April 22, 2022 Project No. 21-7401

10426 Locust XC, LLC
3010 Old Ranch Parkway, Suite 470
Seal Beach, CA 90740

Subject: Design Level Percolation Testing Report for Onsite Wastewater Disposal System, 10486 Locust Avenue, Bloomington, California

References: HPA Architecture, Conceptual Site Plan-Scheme 1, 10486 Locust Ave., Bloomington, County of San Bernardino, CA, Job #22002, dated January 3, 2022.

HPA Architecture, Conceptual Site Plan-Scheme 3, 10486 Locust Ave., Bloomington, County of San Bernardino, CA, Job #22002, dated January 10, 2022.

San Bernardino County Public Health Environmental Health Services, Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems, dated September 2019.

As requested and authorized, TGR Geotechnical, Inc. (TGR) has completed design level percolation testing for the proposed onsite wastewater treatment system at the subject site located at 10486 Locust Avenue in the city of Bloomington, California. This report presents the results of our field investigation and testing, discussion of our findings, and provides percolation rates, and recommendations for three potential leach field locations as shown on Plate 1.

PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to determine the general percolation rates and physical characteristics of the onsite soils in order to provide percolation rates for three potential locations for the onsite wastewater treatment system. Services provided for this study are in accordance with our proposal dated March 28, 2022 and consisted of the following:

- Excavation, logging, and percolation testing of twelve (12) hollow-stem auger borings, in three areas, to an approximate depth of 5 feet below existing grade. The percolation testing procedures were performed in accordance with the referenced County of San Bernardino On-Site Wastewater Treatment System Guidelines.
- Laboratory testing of selected samples for in-situ moisture content and Passing No. 200 sieve.
- Preparation of this report presenting the results of the percolation testing and recommendations for the three potential leach field locations.

SITE DESCRIPTION

The subject site is located at 10486 Locust Avenue in the city of Bloomington, California (Figure 1, Site Location Map). The subject site is currently a 2.188-acre parcel of land currently occupied by a single residence. It is our understanding that the proposed development will consist of a 42,900 square foot Class A warehouse building with associated truck docks, drive aisles, and landscaped

areas. Further information regarding property layout, boring locations, and potential wastewater treatment system locations are shown on Plate 1, Boring Location Map.

FIELD INVESTIGATION

Field exploration was performed on April 4 & 5, 2022 by members from our firm who logged the borings and obtained representative samples, which were subsequently transported to the laboratory for further review and testing. The approximate locations of the borings are indicated on the enclosed Boring Location Map (Plate 1).

The subsurface conditions were explored by drilling, sampling, and logging twelve (12) borings with a truck mounted hollow stem auger drill rig. Four borings were placed in each of three potential leach field locations, areas 1, 2, and 3 as shown on Plate 1. Borings were advanced to an approximate depth of 5 feet below existing grade in the areas of the proposed leach fields and utilized for percolation testing. Subsequent to percolation testing, all borings were backfilled with soil cuttings. The log of borings presenting soil conditions and descriptions are presented on Plates 2 through 13.

The drill rig was equipped with a sampling apparatus to allow for recovery of driven modified California Ring Sampler (CRS), 3-inch outside diameter, and 2.42-inch inside diameter and SPT samples.

The samples were driven using an automatic 140-pound hammer falling freely from a height of 30 inches. Soil descriptions were entered on the logs in general accordance with the Unified Soil Classification System (USCS). Driven samples and bulk samples of the earth materials encountered at selected intervals were recovered from the borings. The locations and depths of the soil samples recovered are indicated on the boring logs on Plates 2 through 13.

SUBSURFACE SOIL CONDITIONS

Based on our site reconnaissance and subsurface excavations, the site is underlain by approximately 5 feet of olive brown, fine grained silty sand with some fine to coarse grained gravel. A more detailed description of these materials is provided in the boring logs included on Plates 2 through 13. Soils encountered were classified according to the Unified Soil Classification System (USCS).

GROUNDWATER

Subsurface water was not encountered to a depth of approximately 5 feet below existing grade during our subsurface exploration and was not encountered to a depth of approximately 26.5 feet during our previous investigation at the subject site (TGR, 2021).

USGS groundwater data from wells nearest to the subject site indicate a historic high groundwater of approximately 252 feet below existing grade (USGS 340521117212005 001S005W13B005S) and 982 feet above NAVD 1988 (USGS 340606117223804 001S005W11F004S.)

Seasonal and long-term fluctuations in the groundwater may occur as a result of variations in subsurface conditions, rainfall, run-off conditions, and other factors. Therefore, variations from our observations may occur. Static groundwater is not anticipated to impact the proposed development.

PERCOLATION TESTING AND PROCEDURE

Percolation testing was performed in general accordance with the procedures of the San Bernardino County Public Health Environmental Health Services, Percolation Testing and Reporting Standards for Onsite Wastewater Treatment Systems. The purpose of this testing was to assess the general percolation rates of the onsite soils in three potential locations for the design of an onsite wastewater treatment system.

Twelve percolation borings, P-1 through P-12, were excavated to a depth of 5 feet below existing grade in three potential leach field areas. P-1 through P-4 were excavated in area 1, P-5 through P-8 were excavated in area 2, and P-9 through P-12 were excavated in area 3 as shown on Plate 1, Boring Location Map. The borings measured approximately 8 inches in diameter, the bottoms of the borings were filled with approximately 2 inches of gravel and a 4-inch diameter perforated PVC pipe was placed in the center of the boring to minimize caving.

The borings were filled with approximately 12 inches of clear water during pre-soaking and 10 inches of water seeped away in 10 minutes or less. Based on the outcome of the pre-soak procedure and the granular nature of the onsite sandy soils, testing was conducted immediately after the pre-soak.

Testing was performed by filling each of the percolation test borings with approximately 8 to 12 inches of water. Final time intervals were adjusted to ensure a drop in water of greater than 1 inch, but not more than 3 inches occurred for each reading. A minimum of 6 consecutive measurements were taken.

SUMMARY OF PERCOLATION TEST RESULTS

Results reported are the most conservative reading in minute per inch drop (MPI). Field test data is presented on Tables 1 through 12. A summary of test results is provided in the table below:

BORING NUMBER	TESTING AREA	DEPTH OF BORING (FEET)	PERCOLATION RATE (MPI)	SOIL DESCRIPTION
P-1	Area 1	5	2.78	Silty Sand
P-2		5	1.29	Silty Sand
P-3		5	1.29	Silty Sand
P-4		5	1.47	Silty Sand
P-5	Area 2	5	2.06	Silty Sand
P-6		5	3.35	Silty Sand
P-7		5	2.01	Silty Sand
P-8		5	1.71	Silty Sand
P-9	Area 3	5	2.50	Silty Sand
P-10		5	2.47	Silty Sand
P-11		5	1.47	Silty Sand
P-12		5	2.20	Silty Sand

For each area, an MPI between the mean and most conservative MPI should be utilized in the design of the proposed onsite wastewater treatment system.

For Area 1, soils percolated at rates ranging from 1.29 minutes per inch to 2.78 minutes per inch. The mean value was 1.71 MPI and the most conservative value was 2.78 MPI, therefore the recommended design value is 2.25 MPI. The application rate for 2.25 MPI is equal to 1.16 gallons per square foot per day (0.86 ft^2/g/day).

For Area 2, soils percolated at rates ranging from 1.71 minutes per inch to 3.35 minutes per inch. The mean value was 2.28 MPI and the most conservative value was 3.35 MPI, therefore the recommended design value is 2.82 MPI. The application rate for 2.82 MPI is equal to 1.45 gallons per square foot per day (0.68 ft^2/g/day).

For Area 3, soils percolated at rates ranging from 1.47 minutes per inch to 2.50 minutes per inch. The mean value was 2.16 MPI and the most conservative value was 2.50 MPI, therefore the recommended design value is 2.33 MPI. The application rate for 2.33 MPI is equal to 1.2 gallons per square foot per day (0.83 ft^2/g/day).

DISCUSSION OF RESULTS AND CONCLUSIONS

Based on our field investigation the soil characteristics are defined as favorable: onsite soils are uniform in the vicinity of the proposed leach field, there is no shallow groundwater or bedrock, and no slopes in the disposal area.

Measurements were taken with a groundwater depth probe with accuracy of 1/100 of a foot, no caving occurred during percolation testing and only minor siltation occurred within the test borings. There is sufficient area on the subject site to support an individual wastewater treatment system that will meet the current codes and standards of the Environmental Health Services Division, County of San Bernardino.

The groundwater table will not encroach within the current allowable limit set forth by county and state requirements. Leach beds may not be founded in fill soils, only cut materials or undisturbed natural ground. Leach beds may not be installed under driveways or paved areas.

Minimum soil coverage of one (1) foot over the lines is required. Leach beds should be installed as close to ground surface as possible to promote loss of effluent through evapotranspiration. Leach lines should be installed along ground contours of equal elevation to maintain uniform depth.

LIMITATIONS

Soil materials vary in character between excavations. Site conditions may vary due to seasonal changes or other factors. Therefore, we assume no responsibility or liability for work, testing or recommendations performed or provided by others.

Since our study is based upon the site materials observed, engineering research and analyses, the conclusions and recommendations are professional opinions. These opinions have been derived in accordance with current standards of practice, and no warranty is expressed or implied. Standards of practice are subject to change with time.

Respectfully submitted,

TGR GEOTECHNICAL, INC.

Ryan Stewart
Staff Geologist

Sanjay Govil, PhD, PE, GE 2382
Principal Geotechnical Engineer

Edward L. Burrows, MS, PG, CEG 1750
Principal Engineering Geologist

Attachments: Figure 1 – Site Location Map

Plate 1 – Boring Location Map
Plates 2 through 13 – Boring Logs

Tables 1 through 12 – Percolation Testing Field Logs

Distribution: (1) Addressee

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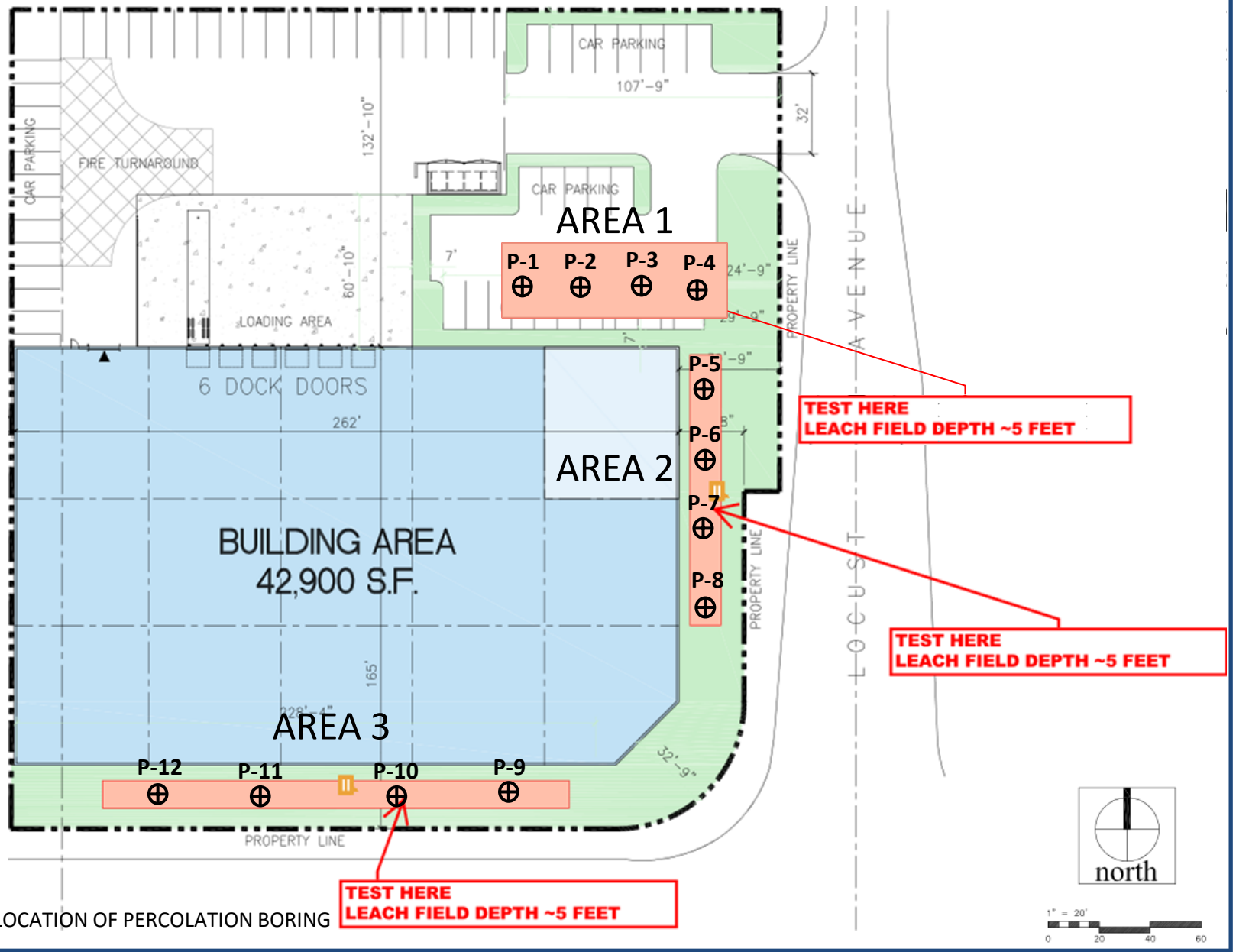
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

SITE LOCATION MAP
10486 LOCUST AVENUE
BLOOMINGTON, CALIFORNIA

PROJECT NO. 21-7401

FIGURE 1



P-12 ⊕ APPROXIMATE LOCATION OF PERCOLATION BORING

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

BORING LOCATION MAP
10486 LOCUST AVENUE
BLOOMINGTON, CALIFORNIA

PROJECT NO. 21-7401

PLATE 1

LOG OF EXPLORATORY BORING P-1

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
							Silty sand, brown, fine sand, trace fine gravel, moist, medium dense			
			☒	15		SM		4		-200= 31.2%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion	4	120	

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 2

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-2

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
				18		SM	Silty sand, brown, fine sand, trace fine to coarse gravel, moist, medium dense	4		-200= 25.8%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

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PLATE 3

TGR GEOTECHNICAL, INC.

LOG OF EXPLORATORY BORING P-3

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
				32		SM	Silty sand, brown, fine sand, trace fine to coarse gravel and cobbles, moist, medium dense	4		-200= 25.6%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 4

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-4

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
			■	32		SM	Silty sand, brown, fine sand, trace fine to coarse gravel and cobbles, moist, medium dense to dense	4		-200= 26.8%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

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PLATE 5

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-5

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
				12		SM	Silty sand, brown, fine sand, trace fine to coarse gravel and cobbles, moist, medium dense to dense	4		-200= 28.4%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 6

TGR GEOTECHNICAL, INC.

LOG OF EXPLORATORY BORING P-6

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
			☒	8		SM	Silty sand, brown, fine sand, trace fine to coarse gravel, moist, medium dense	5		-200= 26.5%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 7

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-7

Sheet **1** of **1**

Project Number:	**21-7401**	Logged By:	**PK**
Project Name:	**10486 Locust Ave., Bloomington**	Project Engineer:	**SG**
Date Drilled:	**4/4/22 - 4/4/22**	Drill Type:	**Hollow Stem**
Ground Elev:		Drive Wt & Drop:	**140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
				58		SM	Silty sand, brown, fine sand, trace fine to coarse gravel and cobbles, moist, medium dense to dense	4		-200= 25.4%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 8

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-8

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
				53		SM	Silty sand, brown, fine sand, trace fine to coarse gravel and cobbles, moist, medium dense to dense	6		-200= 25.1%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 9

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-9

Sheet **1** of **1**

Project Number:	**21-7401**	Logged By:	**PK**
Project Name:	**10486 Locust Ave., Bloomington**	Project Engineer:	**SG**
Date Drilled:	**4/4/22 - 4/4/22**	Drill Type:	**Hollow Stem**
Ground Elev:		Drive Wt & Drop:	**140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
			■	13		SM	Silty sand, brown, fine sand, trace fine to coarse gravel and cobbles, moist, medium dense	6		-200= 26.7%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 10

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-10

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
			■	11		SM	Silty sand, brown, fine sand, trace fine to coarse gravel, moist, medium dense	7		-200= 26.7%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 11

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-11

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
			■	4		SM	Silty sand, brown, fine sand, trace fine to coarse gravel, moist, loose to medium dense	5		23.8%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 12

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

LOG OF EXPLORATORY BORING P-12

Project Number: **21-7401**
Project Name: **10486 Locust Ave., Bloomington**
Date Drilled: **4/4/22 - 4/4/22**
Ground Elev:

Logged By: **PK**
Project Engineer: **SG**
Drill Type: **Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
			■	12		SM	Silty sand, brown, fine sand, trace fine to coarse gravel, moist, medium dense	5		-200= 23.4%
5							Total Depth: 5 feet No caving observed No groundwater observed Percolation testing performed from 4 to 5 feet Boring backfilled with soil cuttings upon completion			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 13

TGR GEOTECHNICAL, INC.

LOG OF BORING 21-7401 10486 LOCUST AVE, BLOOMINGTON OWTS.GPJ TGR GEOTECH.GDT 4/21/22

Leach Line Percolation Testing Field Log

Table 1

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-1
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	5	48.00	49.80	1.80	2.78
2	5	48.00	49.80	1.80	2.78
3	5	48.00	50.04	2.04	2.45
4	5	48.00	49.92	1.92	2.60
5	5	48.00	49.80	1.80	2.78
6	5	48.00	49.80	1.80	2.78

Leach Line Percolation Testing Field Log

Table 2

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-2
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	3	48.00	57.60	9.60	0.58
2	2	48.00	51.60	3.60	1.03
3	2	48.48	51.00	2.52	1.47
4	2	48.48	51.12	2.64	1.40
5	2	48.00	50.64	2.64	1.40
6	2	48.00	50.88	2.88	1.29

Leach Line Percolation Testing Field Log

Table 3

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-3
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	2	48.60	51.24	2.64	1.40
2	2	48.00	50.88	2.88	1.29
3	2	48.00	51.00	3.00	1.23
4	2	48.00	50.76	2.76	1.34
5	2	48.48	51.00	2.52	1.47
6	2	48.00	50.88	2.88	1.29

Leach Line Percolation Testing Field Log

Table 4

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-4
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	2	48.00	50.40	2.40	1.54
2	2	48.00	50.40	2.40	1.54
3	2	48.00	50.52	2.52	1.47
4	2	48.00	50.52	2.52	1.47
5	2	48.00	50.52	2.52	1.47
6	2	48.00	50.52	2.52	1.47

Leach Line Percolation Testing Field Log

Table 5

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-5
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	2	45.60	47.40	1.80	2.06
2	2	45.60	47.64	2.04	1.82
3	2	45.60	47.40	1.80	2.06
4	2	45.60	47.40	1.80	2.06
5	2	45.60	47.40	1.80	2.06
6	2	45.60	47.40	1.80	2.06

Leach Line Percolation Testing Field Log

Table 6

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-6
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	5	46.80	48.96	2.16	4.29
2	5	46.80	49.80	3.00	3.09
3	5	46.80	49.44	2.64	3.51
4	5	46.80	49.44	2.64	3.51
5	5	47.28	50.16	2.88	3.22
6	5	46.80	49.56	2.76	3.35

Leach Line Percolation Testing Field Log

Table 7

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-7
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	3	46.80	49.56	2.76	2.01
2	3	46.80	49.56	2.76	2.01
3	3	46.80	49.44	2.64	2.10
4	3	46.80	49.56	2.76	2.01
5	3	46.80	49.56	2.76	2.01
6	3	46.80	49.56	2.76	2.01

Leach Line Percolation Testing Field Log

Table 8

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-8
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	2	46.80	49.44	2.64	1.40
2	2	46.80	48.96	2.16	1.71
3	2	46.80	48.96	2.16	1.71
4	2	46.80	48.96	2.16	1.71
5	2	46.80	48.84	2.04	1.82
6	2	46.80	48.96	2.16	1.71

Leach Line Percolation Testing Field Log

Table 9

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-9
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	3	46.80	48.36	1.56	1.92
2	3	46.80	48.00	1.20	2.50
3	3	46.92	48.00	1.08	2.78
4	3	46.80	48.12	1.32	2.27
5	3	46.80	48.00	1.20	2.50
6	3	46.80	48.00	1.20	2.50

Leach Line Percolation Testing Field Log

Table 10

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-10
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	4	47.40	50.40	3.00	2.47
2	4	47.40	50.28	2.88	2.57
3	4	47.40	50.28	2.88	2.57
4	4	47.40	50.40	3.00	2.47
5	4	47.40	50.40	3.00	2.47
6	4	47.40	50.40	3.00	2.47

Leach Line Percolation Testing Field Log

Table 11

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-11
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	2	46.80	49.32	2.52	1.47
2	2	46.80	49.32	2.52	1.47
3	2	46.80	49.68	2.88	1.29
4	2	46.80	49.32	2.52	1.47
5	2	46.80	49.32	2.52	1.47
6	2	46.80	49.32	2.52	1.47

Leach Line Percolation Testing Field Log

Table 12

Project Location	10486 Locust Avenue, Bloomington
Earth Description	Silty Sand
Tested By	RS/PK
Liquid Description	Clear Water
Measurement Method	Groundwater Probe

Boring/Test Number	P-12
Dimensions of Excavation	8 inch Diameter
Depth of Excavation	5 feet
Initial Water Depth	4 feet
Depth of Leach Line	5 feet
Depth to Water Table	>100 feet
Water Remaining in Boring (Y/N)	N

Reading Number	Elapsed Time (min)	Initial Depth to Water (inches)	Final Depth to Water (inches)	Change in Water Level (inches)	Gravel Corrected Percolation Rate for Reading (MPI)
1	3	46.80	49.44	2.64	2.10
2	3	46.80	49.32	2.52	2.20
3	3	46.80	49.32	2.52	2.20
4	3	46.80	49.32	2.52	2.20
5	3	46.80	49.32	2.52	2.20
6	3	46.80	49.32	2.52	2.20