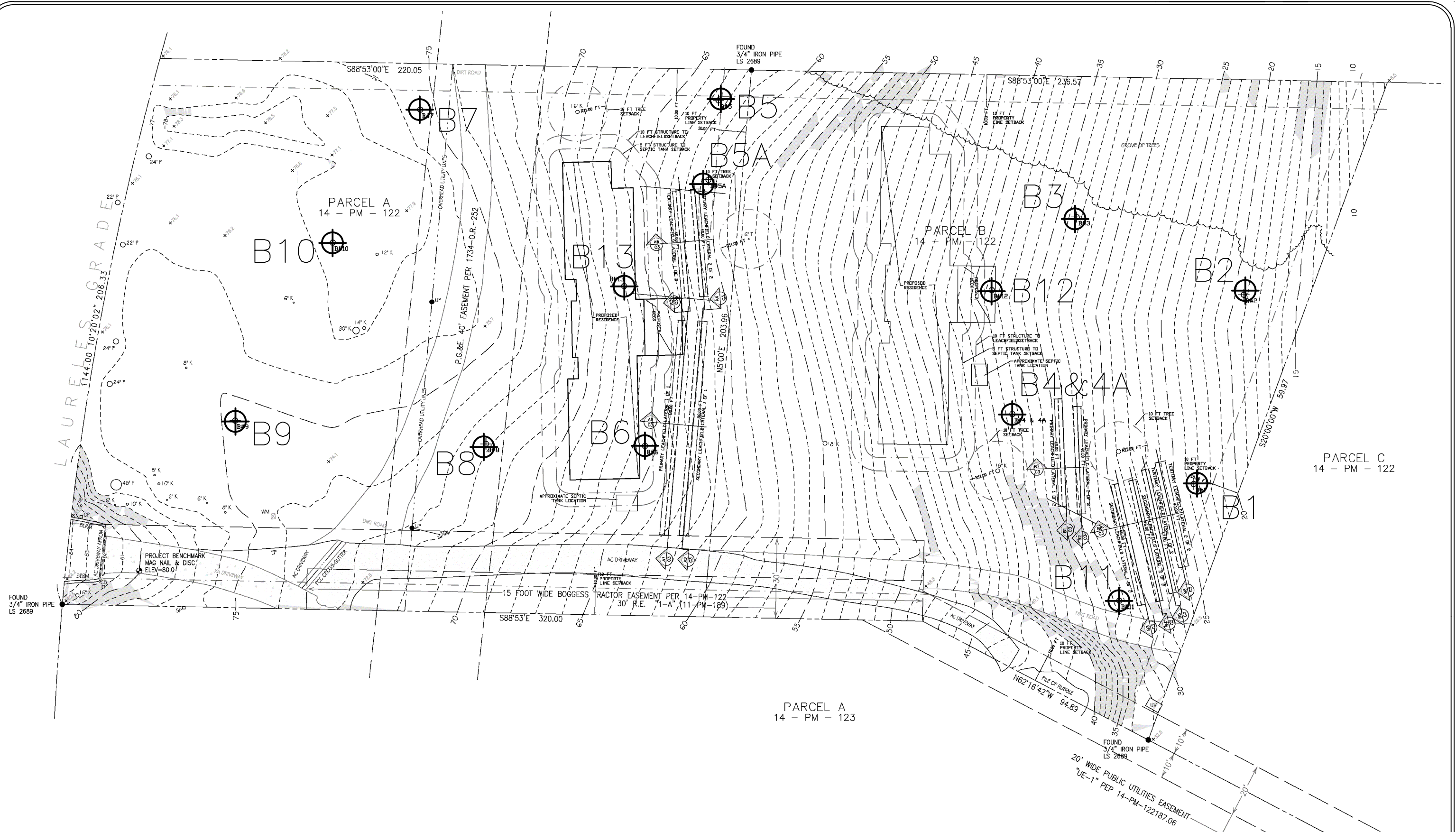
## **APPENDIX A**



Vicinity Map



Location Map



SITE PLAN with BORE LOCATIONS DISPLAYS TWO ADJACENT PROJECTS PROPOSED BY THE CLIENT. SITE EVALUATION, INVESTIGATION AND TESTING WERE COMPLETED IN UNISON FOR BOTH PARCELS. THIS REPORT ADDRESSES PARCEL B NOT TO SCALE

## **APPENDIX B**































2 Residential Lots; Cooper; Laureles Grade, APN's 416-051-015 & 016

Boring No. 11

January 25, 2023

Elev	Depth	Symbol	Sample	Field Blow Count per 6 inch	Standard Pen. Burmiser	Description	Auger Pen.	Density	Moisture	Unconfined Cohesion	Shear
11.50	21.00										
10.50	22.00										
9.50	23.00										
8.50	24.00										
7.50	25.00										
6.50	26.00										
5.50	27.00										
4.50	28.00										
3.50	29.00										
2.50	30.00										
1.50	31.00										
0.50	32.00										
-0.50	33.00										
-1.50	34.00										
-2.50	35.00										
-3.50	36.00										
-4.50	37.00										
-5.50	38.00										
-6.50	39.00					All Monterey Shale to end of bore					
-7.50	40.00					End of bore at 39.0 feet. No free water encountered or observed. Bore left open for 1 week then backfilled					

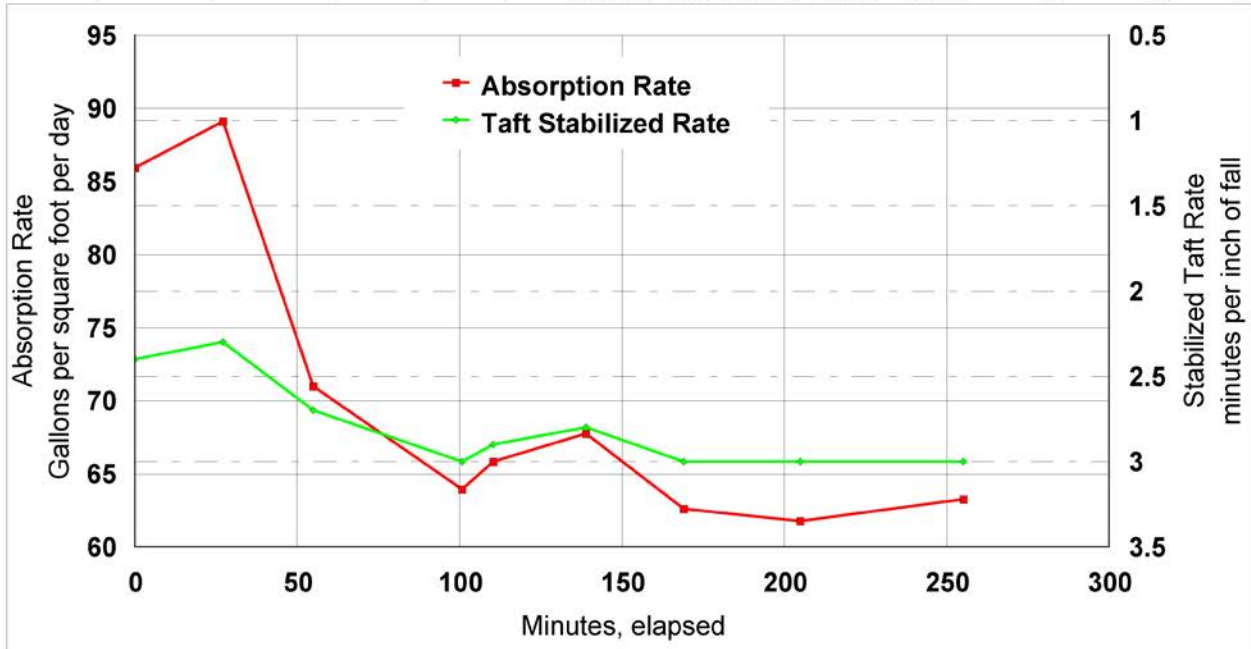






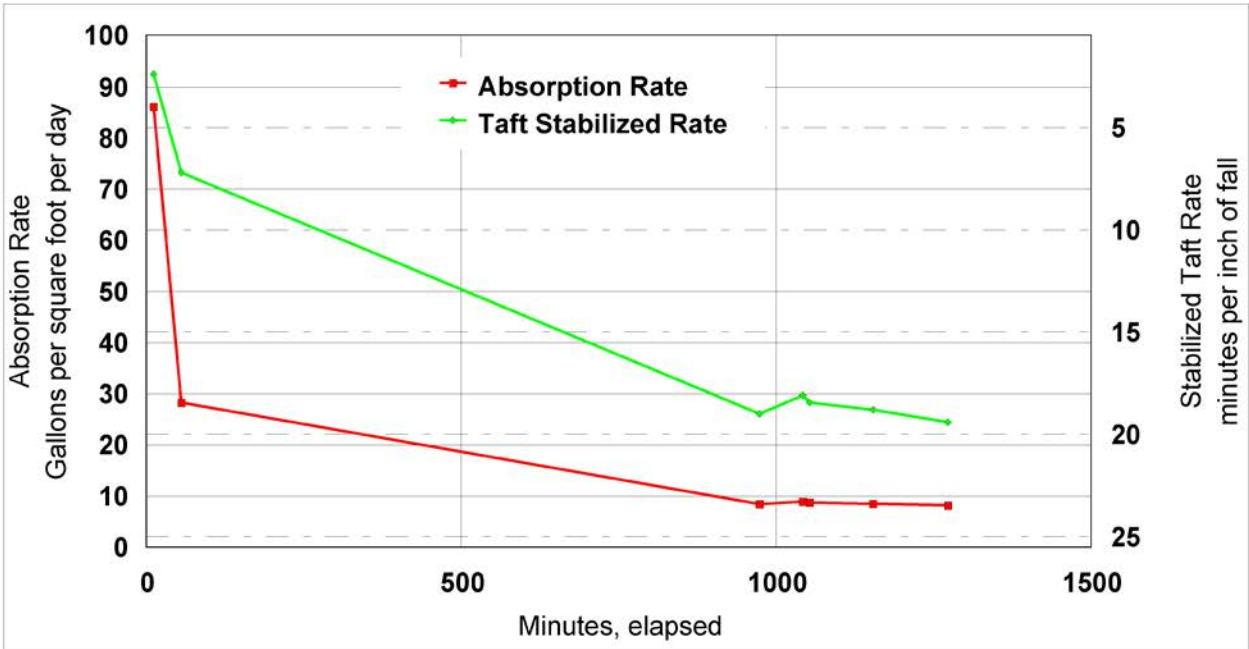
FILE No. 74902111 & 74912111	BORING No. 1	PREP. OF BORE Lined
JOB NAME: Cooper 2 Lots	BORE DEPTH FROM GROUND SURFACE 5.04 feet	DIAMETER OF PIPE 3 inch
CLIENT: Mr. Dave Cooper	ELEVATION OF BORING 23.50 feet	0.25 feet
		7.07 sq. inches
		0.049 sq. feet
DATE DRILLED: 01/25/2023	REFERENCE FOR GROUNDWATER BORE 11	
DATE PRESOAKED: 09/02/2023	ELEVATION OF GROUNDWATER lower than -6.50 feet	ANNULAR FILL
DATE PERC'ED: 09/03/2023	BOTTOM OF BORE TO GRND WATER OR MORE 30.00 feet	POROSITY OF FILL Pea Gravel 0.326 percent
PERFORMED BY: Lawrence E. Grice	DEPTH TO PRESOAK WATER LEVEL 1.500 feet	DIAMETER OF BORE 5.25 inches
GRICE ENGINEERING INC.	DEPTH TO RESIDUAL WATER LEVEL DRY 5.042 feet	0.438 feet
WITNESSED BY: None	DEPTH OF BORE USED IN TEST 3.5417 feet	GROSS AREA OF BORE 21.65 sq. inches
	WALL AREA OF TESTED DEPTH INCLUDES BOTTOM 5.0182 sq. feet	0.150 sq. feet
DURATION OF TEST 255.22 minutes		NET AREA OF BORE 11.82 sq. inches
4.25 hours		Corrected for volume of gravel 0.082 sq. feet
		BORE CIRCUMFERENCE 16.49 inches
		1.37 feet

DATE	CLOCK TIME	ELAPSED TIME	VESSEL WATER LEVEL	POSITION VOLUME	VOLUME CHANGE	WALL AREA	APPLICATION RATE FACTOR OF SAFETY		STABILIZED TAFT Percolation Rate	APPLICATION RATE	
							DURATION	ABSORPTION RATE		Safety Factor	PER LAMP
		minutes	inches	total cubic feet	cubic feet	sq. feet	minutes	cubic feet per sq. foot per minute	gallons per sq. foot per day	minutes per inch	gallons per sq. foot per day
09/02/2023	04:54:34 PM	0.00	31.563	5.152056							
09/02/2023	05:08:42 PM	14.13	28.000	4.351113	FILL PRESAT		0.00				
09/02/2023	05:53:02 PM	58.47	19.750	2.641618	0.801	5.018	14.13	0.011293	121.6307	1.9	15.2
09/03/2023	09:52:25 AM	0.00	31.750	5.193931	1.709	5.018	44.33	0.007684	82.7606	2.5	10.3
09/03/2023	10:19:37 AM	27.20	26.813	4.064463	FILL PERC		0.00				
09/03/2023	10:47:22 AM	54.95	22.250	3.146556	1.129	5.018	27.20	0.008275	89.1233	2.3	11.1
09/03/2023	11:33:14 AM	100.82	15.250	1.780127	0.918	5.018	27.75	0.006592	70.9941	2.7	8.9
09/03/2023	11:42:52 AM	110.45	34.000	5.716310	1.366	5.018	45.87	0.005937	63.9405	3	8.0
09/03/2023	12:11:25 PM	139.00	30.125	4.814993	RE-FILL PERC		9.63				
09/03/2023	12:41:27 PM	169.03	26.125	3.938811	0.901	5.018	28.55	0.006291	67.7576	2.8	8.5
09/03/2023	01:17:19 PM	204.90	21.125	2.906390	0.876	5.018	30.03	0.005814	62.6148	3	7.8
09/03/2023	02:07:38 PM	255.22	13.500	1.423194	1.032	5.018	35.87	0.005736	61.7806	3	7.7
					1.483	5.018	50.32	0.005874	63.2664	3	7.9
					AVERAGE OF LAST 2 READINGS			0.005805	62.5235	3.0	7.8



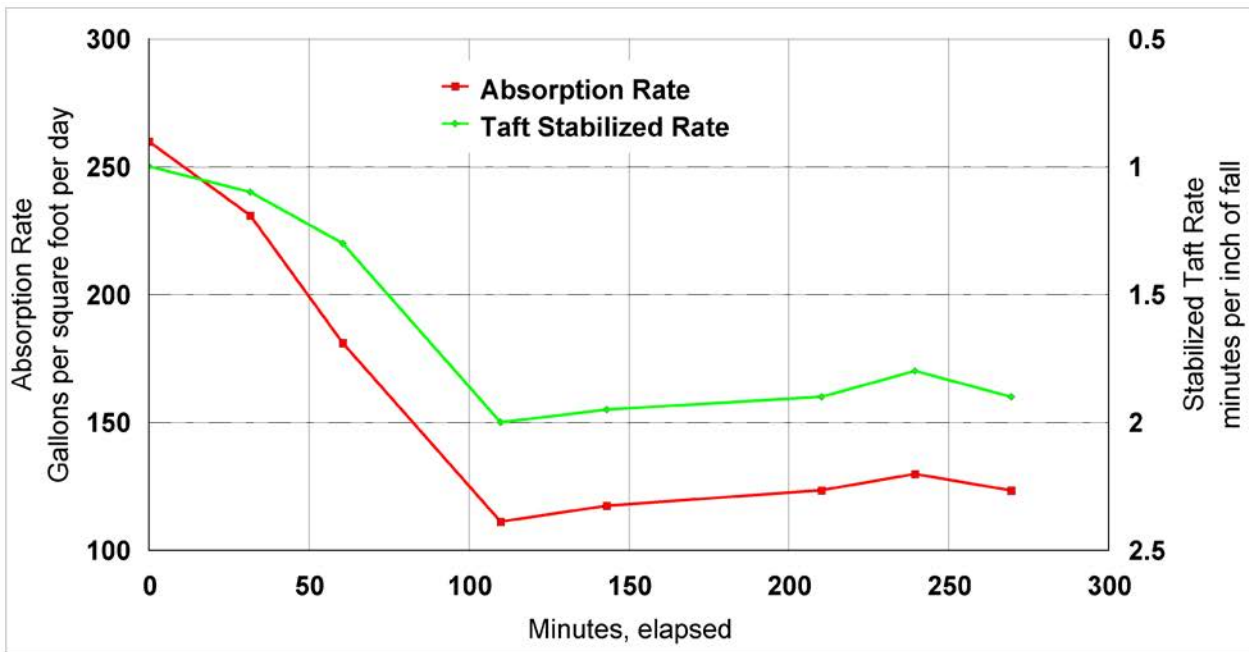
FILE No. 74902111 & 74917545-22.03	BORING No. 2	PREP. OF BORE Lined
JOB NAME: Cooper 2 Lots	BORE DEPTH FROM GROUND SURFACE 3.80 feet	DIAMETER OF PIPE 3 inch
CLIENT: Mr. Dave Cooper	ELEVATION OF BORING 19.25 feet	0.25 feet
		7.07 sq. inches
DATE DRILLED: 01/25/2023	REFERENCE FOR GROUNDWATER BORE 11	0.049 sq. feet
DATE PRESOAKED: 09/02/2023	ELEVATION OF GROUNDWATER lower than -6.50 feet	
DATE PERC'ED: 09/03/2023	BOTTOM OF BORE TO GRND WATER OR MORE 25.75 feet	ANNULAR FILL Pea Gravel
		POROSITY OF FILL 0.326 percent
PERFORMED BY: Lawrence E. Grice	DEPTH TO PRESOAK WATER LEVEL 0.969 feet	DIAMETER OF BORE 5.25 inches
GRICE ENGINEERING INC.	DEPTH TO RESIDUAL WATER LEVEL DRY 3.802 feet	0.438 feet
	DEPTH OF BORE USED IN TEST 2.8333 feet	
WITNESSED BY: None	WALL AREA OF TESTED DEPTH INCLUDES BOTTOM 4.0446 sq. feet	GROSS AREA OF BORE 21.65 sq. inches
		0.150 sq. feet
DURATION OF TEST 1272.92 minutes		NET AREA OF BORE 11.82 sq. inches
21.22 hours		Corrected for volume of gravel 0.082 sq. feet
		BORE CIRCUMFERENCE 16.49 inches
		1.37 feet

DATE	CLOCK TIME	ELAPSED TIME	VESSEL WATER LEVEL	POSITION VOLUME	VOLUME CHANGE	WALL AREA	APPLICATION RATE FACTOR OF SAFETY				APPLICATION RATE	
							DURATION	ABSORPTION RATE	STABILIZED TAFT	PERCOLATION RATE	Safety Factor	PER LAMP
		minutes	inches	total cubic feet	cubic feet	sq. feet	minutes	cubic feet per sq. foot per minute	gallons per sq. foot per day	minutes per inch	gallons per sq. foot per day	
09/02/2023	04:56:35 PM	0.00	30.438	4.887074			0.00					
09/02/2023	05:08:01 PM	11.43	28.750	4.517162	0.370	4.045	11.43	0.007999	86.1550	2.4	10.8	1.2
09/02/2023	05:52:07 PM	55.53	26.750	4.049335	0.468	4.045	44.10	0.002823	28.2490	7.2	3.5	0.8
09/03/2023	09:10:29 AM	973.90	12.000	1.152262	2.897	4.045	918.37	0.000780	8.4004	19.0	1.1	0.6
09/03/2023	10:18:48 AM	1042.22	10.813	0.923549	0.229	4.045	68.32	0.000828	8.9150	18.1	1.1	0.6
09/03/2023	10:29:42 AM	1053.12	34.063	5.730849			10.90					
09/03/2023	12:10:36 PM	1154.02	32.688	5.408191	0.323	4.045	100.90	0.000791	8.5155	18.8	1.1	0.6
09/03/2023	02:09:30 PM	1272.92	31.063	5.041339	0.367	4.045	118.90	0.000763	8.2161	19.4	1.0	0.6
							AVERAGE OF LAST 2 READINGS	0.000777	8.3658	19.1	1.0	0.6



FILE No. 74902111 & 74917545-22.03	BORING No. 3	PREP. OF BORE Lined
JOB NAME: Cooper 2 Lots	BORE DEPTH FROM GROUND SURFACE 2.05 feet	DIAMETER OF PIPE 3 inch
CLIENT: Mr. Dave Cooper	ELEVATION OF BORING 33.50 feet	0.25 feet
		7.07 sq. inches
		0.049 sq. feet
DATE DRILLED: 01/25/2023	REFERENCE FOR GROUNDWATER BORE 11	
DATE PRESOAKED: 09/02/2023	ELEVATION OF GROUNDWATER lower than -6.50 feet	ANNULAR FILL
DATE PERC'ED: 09/03/2023	BOTTOM OF BORE TO GRND WATER OR MORE 40.00 feet	POROSITY OF FILL Pea Gravel 0.326 percent
PERFORMED BY: Lawrence E. Grice	DEPTH TO PRESOAK WATER LEVEL 0.813 feet	DIAMETER OF BORE 5.25 inches
GRICE ENGINEERING INC.	DEPTH TO RESIDUAL WATER LEVEL DRY 2.052 feet	0.438 feet
WITNESSED BY: None	DEPTH OF BORE USED IN TEST 1.2396 feet	GROSS AREA OF BORE 21.65 sq. inches
	WALL AREA OF TESTED DEPTH INCLUDES BOTTOM 1.8541 sq. feet	0.150 sq. feet
DURATION OF TEST 269.60 minutes		NET AREA OF BORE 11.82 sq. inches
4.49 hours		Corrected for volume of gravel 0.082 sq. feet
		BORE CIRCUMFERENCE 16.49 inches
		1.37 feet

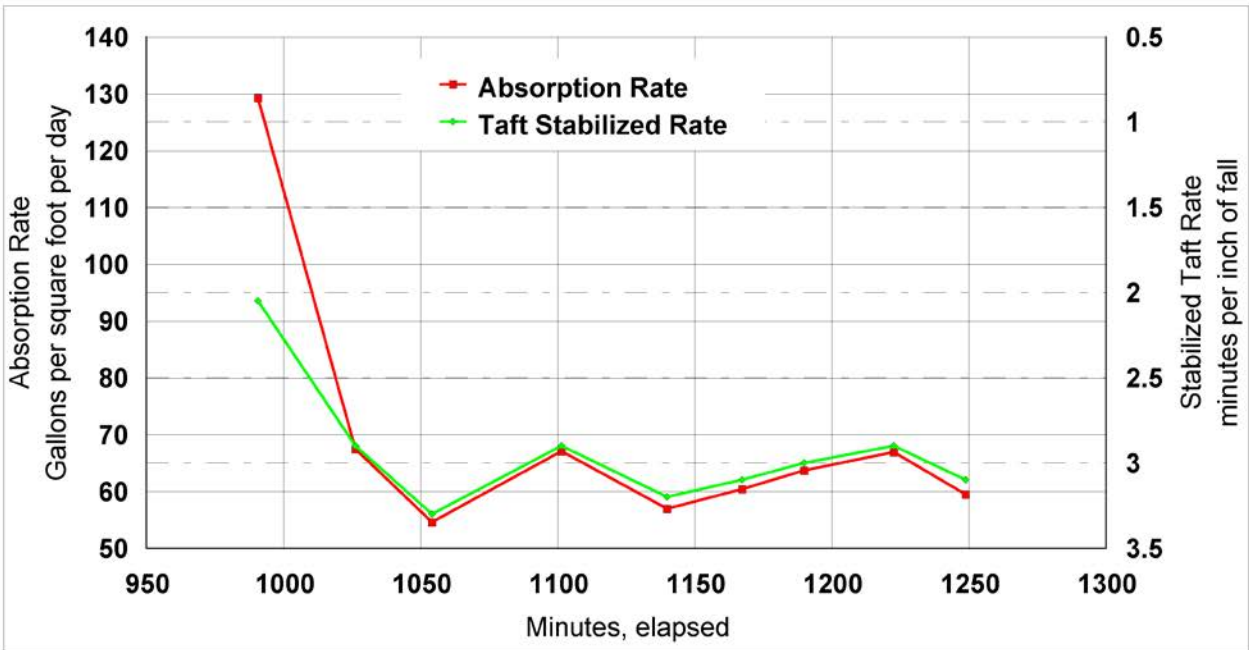
DATE	CLOCK TIME	ELAPSED TIME	VESSEL WATER LEVEL	POSITION VOLUME	VOLUME CHANGE	WALL AREA	APPLICATION RATE FACTOR OF SAFETY			STABILIZED TAFT Percolation Rate	APPLICATION RATE	
							DURATION	ABSORPTION RATE	PERCENTAGE		Safety Factor	PER LAMP
		minutes	inches	total cubic feet	cubic feet	sq. feet	minutes	cubic feet per sq. foot per minute	gallons per sq. foot per day	minutes per inch	gallons per sq. foot per day	
09/02/2023	05:07:22 PM	0.00	31.750	5.193931			0.00					
09/02/2023	05:14:16 PM	6.90	24.750	3.662440	1.531	1.854	6.90	0.119712	1289.3476	0.2	161.2	1.2
09/02/2023	05:51:12 PM	43.83	15.500	1.827113	1.835	1.854	36.93	0.026802	288.6687	0.9	36.1	1.2
09/03/2023	09:45:45 AM	0.00	24.500	3.611676			0.00					
09/03/2023	10:17:25 AM	31.67	18.250	2.352256	1.259	1.854	31.67	0.021451	231.0323	1.1	28.9	1.2
09/03/2023	10:46:22 AM	60.62	13.625	1.449357	0.903	1.854	26.95	0.016821	181.1738	1.3	22.6	1.2
09/03/2023	11:35:41 AM	109.93	8.500	0.504495	0.945	1.854	49.32	0.010334	111.2958	2	13.9	1.2
09/03/2023	12:08:55 PM	143.17	35.000	5.944258			33.23					
09/03/2023	01:16:01 PM	210.27	28.750	4.517162	1.427	1.854	67.10	0.011471	123.5478	1.9	15.4	1.2
09/03/2023	01:45:15 PM	239.50	25.750	3.863727	0.653	1.854	29.23	0.012056	129.8460	1.8	16.2	1.2
09/03/2023	02:15:21 PM	269.60	22.625	3.224201	0.640	1.854	30.10	0.011460	123.4232	1.9	15.4	1.2
							AVERAGE OF LAST 2 READINGS	0.011758	126.6346	1.9	15.8	1.2





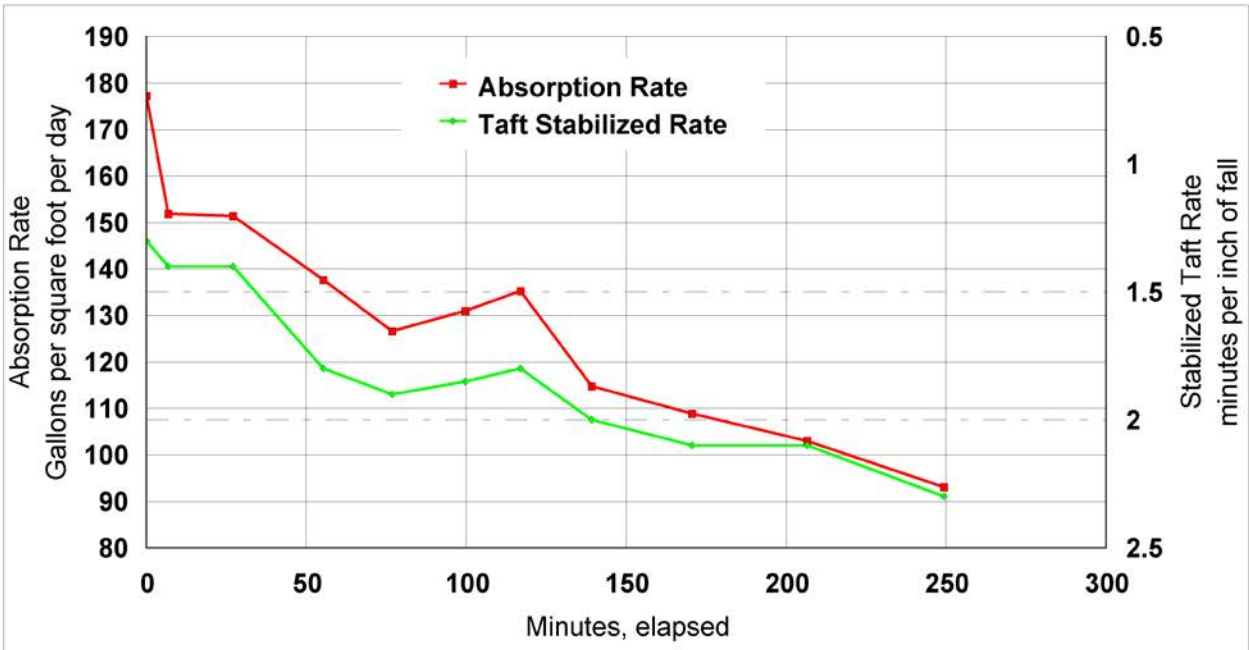
FILE No. 74902111 & 74917545-22.03	BORING No. 4A	PREP. OF BORE Lined
JOB NAME: Cooper 2 Lots	BORE DEPTH FROM GROUND SURFACE 5.23 feet	DIAMETER OF PIPE 3 inch
CLIENT: Mr. Dave Cooper	ELEVATION OF BORING 38.50 feet	0.25 feet
		7.07 sq. inches
DATE DRILLED: 01/25/2023	REFERENCE FOR GROUNDWATER BORE 11	AREA OF PIPE 0.049 sq. feet
DATE PRESOAKED: 09/02/2023	ELEVATION OF GROUNDWATER lower than -6.50 feet	
DATE PERC'ED: 09/03/2023	BOTTOM OF BORE TO GRND WATER OR MORE 45.00 feet	ANNULAR FILL Pea Gravel
		POROSITY OF FILL 0.326 percent
PERFORMED BY: Lawrence E. Grice	DEPTH TO PRESOAK WATER LEVEL 1.917 feet	DIAMETER OF BORE 5.25 inches
GRICE ENGINEERING INC.	DEPTH TO RESIDUAL WATER LEVEL DRY 5.234 feet	0.438 feet
	DEPTH OF BORE USED IN TEST 3.3177 feet	
WITNESSED BY: None	WALL AREA OF TESTED DEPTH INCLUDES BOTTOM 4.7103 sq. feet	GROSS AREA OF BORE 21.65 sq. inches
		0.150 sq. feet
DURATION OF TEST 258.08 minutes		NET AREA OF BORE 11.82 sq. inches
4.30 hours		Corrected for volume of gravel 0.082 sq. feet
		BORE CIRCUMFERENCE 16.49 inches
		1.37 feet

DATE	CLOCK TIME	ELAPSED TIME minutes	VESSEL WATER LEVEL inches	POSITION VOLUME total cubic feet	VOLUME CHANGE cubic feet	WALL AREA sq. feet	APPLICATION RATE FACTOR OF SAFETY		STABILIZED TAFT Percolation Rate minutes per inch	APPLICATION RATE	
							DURATION minutes	ABSORPTION RATE cubic feet per sq. foot per minute		gallons per sq. foot per day	Safety Factor
09/02/2023	05:12:56 PM	0.00	34.500	5.831064			0.00				
09/02/2023	05:50:32 PM	37.60	20.000	2.689758	3.141	4.710	37.60	0.017737	191.0297	1.2	23.9
09/03/2023	09:43:40 AM	990.73	34.750	5.887661			0.00				
09/03/2023	10:19:14 AM	1026.30	30.250	4.837418	1.050	4.710	35.57	0.006269	67.5189	2.9	8.4
09/03/2023	10:47:10 AM	1054.23	27.250	4.170360	0.667	4.710	27.93	0.005070	54.6034	3.3	6.8
09/03/2023	11:34:20 AM	1101.40	20.500	2.786039	1.384	4.710	47.17	0.006231	67.1089	2.9	8.4
09/03/2023	12:12:49 PM	1139.88	15.500	1.827113	0.959	4.710	38.48	0.005290	56.9759	3.2	7.1
09/03/2023	12:40:12 PM	1167.27	11.750	1.103293	0.724	4.710	27.38	0.005612	60.4398	3.1	7.6
09/03/2023	01:02:53 PM	1189.95	34.938	5.930108			22.68				
09/03/2023	01:35:35 PM	1222.65	30.750	4.972338	0.958	4.710	32.70	0.006218	66.9718	2.9	8.4
09/03/2023	02:01:45 PM	1248.82	27.750	4.291384	0.681	4.710	26.17	0.005525	59.5042	3.1	7.4
							AVERAGE OF LAST 2 READINGS	0.005871	63.2380	3.0	7.9



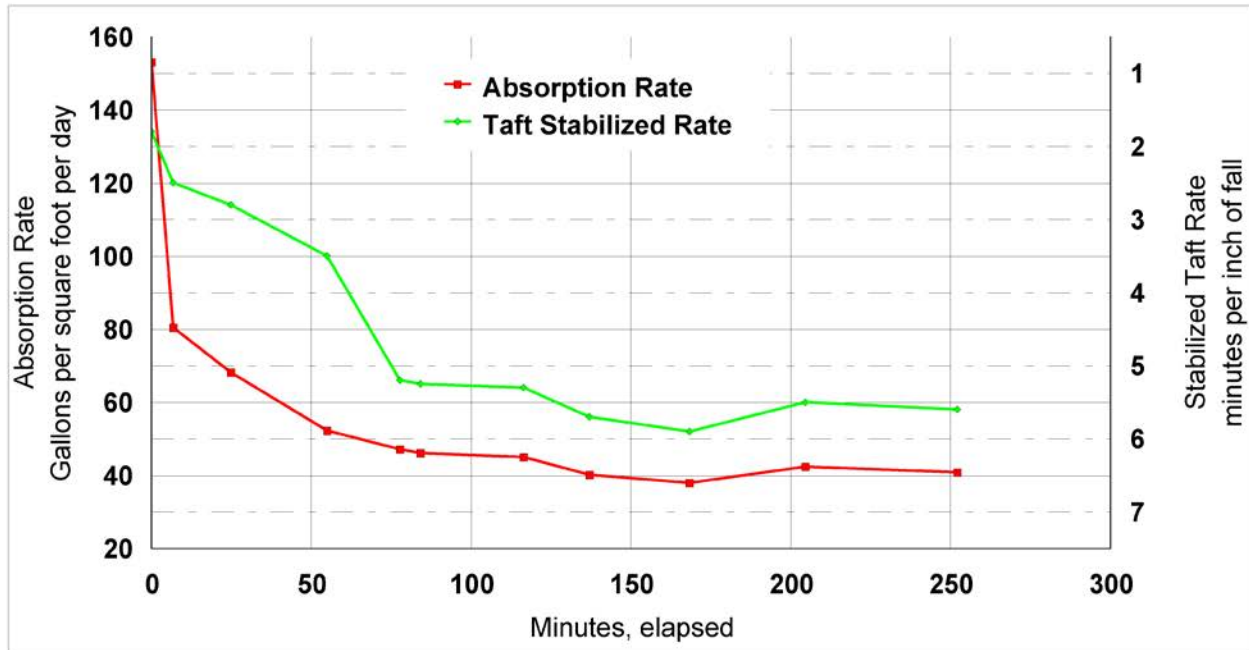
FILE No. 74902111 & 74917545-22.03	BORING No. 5A	PREP. OF BORE Lined
JOB NAME: Cooper 2 Lots	BORE DEPTH FROM GROUND SURFACE 4.13 feet	DIAMETER OF PIPE 3 inch
CLIENT: Mr. Dave Cooper	ELEVATION OF BORING 60.50 feet	0.25 feet
		7.07 sq. inches
		0.049 sq. feet
DATE DRILLED: 01/25/2023	REFERENCE FOR GROUNDWATER BORE 11	
DATE PRESOAKED: 09/02/2023	ELEVATION OF GROUNDWATER lower than -6.50 feet	ANNULAR FILL Pea Gravel
DATE PERC'ED: 09/03/2023	BOTTOM OF BORE TO GRND WATER OR MORE 67.00 feet	POROSITY OF FILL 0.326 percent
PERFORMED BY: Lawrence E. Grice	DEPTH TO PRESOAK WATER LEVEL 1.833 feet	DIAMETER OF BORE 5.25 inches
GRICE ENGINEERING INC.	DEPTH TO RESIDUAL WATER LEVEL DRY 4.125 feet	0.438 feet
WITNESSED BY: None	DEPTH OF BORE USED IN TEST 2.2917 feet	GROSS AREA OF BORE 21.65 sq. inches
	WALL AREA OF TESTED DEPTH INCLUDES BOTTOM 3.3001 sq. feet	0.150 sq. feet
DURATION OF TEST	ERR minutes	NET AREA OF BORE 11.82 sq. inches
	ERR hours	Corrected for volume of gravel 0.082 sq. feet
		BORE CIRCUMFERENCE 16.49 inches
		1.37 feet

DATE	CLOCK TIME	ELAPSED TIME minutes	VESSEL WATER LEVEL inches	POSITION VOLUME total cubic feet	VOLUME CHANGE cubic feet	WALL AREA sq. feet	APPLICATION RATE FACTOR OF SAFETY		DURATION minutes	ABSORPTION RATE		STABILIZED TAFT Percolation Rate minutes per inch	APPLICATION RATE	
							ABSORPTION RATE cubic feet per sq. foot per minute	gallons per sq. foot per day		Safety Factor	PER LAMP Applied gallons per sq. foot per day			
09/02/2023	05:25:01 PM	0.00	34.000	5.716310					0.00					
09/02/2023	05:49:26 PM	24.42	27.375	4.200616	1.516	3.300		24.42	0.018810	202.5950	1.2	25.3	1.2	
09/03/2023	09:48:27 AM	0.00	34.500	5.831064				0.00						
09/03/2023	09:55:19 AM	6.87	33.125	5.511595	0.319	3.300		6.87	0.014098	151.8400	1.4	19.0	1.2	
09/03/2023	10:15:35 AM	27.13	29.000	4.571313	0.940	3.300		20.27	0.014059	151.4186	1.4	18.9	1.2	
09/03/2023	10:43:50 AM	55.38	23.375	3.379490	1.192	3.300		28.25	0.012784	137.6882	1.8	17.2	1.2	
09/03/2023	11:05:20 AM	76.88	19.250	2.545337	0.834	3.300		21.50	0.011757	126.6225	1.9	15.8	1.2	
09/03/2023	11:28:08 AM	99.68	34.125	5.745389				22.80						
09/03/2023	11:45:27 AM	117.00	31.000	5.027539	0.718	3.300		17.32	0.012562	135.2923	1.8	16.9	1.2	
09/03/2023	12:07:40 PM	139.22	27.563	4.246000	0.782	3.300		22.22	0.010660	114.8087	2	14.4	1.2	
09/03/2023	12:39:04 PM	170.62	22.500	3.198319	1.048	3.300		31.40	0.010110	108.8937	2.1	13.6	1.2	
09/03/2023	01:15:03 PM	206.60	16.750	2.062375	1.136	3.300		35.98	0.009566	103.0289	2.1	12.9	1.2	
09/03/2023	01:57:50 PM	249.38	10.375	0.842391	1.220	3.300		42.78	0.008841	93.0642	2.3	11.6	1.2	
								AVERAGE OF LAST 2 READINGS	0.009103	98.0466	2.2	12.3	1.2	



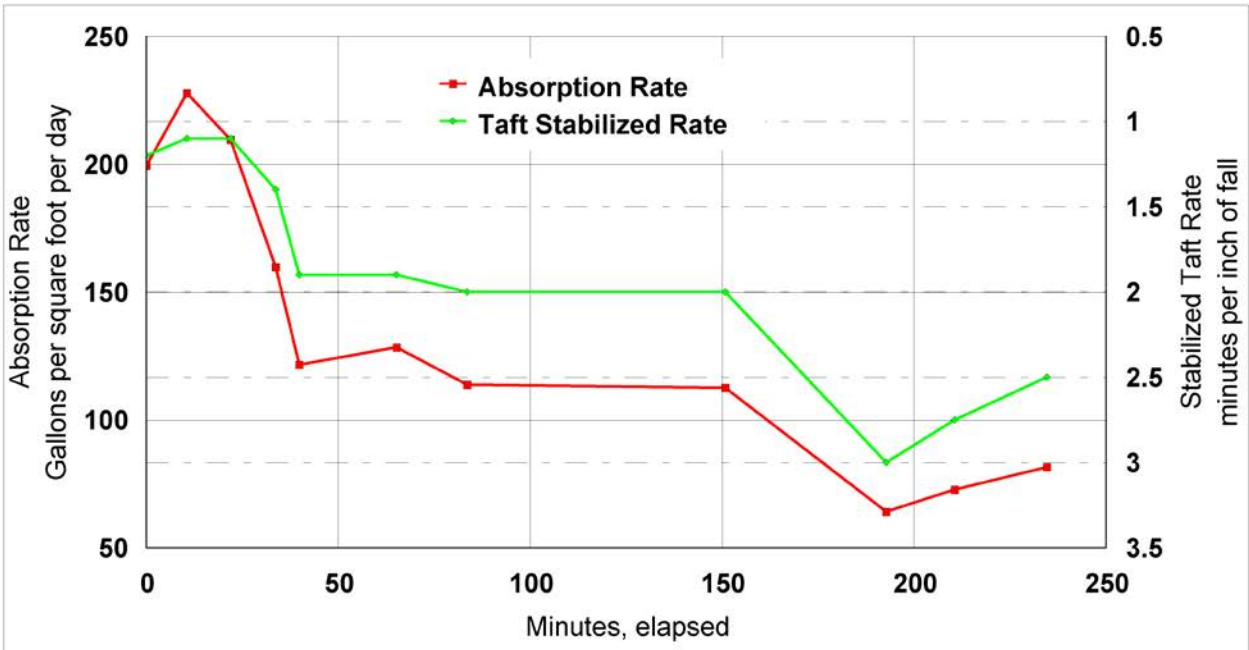
FILE No. 74902111 & 74917545-22.03	BORING No. 6	PREP. OF BORE Lined
JOB NAME: Cooper 2 Lots	BORE DEPTH FROM GROUND SURFACE 5.29 feet	DIAMETER OF PIPE 3 inch
CLIENT: Mr. Dave Cooper	ELEVATION OF BORING 65.50 feet	0.25 feet
		7.07 sq. inches
		0.049 sq. feet
DATE DRILLED: 01/25/2023	REFERENCE FOR GROUNDWATER BORE 11	
DATE PRESOAKED: 09/02/2023	ELEVATION OF GROUNDWATER lower than -6.50 feet	ANNULAR FILL
DATE PERC'ED: 09/03/2023	BOTTOM OF BORE TO GRND WATER OR MORE 72.00 feet	POROSITY OF FILL Pea Gravel 0.326 percent
PERFORMED BY: Lawrence E. Grice	DEPTH TO PRESOAK WATER LEVEL 1.083 feet	DIAMETER OF BORE 5.25 inches
GRICE ENGINEERING INC.	DEPTH TO RESIDUAL WATER LEVEL DRY 5.292 feet	0.438 feet
	DEPTH OF BORE USED IN TEST 4.2083 feet	
WITNESSED BY: None	WALL AREA OF TESTED DEPTH INCLUDES BOTTOM 5.9345 sq. feet	GROSS AREA OF BORE 21.65 sq. inches
		0.150 sq. feet
DURATION OF TEST	ERR minutes	NET AREA OF BORE 11.82 sq. inches
	ERR hours	Corrected for volume of gravel 0.082 sq. feet
		BORE CIRCUMFERENCE 16.49 inches
		1.37 feet

DATE	CLOCK TIME	ELAPSED TIME minutes	VESSEL WATER LEVEL inches	POSITION VOLUME total cubic feet	VOLUME CHANGE cubic feet	WALL AREA sq. feet	APPLICATION RATE FACTOR OF SAFETY		STABILIZED TAFT Percolation Rate minutes per inch	APPLICATION RATE	
							DURATION minutes	ABSORPTION RATE cubic feet per sq. foot per minute		Safety Factor	PER LAMP Applied gallons per sq. foot per day
09/02/2023	05:35:09 PM	0.00	34.250	5.774467			0.00				
09/02/2023	05:48:10 PM	13.02	27.188	4.155232	FILL PRESAT	5.934	13.02	0.020962	225.7668	1.1	28.2
09/03/2023	09:49:41 AM	0.00	25.750	3.863727	FILL PERC		0.00				1.2
09/03/2023	09:56:31 AM	6.83	24.250	3.560662	0.303	5.934	6.83	0.007473	80.4923	2.5	10.1
09/03/2023	10:14:33 AM	24.87	21.000	2.882320	0.678	5.934	18.03	0.006339	68.2688	2.8	8.5
09/03/2023	10:44:39 AM	54.97	16.500	2.015057	0.867	5.934	30.10	0.004855	52.2919	3.5	6.5
09/03/2023	11:07:25 AM	77.73	13.500	1.423194	0.592	5.934	22.77	0.004381	47.1815	5.2	5.9
09/03/2023	11:13:52 AM	84.18	34.375	5.802766	RE-FILL PERC		6.45				
09/03/2023	11:46:10 AM	116.48	30.875	4.999938	0.803	5.934	32.30	0.004188	45.1097	5.3	5.6
09/03/2023	12:06:44 PM	137.05	28.875	4.544238	0.456	5.934	20.57	0.003734	40.2129	5.7	5.0
09/03/2023	12:38:00 PM	168.32	25.875	3.888755	0.655	5.934	31.27	0.003533	38.0478	5.9	4.8
09/03/2023	01:14:16 PM	204.58	21.750	3.040045	0.849	5.934	36.27	0.003943	42.4719	5.5	5.3
09/03/2023	02:01:50 PM	252.15	16.250	1.968071	1.072	5.934	47.57	0.003798	40.9008	5.6	5.1
					AVERAGE OF LAST 2 READINGS			0.003870	41.6863	5.6	5.2



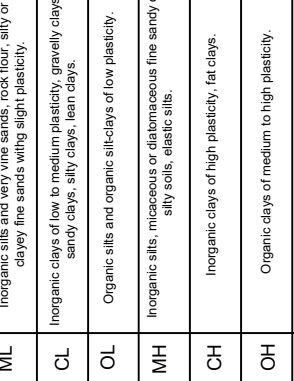
FILE No. 74902111 & 74917545-22.03	BORING No. 8	PREP. OF BORE Lined
JOB NAME: Cooper 2 Lots	BORE DEPTH FROM GROUND SURFACE 2.42 feet	DIAMETER OF PIPE 3 inch
CLIENT: Mr. Dave Cooper	ELEVATION OF BORING 72.25 feet	0.25 feet
		7.07 sq. inches
		0.049 sq. feet
DATE DRILLED: 01/25/2023	REFERENCE FOR GROUNDWATER BORE 11	
DATE PRESOAKED: 09/02/2023	ELEVATION OF GROUNDWATER lower than -6.50 feet	ANNULAR FILL
DATE PERC'ED: 09/03/2023	BOTTOM OF BORE TO GRND WATER OR MORE 78.75 feet	POROSITY OF FILL Pea Gravel 0.326 percent
PERFORMED BY: Lawrence E. Grice	DEPTH TO PRESOAK WATER LEVEL 0.667 feet	DIAMETER OF BORE 5.25 inches
GRICE ENGINEERING INC.	DEPTH TO RESIDUAL WATER LEVEL DRY 2.417 feet	0.438 feet
WITNESSED BY: None	DEPTH OF BORE USED IN TEST 1.7500 feet	GROSS AREA OF BORE 21.65 sq. inches
	WALL AREA OF TESTED DEPTH INCLUDES BOTTOM 2.5556 sq. feet	0.150 sq. feet
DURATION OF TEST 234.60 minutes		NET AREA OF BORE 11.82 sq. inches
3.91 hours		Corrected for volume of gravel 0.082 sq. feet
		BORE CIRCUMFERENCE 16.49 inches
		1.37 feet

DATE	CLOCK TIME	ELAPSED TIME minutes	VESSEL WATER LEVEL inches	POSITION VOLUME total cubic feet	VOLUME CHANGE cubic feet	WALL AREA sq. feet	APPLICATION RATE FACTOR OF SAFETY		STABILIZED TAFT Percolation Rate minutes per inch	APPLICATION RATE	
							DURATION minutes	ABSORPTION RATE cubic feet per sq. foot per minute		gallons per sq. foot per day	Safety Factor Applied gallons per sq. foot per day
09/02/2023	05:46:49 PM	0.00	34.000	5.716310			0.00				
09/02/2023	05:55:30 PM	8.68	32.500	5.363874	0.352	2.556	8.68	0.015882	171.0526	1.3	21.4
08/10/2023	10:42:12 AM	0.00	33.500	5.599995			0.00				
08/11/2023	10:52:47 AM	10.58	31.000	5.027539	0.572	2.556	10.58	0.021165	227.9587	1.1	28.5
08/11/2023	11:04:08 AM	21.93	28.500	4.463011	0.565	2.556	11.35	0.019462	209.6163	1.1	26.2
08/11/2023	11:15:55 AM	33.72	26.563	4.016178	0.447	2.556	11.78	0.014838	159.8135	1.4	20.0
08/11/2023	11:22:04 AM	39.87	25.625	3.838699	0.177	2.556	6.15	0.011292	121.6207	1.9	15.2
08/11/2023	11:47:22 AM	65.17	21.875	3.067916	0.771	2.556	25.30	0.011921	128.3949	1.9	16.0
08/11/2023	12:05:49 PM	83.62	19.375	2.569407	0.499	2.556	18.45	0.010573	113.8708	2	14.2
08/11/2023	01:13:01 PM	150.82	10.000	0.772827	1.797	2.556	67.20	0.010461	112.6713	2	14.1
08/11/2023	01:55:00 PM	192.80	6.500	0.133811	0.639	2.556	41.98	0.005956	64.1462	3	8.0
08/11/2023	02:12:50 PM	210.63	30.125	4.814993			17.83				
08/11/2023	02:36:48 PM	234.60	28.000	4.351113	0.464	2.556	23.97	0.007574	81.5706	2.5	10.2
							AVERAGE OF LAST 2 READINGS	0.006765	72.8584	2.8	9.1



# UNIFIED SOIL CLASSIFICATION & ASTM D2487: INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES		TYPICAL NAMES		INFORMATION REQUIRED FOR DESCRIBING SOILS		LABORATORY CLASSIFICATION CRITERIA	
<b>COARSE GRAINED SOILS</b> More than half of material is larger than No. 200 sieve size is		<b>GROUP SYMBOLS</b> GW, GP, GM, GC, SW, SP, SM, SC		Give typical name, indicate approximate percentages of sand and gravel, maximum size, angularity, surface condition, and hardness of the coarse grains; local or descriptive name and other pertinent geographic information, and symbol in parentheses.  For undisturbed soils add information on stratification, degree of compactness, orientation, moisture conditions and drainage characteristics.  EXAMPLE: <b>Silty Sand</b> , gravely, about 20% hard, angular gravel particles 1/2 inch maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength, well compacted and moist in place, alluvial sand; (SM).		Determine percentages of gravel and sand from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size) coarse grained soils are classified as follows:  GW, GP, SW, SP GM, GC, SM, SC More than 12% Borehole cases requiring use of dual synopses	
<b>FINE GRAINED SOILS</b> More than half of material is smaller than No. 200 sieve size is about the smallest particle visible to the naked eye		<b>GROUP SYMBOLS</b> ML, CL, OL, MH, CH, OH, Pt		Give typical name, indicate degree and character of plasticity, amount and maximum size of coarse grains, color in wet conditions, color if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses.  For undisturbed soils add information on structure, stratification, consistency in undisturbed and remolded states, moisture and drainage conditions.  EXAMPLE: <b>Clayey silt</b> , brown, slightly plastic, small percentage of fine sand, numerous vertical root holes, firm and dry in place, loess; (ML).		Use grain size curve in identifying the fractions as given under field identification.  Above "A" line with PI between 4 and 7 are <b>borderline</b> cases requiring use of dual symbols  Above "A" line with PI between 4 and 7 are <b>borderline</b> cases requiring use of dual symbols	
<b>IDENTIFICATION PROCEDURES ON FRACTIONS SMALLER THAN No. 40 SIEVE SIZE</b>		<b>IDENTIFICATION PROCEDURES ON FRACTIONS LARGER THAN No. 40 SIEVE SIZE</b>		<b>DRY STRENGTH</b> (Reaction to shaking)		<b>TOUGHNESS</b> (Consistency near plastic limit)	
SILTS AND CLAYS Liquid limit greater than 50		None to slight Medium to high Slight to medium Slight to medium High to very high Medium to high		None Medium Slight Slight to medium High Slight to medium		After removing particles larger than No. 40 sieve size, mold a part of soil to the consistency of putty, extrude soil between fingers. Allow the soil to dry until it is stiff. Measure the dry strength by breaking and crumbling between the fingers. This strength is a measure of the character and quality of the colloidal fraction contained in the soil. The dry strength increases with increasing plasticity.  High dry strength is characteristic for clays of the CH group. A typical inorganic silt possesses only very slight dry strength. Silty fine sand and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty whereas a typical silt has the smooth feel of flour.	
SILTS AND CLAYS Liquid limit less than 50		Quick to slow None to very slow Slow		None Medium Slight		After removing particles larger than No. 40 sieve size, mold a part of soil to the consistency of putty, extrude soil between fingers. Allow the soil to dry until it is stiff. Measure the dry strength by breaking and crumbling between the fingers. This strength is a measure of the character and quality of the colloidal fraction contained in the soil. The dry strength increases with increasing plasticity.  High dry strength is characteristic for clays of the CH group. A typical inorganic silt possesses only very slight dry strength. Silty fine sand and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty whereas a typical silt has the smooth feel of flour.	
<b>HIGHLY ORGANIC SOILS</b> Readily identified by color, odor, spongy feel and frequently by fibrous texture.		None to very slow Slow		None Medium Slight		After removing particles larger than No. 40 sieve size, mold a part of soil to the consistency of putty, extrude soil between fingers. Allow the soil to dry until it is stiff. Measure the dry strength by breaking and crumbling between the fingers. This strength is a measure of the character and quality of the colloidal fraction contained in the soil. The dry strength increases with increasing plasticity.  High dry strength is characteristic for clays of the CH group. A typical inorganic silt possesses only very slight dry strength. Silty fine sand and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty whereas a typical silt has the smooth feel of flour.	
<b>FIELD IDENTIFICATION PROCEDURES FOR FINE GRAINED SOILS OR FRACTIONS</b> These procedures are to be performed on the minus No. 40 sieve size particles, approximately 1/4 inch. For field classification purposes, screening is not intended; simply remove by hands the coarse particles that interfere with the test.		<b>DRY STRENGTH</b> (Cushing characteristics)		<b>TOUGHNESS</b> (Consistency near plastic limit)		<b>PLASTICITY CHART</b> FOR LABORATORY CLASSIFICATION OF FINE GRAINED SOILS	
<b>BOUNDARY CLASSIFICATIONS:</b> Soils possessing characteristics of two groups are designated by combinations of group symbols. For example GW-GC, well graded gravel-sand mixture with clay binder. N. All sieve sizes on this chart are U.S. Standard.		None to very slow Slow		None Medium Slight		After removing particles larger than the No. 40 sieve size, a specimen of soil about one-half inch cube in size is molded to the consistency of putty. If too dry, water must be added and if sticky, the specimen should be spread out in a thin layer and allowed to lose some moisture by evaporation. Then the specimen is rolled out by hand on a smooth surface of the palms into a thread about one-eighth inch in diameter. The thread is then folded and rolled repeatedly. During this manipulation the moisture content is gradually reduced and the specimen stiffens. Finally loses its plasticity, and crumbles when the plastic limit is reached.  After the thread crumbles, the pieces should be lumped together and a slight kneading action continued until the lump crumbles.  The tougher the thread near the plastic limit and the stiffer the lump when it finally crumbles, the more potent is the colloidal clay fraction in the soil. Weakness of the thread at the plastic limit and quick loss of coherence of the lump below the plastic limit indicate either inorganic clay of low plasticity, or materials such as kaolin-type clays and organic clays which occur below the A-line.	



## **APPENDIX C**

PROPERTY AND SYSTEM INFORMATION:  
 SITE ADDRESS: LAURELES GRADE, SALINAS, CALIFORNIA  
 A.P.N.: 416-051-016-000  
 AREA OF PARCEL: 1.023 ACRES

PROPOSED STRUCTURE: 3 BEDROOM RESIDENCE  
 TOTAL NUMBER OF OCCUPANTS: 4 TOTAL

PER TABLE 5-2 MCEH DWTS:  
 ALLOWABLE APPLIED NITROGEN PER ACRE: 40 GRAMS  
 ALLOWABLE APPLIED NITROGEN ON PARCEL: 40.92 GRAMS  
 EXISTING APPLIED NITROGEN ON PARCEL: 0 GRAMS

PROPOSED APPLIED NITROGEN ON PARCEL: 40 GRAMS  
 PROPOSED EXCESS APPLIED NITROGEN: 0.0 GRAMS

PER TABLE 6 MCEH CHAPTER 15.20:  
 PEAK DAILY FLOW: 375 GALLONS  
 SEPTIC TANK SIZE: WITHOUT GARBAGE GRINDER 1,000 GALLONS  
 WITH GARBAGE GRINDER 1,500 GALLONS

STABILIZED TAFT PERCOLATION RATE: 3.5 MINUTES PER INCH (AVERAGE LOT A AND LOT B)  
 APPLICATION RATE TABLE 4 MCEH CHAPTER 15.20: 1.2 GALLONS PER SQUARE FOOT PER DAY  
 GROUNDWATER SETBACK PER TABLE 4 MCEH CHAPTER 15.20: 20 FEET

DEPTH TO GROUND WATER: BORING #1, GREATER THAN 39 FEET BELOW GRADE, LOWER THAN ELEVATION -11.75 FEET

POTENTIAL GROUND WATER RECHARGE AREA (GWRA) FIGURE 2-10 PER MCEH-DWTS-2018: NOT APPLICABLE  
 PER DWTS-2018-5.10 MAXIMUM EFFECTIVE DEPTH IS 10 FEET BELOW GRADE.

INFILTRATION AREA REQUIRED: 312.5 SQUARE FEET

LEACHFIELD TYPE: SHALLOW TRENCH, 2FT DEEP X 1.5FT WIDE  
 EFFECTIVE WALL AREA: 4 SQUARE FEET PER LINEAR FOOT

TOTAL LENGTH OF TRENCH REQUIRED PER FIELD: 78.125 LINEAR FEET

PRIMARY FIELD: 2 LATERALS; 40 FEET LONG EACH; 80 FEET TOTAL  
 320 SQUARE FEET OF INFILTRATION AREA

SECONDARY FIELD: 2 LATERALS; 46 FEET LONG EACH; 92 FEET TOTAL  
 368 SQUARE FEET OF INFILTRATION AREA

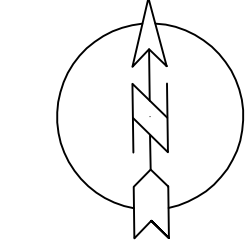
TERTIARY FIELD: 2 LATERALS; 40 FEET LONG EACH; 80 FEET TOTAL  
 320 SQUARE FEET OF INFILTRATION AREA

AREA IS OF NATURAL FORM WITH GRASS COVER, OCCASIONAL BUSHES AND SCATTERED TREES.

THE CREATION DATE OF THE PROPERTY REQUIRES ONLY TWO COMPLETE LEACHFIELDS HOWEVER THREE LEACHFIELDS ARE PROVIDED TO SHOW SUFFICIENT ROOM IS AVAILABLE.

PLEASE REFER TO THE DWTS REPORT BY GRICE ENGINEERING, INC. FOR ADDITIONAL INFORMATION, DETAILS AND COMMENTARY. REFER TO THE ARCHITECTURAL PLANS FOR COMPLETE PROJECT INFORMATION.

PLAN NORTH



SLOPES 30% OR GREATER

SCALE: 1" = 12'

LEGEND

- ALTERNATE LEACHFIELD LOCATIONS
- PROPOSED LEACHFIELDS
- PROPERTY LINE
- HORIZONTAL SETBACKS
- MINOR CONTOURS
- MAJOR CONTOURS
- PROPOSED STRUCTURE
- PROPOSED SEWER LINE
- TYPICAL 10 FOOT TREE SETBACK DIAMETER ± PLUS 10FT
- TEST LOCATION PER GRICE ENGINEERING

THIS PLAN SET CONSISTS OF SHEETS:  
 C-1.0 SITE PLANS  
 C-2.0 PROFILES & SECTIONS  
 C-4.0 DETAILS

NOT ALL EXISTING OR PROPOSED SITE FEATURES ARE SHOWN. REFER TO PROJECT PLANS BY ARCHITECT FOR FURTHER DETAILS.

NOTE: TRACER WIRE SHALL BE INSTALLED PER DETAILS ON SHEET C3.



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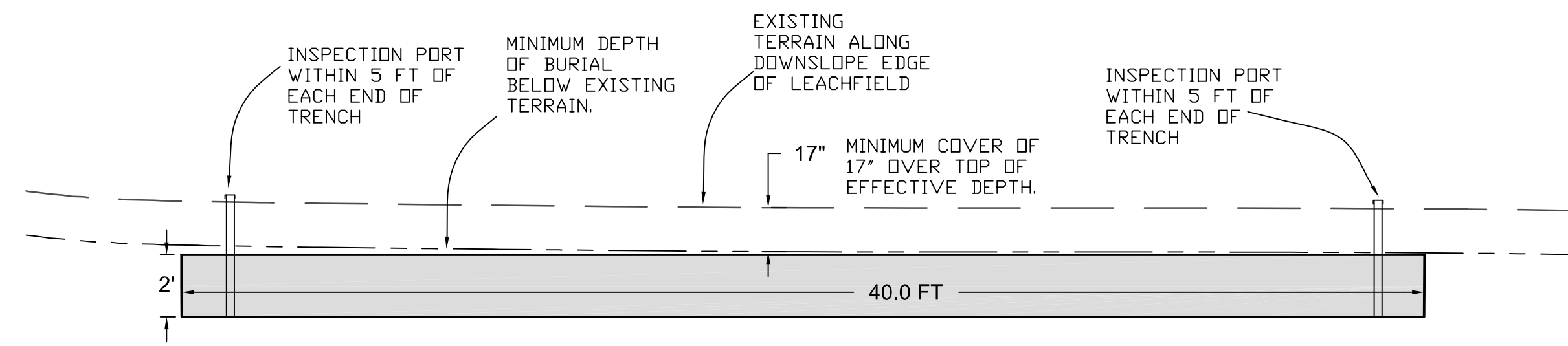

**GRICE ENGINEERING INC**  
 ENGINEERING • GEOTECHNICS • HYDROLOGY • SOILS • FOUNDATIONS • EARTH STRUCTURES  
 561A Brunken Avenue Salinas, California Salinas: (831) 422-9619 Monterey: (831) 375-1198 FAX: (831) 422-1896

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 LAWRENCE E. GRICE, P.E.; R.C.E. 66857

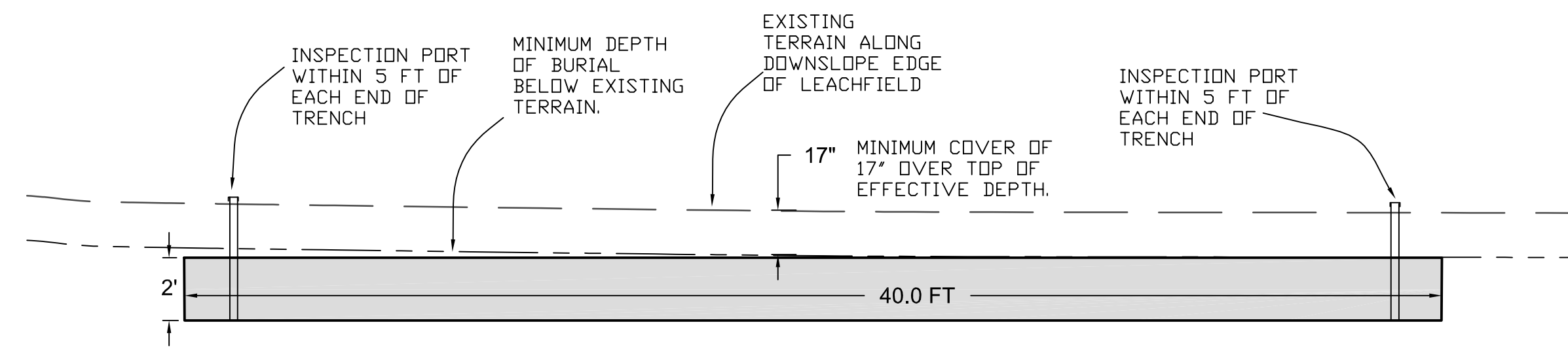
PREPARED FOR:  
 MR. & MRS. COOPER  
 291 LAURELES GRADE  
 CARMEL VALLEY, CALIFORNIA 93924

RESIDENCE; A.P.N. 416-051-016-000 - PARCEL B  
 LAURELES GRADE, CARMEL VALLEY, CALIFORNIA 93924  
**ONSITE WASTEWATER TREATMENT SYSTEM**  
 SITE PLAN

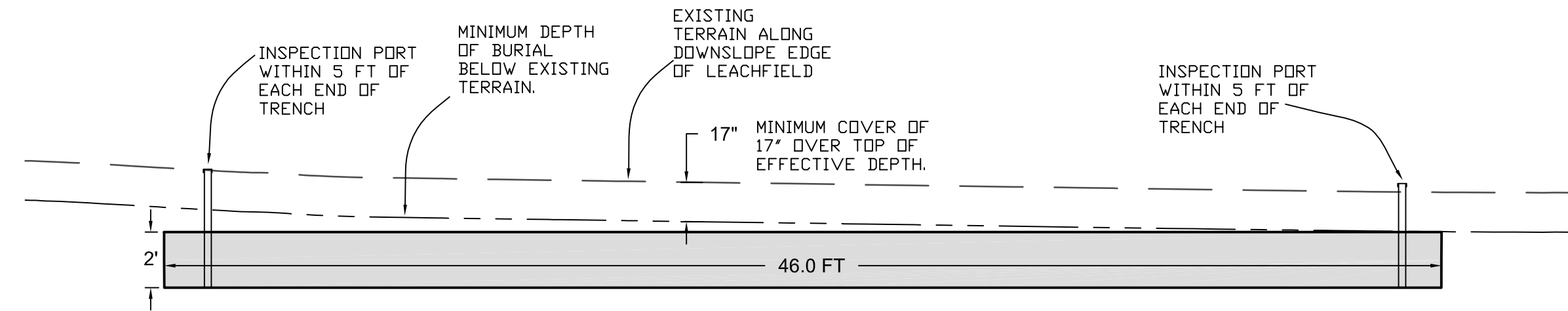
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 Date Plotted: Sep 11, 2023  
 COOPER - PARCEL B  
 FILE NO. 7491-21.11



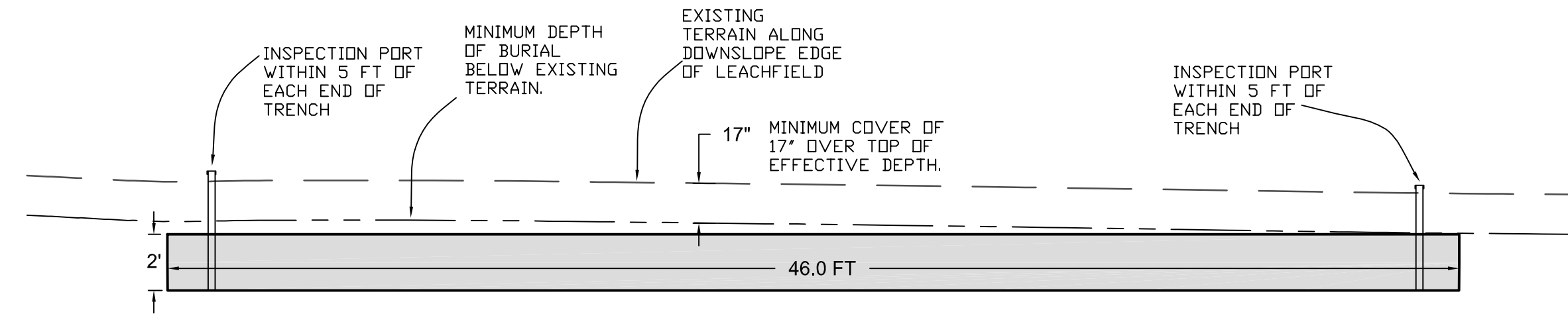
**B1** PROFILE OF PRIMARY LEACHFIELD - LATERAL 1 OF 2  
SCALE 1" = 2'



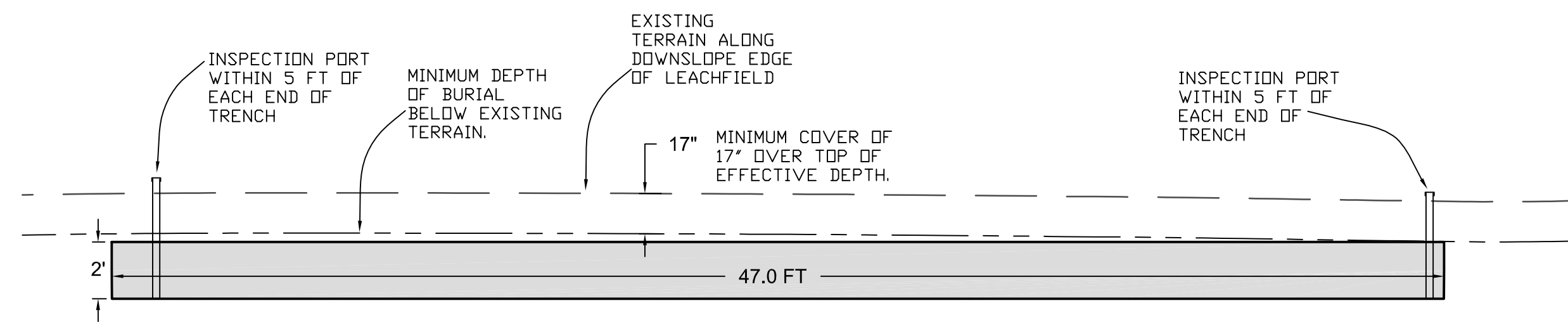
**B2** PROFILE OF PRIMARY LEACHFIELD - LATERAL 1 OF 2  
SCALE 1" = 2'



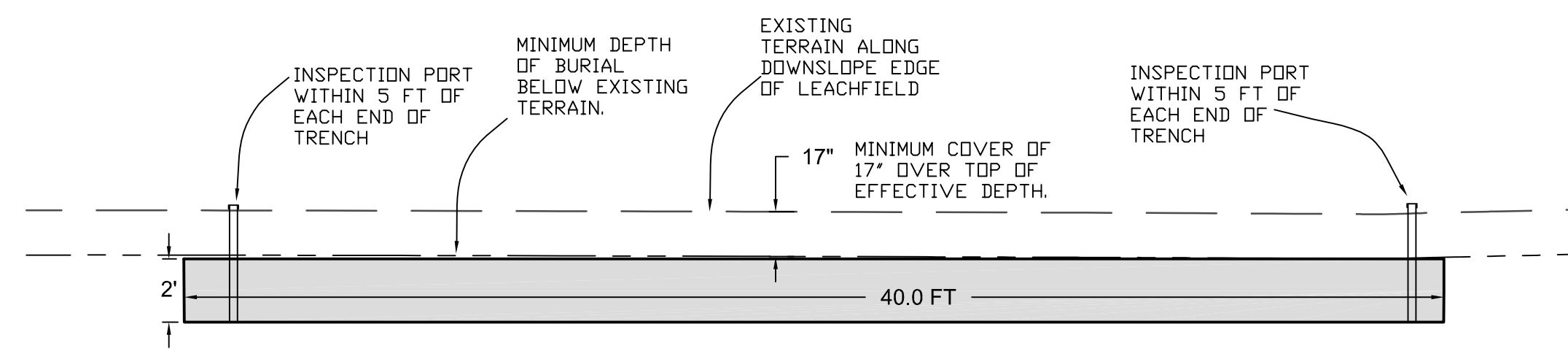
**B3** PROFILE OF SECONDARY LEACHFIELD - LATERAL 1 OF 2  
SCALE 1" = 2'



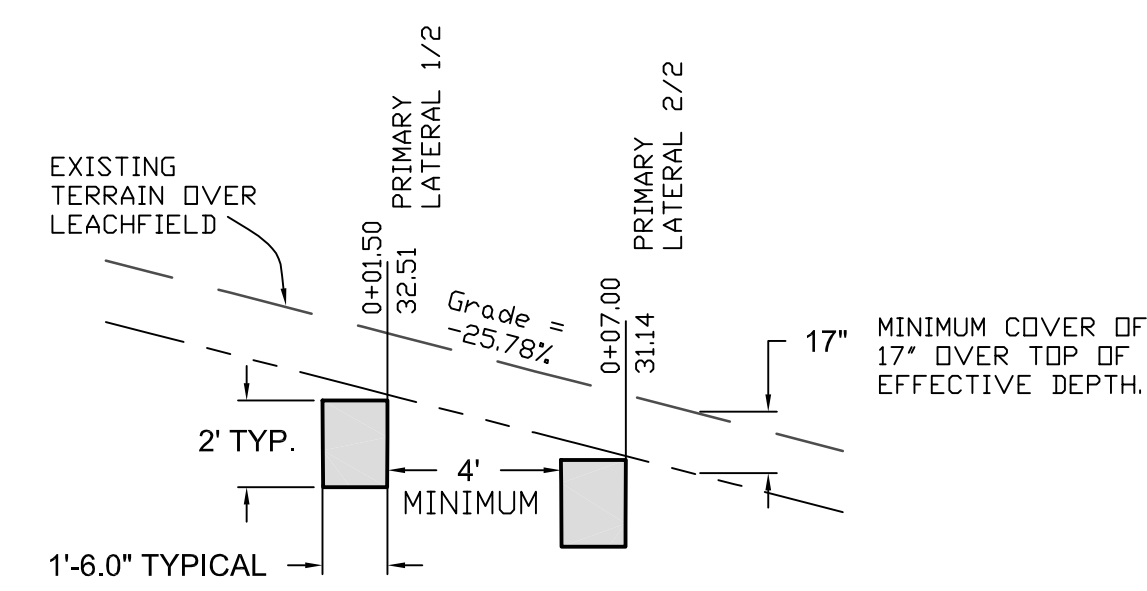
**B4** PROFILE OF SECONDARY LEACHFIELD - LATERAL 2 OF 2  
SCALE 1" = 2'



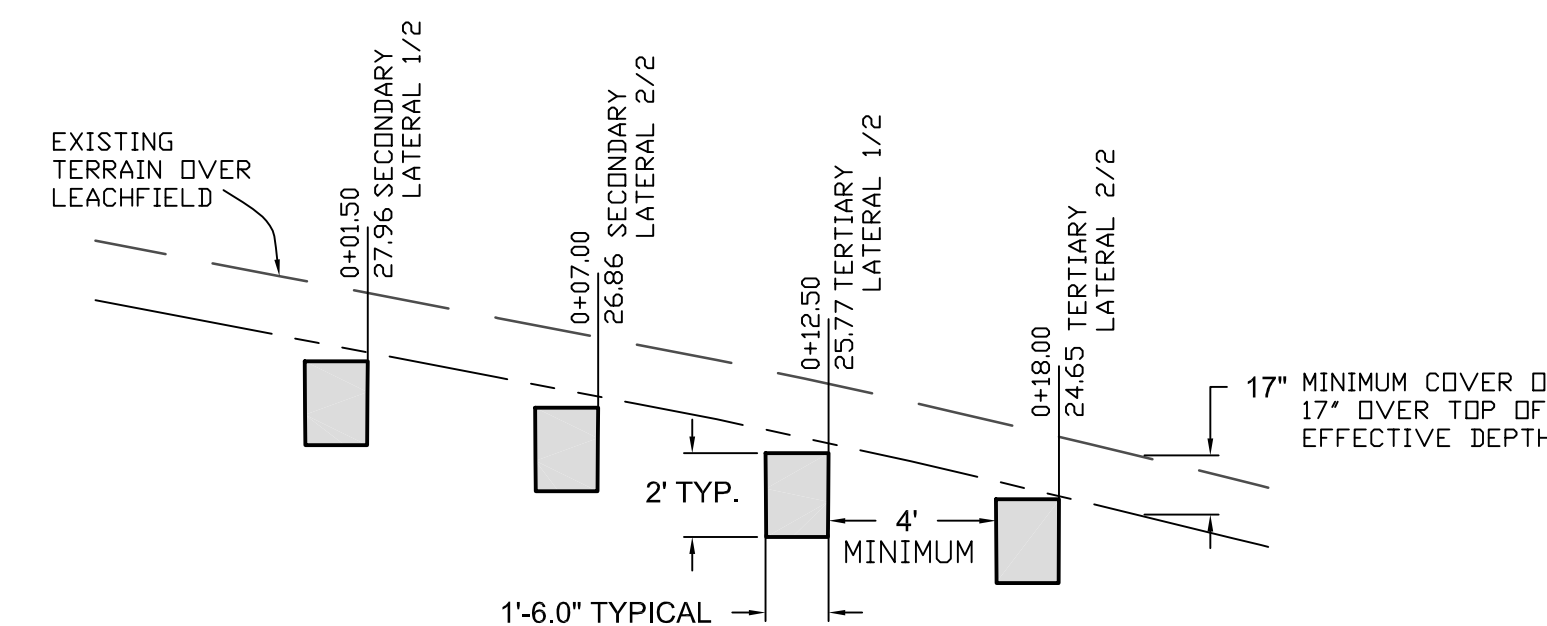
**B5** PROFILE OF TERTIARY LEACHFIELD - LATERAL 1 OF 2  
SCALE 1" = 2'



**B6** PROFILE OF TERTIARY LEACHFIELD - LATERAL 2 OF 2  
SCALE 1" = 2'



**B7** SECTION THROUGH PRIMARY LEACHFIELD LATERALS  
SCALE 1" = 2'



**B8** SECTION THROUGH SECODNARY & TERTIARY LEACHFIELD LATERALS  
SCALE 1" = 2'

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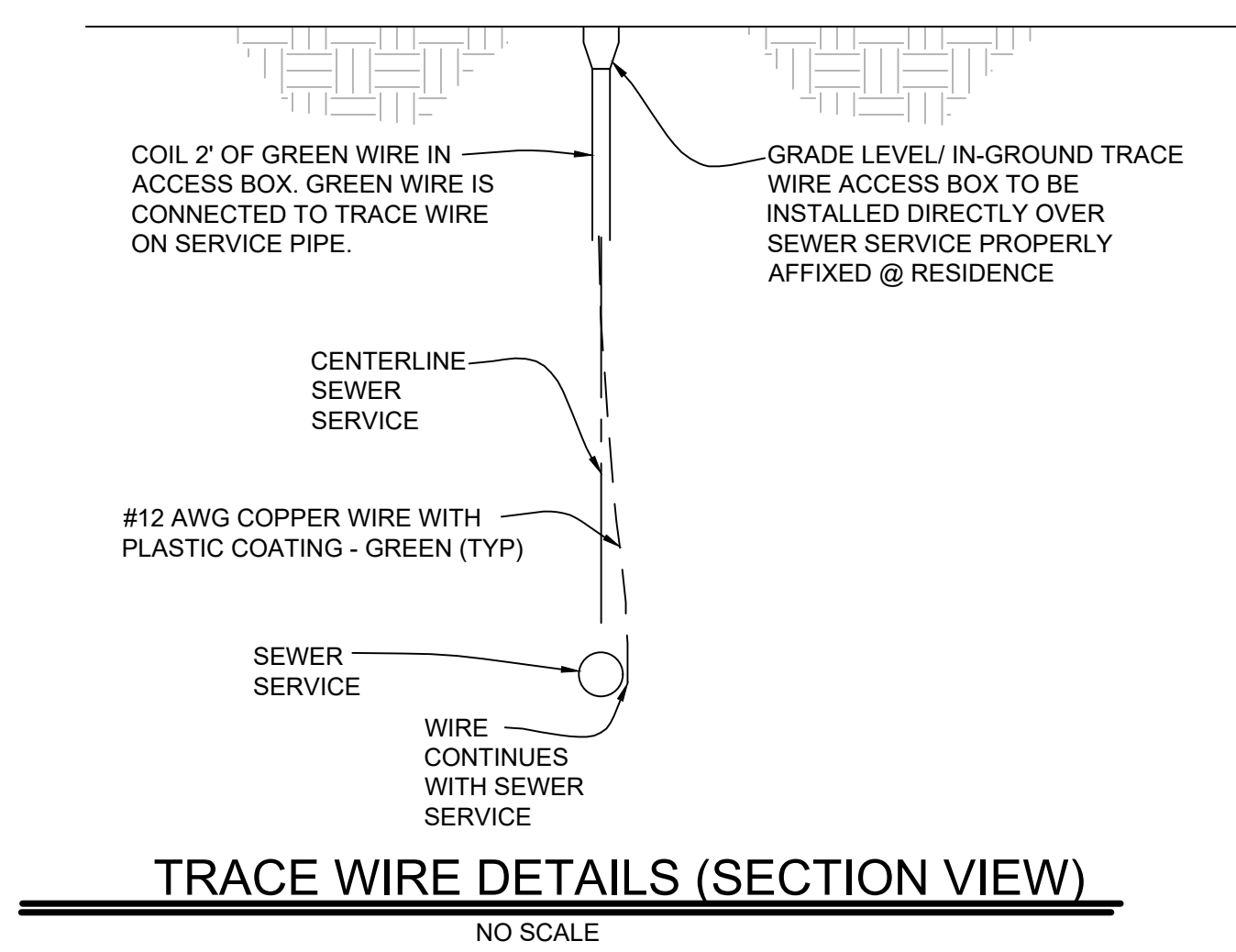
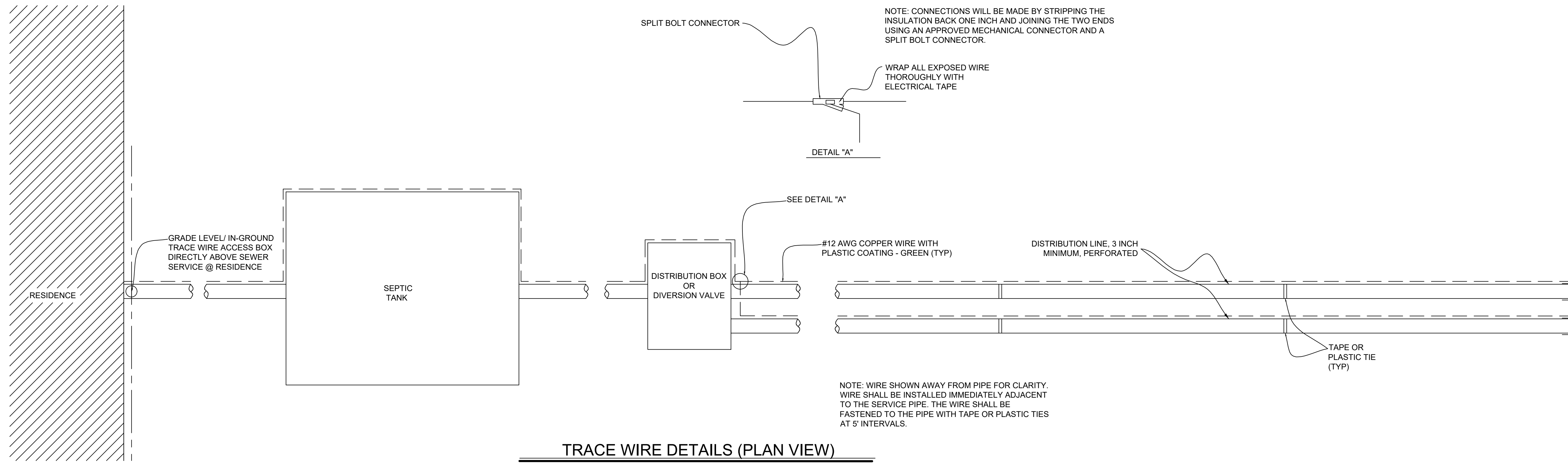
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**ONSITE WASTEWATER TREATMENT SYSTEM**  
PROFILES AND SECTIONS

**C-2.0**

Date Plotted: Sep 11, 2023

COOPER - PARCEL B  
FILE NO. 7491-21.11





**TRACE WIRE SPECIFICATIONS**

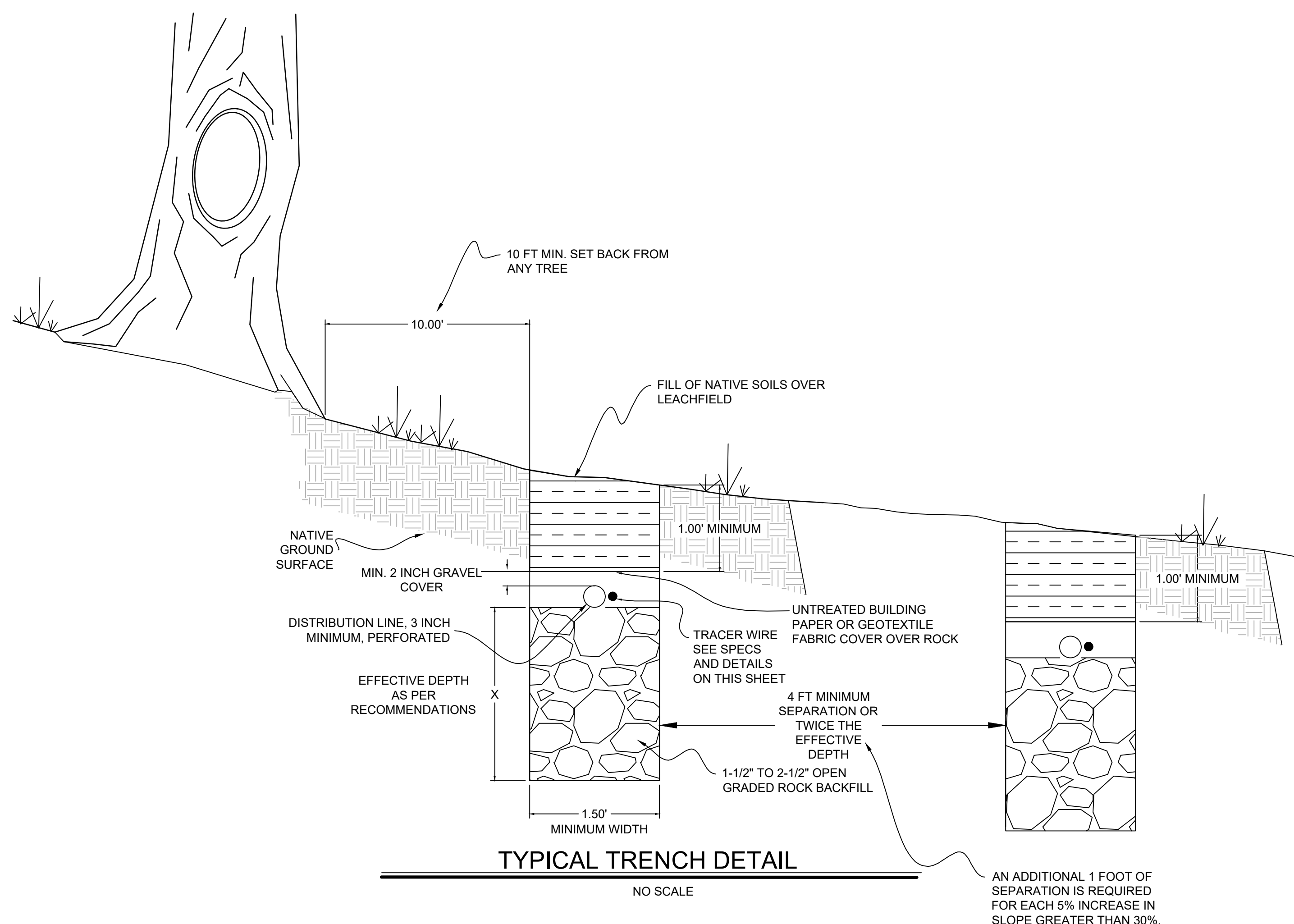
- NOTES**
1. ALL WIRE SHALL BE #12 AWG COPPER WIRE WITH PLASTIC COATING.
  2. SPLICES SHALL BE MADE WITH SPLIT BOLT CONNECTORS, AND ENCAPSULATED IN EPOXY.
  3. TRACE WIRES SHALL BE INTER-CONNECTED AT PIPE TEES AND CROSSES AND VALVES.
  4. CONTINUITY TESTS SHALL BE CONDUCTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER PRIOR TO ACCEPTANCE.
  5. TRACER WIRE TO BE RUN BACK TO HOUSE.

**IF DRIP DISPERSAL**

1. TRACER WIRE TO BE INSTALLED AROUND DRANFIELD

**TRACER ACCESS BOX SPECIFICATIONS**

- NOTES**
1. LOCATION OF ACCESS BOX TO BE DIRECTLY ABOVE SEWER SERVICE AT RESIDENCE.
  2. ACCESS BOX SHALL BE VALVCO TYPE OR APPROVED EQUAL.



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