Appendix E-2
Soil Infiltration Study

NorCal Engineering

Soils and Geotechnical Consultants
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October 12, 2021 Project Number 22409-21

Don Julian Investment LLC
138 N. Glendora Avenue
Glendora, California 91741

Attn.: Mr. Cary Niu

RE: **Updated Soils Infiltration Study** - Proposed Industrial Warehouse Development - Located at 5006 and 5010 Mission Boulevard, in the City of Montclair, California

Dear Mr. Niu:

Pursuant to your request, this firm has performed an Updated Soil Infiltration Study for the above referenced project in accordance with your approval of our proposal dated September 17, 2021. The purpose of this study is to evaluate the feasibility of an on-site water disposal system for the proposed industrial warehouse development. The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration; 3) soil infiltration testing; 4) engineering analysis of field and laboratory data; and 5) preparation of a report.

Project Description

The 5.12-acre subject property is situated in an industrial/commercial area located within the 5000 block and north side of Mission Boulevard in the City of Montclair. The generally rectangular-shaped parcel is elongated in an east to west direction with topography of the relatively level descending slightly from north to south direction on the order of a few feet.

Project Description

It is proposed to construct an industrial warehouse development consisting of 125,000 square feet building as shown on the attached Site Plan. The proposed concrete tilt-up building will be supported by a conventional slab-on-grade foundation system with perimeter-spread footings and isolated interior footings. Other improvements will include asphalt and concrete pavement areas, hardscape and landscaping. It is assumed that the proposed grading for the development will include cut and fill procedures on the order of a few feet to achieve finished grade elevations.

An on-site storm water disposal system and been proposed toward the front portion of the property along the east and west sides of the proposed warehouse building. The bottom of the system has been proposed at approximately 15 to 20 feet in depth. Infiltration tests were performed to provide preliminary infiltration rates for the purpose of planning and design of a storm water disposal system. Final building plans shall be reviewed by this firm prior to submittal for city/county approval to determine the need for any additional study and revised recommendations pertinent to the proposed development, if necessary.

Field Exploration and Testing

The field exploration consisted of two (2) exploratory borings by a truck mounted hollow stem auger to depths of 35 and 50 feet below ground surface (bgs) to determine the subsurface soil conditions. The site was found to be underlain by fill and alluvial deposits consisting of a brown, fine to coarse grained, silty SAND to a sandy SILT. These soils were noted to be medium dense/firm and damp to moist. No caving occurred and no groundwater was encountered to the depths of our borings. The location of the exploratory borings are shown on the attached Site Plan. Detailed description of the subsurface soils is shown on the attached logs in Appendix A.

Laboratory analysis to determine the percent by weight of soil finer than the No. 200 sieve (ASTM: 1140) was provided on selected soil samples. These results are shown on the attached boring logs.

Groundwater Information

Exploratory Borings B-1 and B-2 were drilled to a depth of 35 and 50 feet below ground surface to determine the presence of groundwater within the proposed infiltration area. No groundwater was encountered to the depth of our borings. A review of groundwater maps of the Upper Santa Ana River Basin (Carson and Matti, 1982) reveals groundwater depths in excess of 350 feet at the project site. Nearby County of Los Angeles groundwater monitoring well located approximately 0.5 miles to the northeast from the subject site noted a groundwater depth at 359 feet below ground surface in July 2017.

Results of Field Infiltration Tests

Infiltration tests within the site were performed to provide preliminary infiltration rates for the purpose of planning and design of an on-site water disposal system field testing per City of Montclair – Site Evaluation and Testing Protocols for Storm Water Infiltration Best Management Practices and the San Bernardino County Stormwater Program. Two exploratory trenches (T-1 and T-2) were excavated by a track mounted excavator to depths of 15 and 20 feet within the proposed infiltration area for the placement of four (4) infiltration test holes. The infiltration tests consisted of the double ring infiltration test per ASTM Method D 3385.

The infiltration holes were carefully filled with clean water and refilled after each reading. Based upon the initial rates of infiltration at each location, test measurements were measured at selected maximum intervals thereafter. Measurements were obtained by using an electronic tape measure with 1/16-inch divisions and timed with a stopwatch.

The field infiltration rate was computed using a reduction factor – R_f based on the field measurements with our calculations given in Appendix D. Based upon the results of our testing, the soils encountered in the planned on-site drainage disposal system area exhibit the following infiltration rates.

Boring/Test No.	Depth	Soil Classification	Field Infiltration Rate
T-1/TH-1	15'	Sandy SILT	3.2 in/hr
T-1/TH-2	15'	Sandy SILT	4.9 in/hr
T-2/TH-3	20'	Sandy SILT	5.0 in/hr
T-2/TH-4	20'	Sandy SILT	3.0 in/hr

The correction factors CF_t, CF_v and CF_s are given below based on soils at 15 and 20 feet from our field tests.

a) $CF_t = Rf = 1.0$ for our four infiltration test holes.

b) $CF_v = 1.0$ based on uniform soils encountered in four borings for infiltration tests.

c) $CF_s = 2.0$ for long-term siltation, plugging and maintenance. The subsurface soils are likely to have some plugging and regular maintenance of storm water discharge devices is required.

Based on the results of our field testing, the subsurface soils encountered in the proposed on-site drainage disposal system consisted predominately of sandy silts and shall utilize the design infiltration rates based on the safety factor required by the county standard. All systems must meet the latest city and/or county specifications and the California Regional Water Quality Control Board (CRWQCB) requirements.

It is recommended that foundations shall be setback a minimum distance of 10 feet from the drainage disposal system and the bottom of footing shall be a minimum of 10 feet from the expected zone of saturation. The boundary of the zone of saturation may be assumed to project downward from the top of the permeable portion of the disposal system at an inclination of 1 to 1 or flatter, as determined by the geotechnical engineer.

Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavation. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase.

This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. This report and all conclusions are subject to the review of the controlling authorities for the project. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

Keith D. Tucker
Project Engineer
R.G.E. 841

Scott D. Spensiero
Project Manager

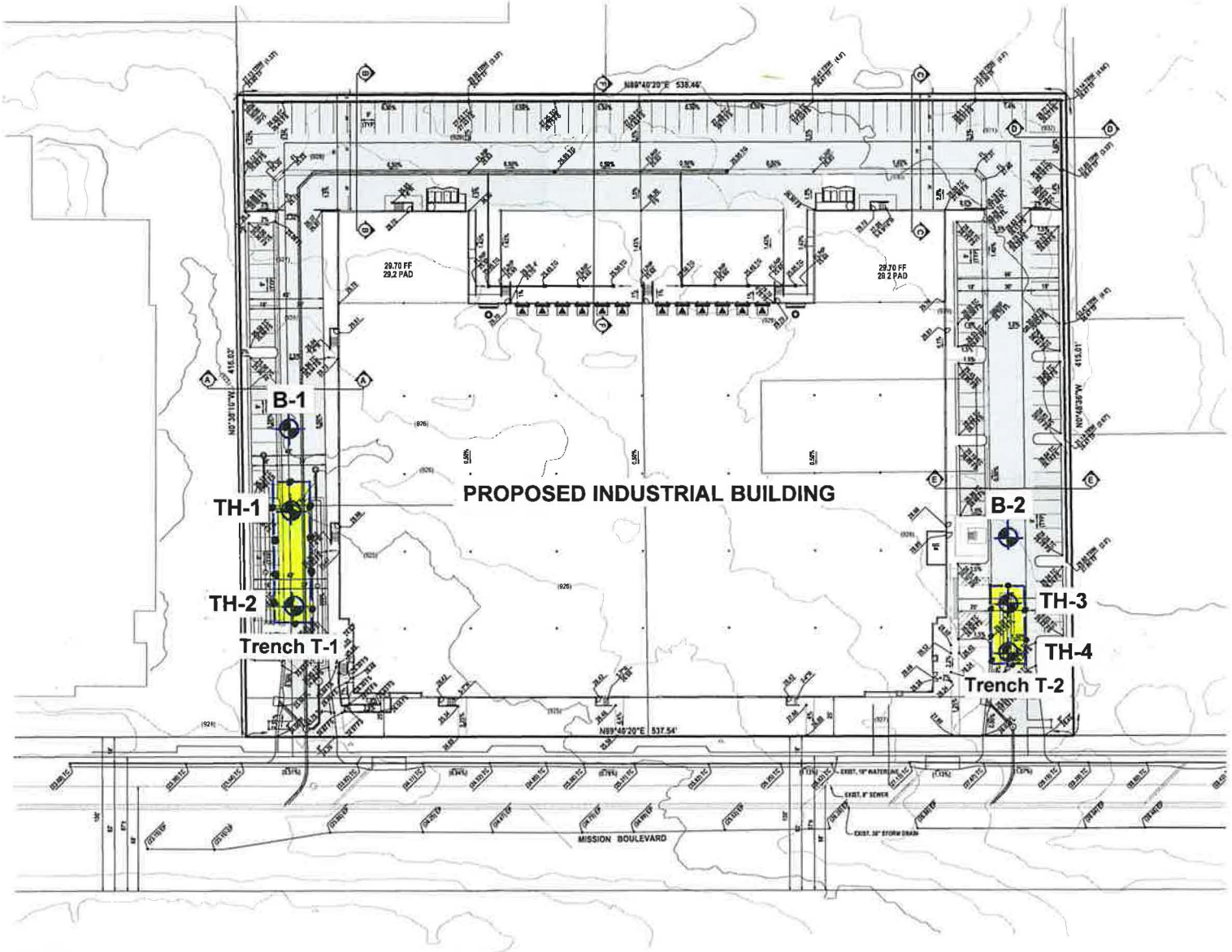
References

1. City of Montclair – Site Evaluation and Testing Protocols for Storm Water Infiltration Best Management Practices.

2. San Bernardino County – Appendix VII - Infiltration Rate Evaluation Protocol and Factor of Safety Recommendations dated May 19, 2011.

3. California Department of Water Resources, Internet Website, http://www.water.ca.gov/waterdatalibrary/index.cfm.

4. U.S. Geological Survey – J.C Matti and S.E. Carson – Contour Map Showing Minimum Depth to Groundwater, Upper Santa Ana River Valley, California 1973-1979, 1983.



NORTH

1 INCH = 100 FEET

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SOILS AND GEOTECHNICAL CONSULTANTS

PROJECT: 20409-21

DATE: OCTOBER 2021

SITE PLAN

List of Appendices
(in order of appearance)

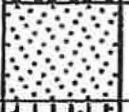
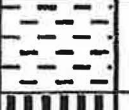
Appendix A – Log of Excavations

- Log of Borings B-1 and B-2
- Log of Trenches T-1 and T-2

Appendix B – Field Infiltration Data

- Field Test Data
- Infiltration Test Calculations

Appendix A
Log of Excavations

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL, SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

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KEY:

■ Indicates 2.5-inch Inside Diameter. Ring Sample.

⊠ Indicates 2-inch OD Split Spoon Sample (SPT).

▧ Indicates Shelby Tube Sample.

◫ Indicates No Recovery.

◧ Indicates SPT with 140# Hammer 30 in. Drop.

▽ Indicates Bulk Sample.

◩ Indicates Small Bag Sample.

◨ Indicates Non-Standard

⊠ Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Don Julian Investment, LLC
22409-21

Log of Boring B-1

Boring Location: 5006 & 5010 Mission, Montclair

Date of Drilling: 10/6/2021 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to coarse grained) SAND Brown, loose, damp					
		NATURAL Silty (fine to coarse grained) SAND Brown, medium dense, damp to moist; with occasional gravel and cobble	■	4/5			42
10		Sandy SILT Brown to grey brown, firm, moist; with occasional gravel	■	5/8			53
25			■	5/7			50
30		Silty (fine to coarse grained) SAND Light brown, dense to very dense, moist; with gravel and occasional cobble					
35							

GWT not encountered

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22409-21

Log of Boring B-2

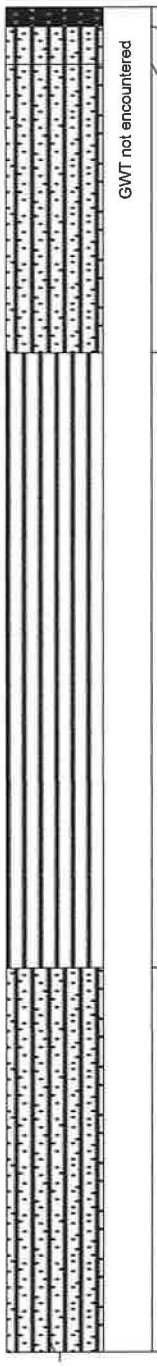
Boring Location: 5006 & 5010 Mission, Montclair

Date of Drilling: 10/6/2021 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured



Depth (feet)	Lithology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		Asphalt Pavement					
		FILL Silty (fine to coarse grained) SAND Brown, medium dense, moist					
		NATURAL Silty (fine to coarse grained) SAND Brown, medium dense, damp to moist; with occasional gravel and cobble					
10		Sandy SILT Brown to grey brown, firm, moist; with occasional gravel	■	4/5			60
20			■	6/7			57
25		Silty (fine to medium grained) SAND Light brown to brown, dense, moist; with gravel and occasional cobble					
30			■	9/13			37
35							

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Don Julian Investment, LLC
22409-21

Log of Boring B-2

Boring Location: 5006 & 5010 Mission, Montclair

Date of Drilling: 10/6/2021 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
35		Silty (fine to medium grained) SAND Light brown to brown, dense, moist; with gravel and occasional cobble					
40		Sandy SILT Brown, firm, moist; with occasional gravel	■	8/11			55
45		Silty (fine to medium grained) SAND Grey-brown, dense, moist; with occasional gravel and some cobble					
50			■	15/17			33
		Boring completed at depth of 51.5'					
55							
60							
65							
70							

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Don Julian Investment, LLC
22409-21

Log of Trench T-1

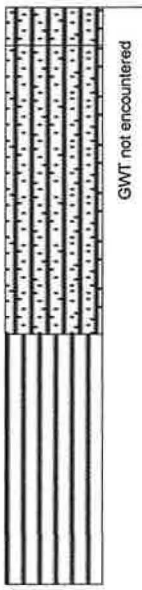
Boring Location: 5006 & 5010 Mission, Montclair

Date of Drilling: 10/6/2021 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured



Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0	FILL Silty (fine to coarse grained) SAND Brown, loose, damp					
	NATURAL Silty (fine to coarse grained) SAND Brown, medium dense, damp to moist; with occasional gravel and cobble					
5						
10	Sandy SILT Brown to grey brown, firm, moist; with occasional gravel					
15	Trench completed at depth of 15'	☒				51
20						
25						
30						
35						

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22409-21

Log of Trench T-2

Boring Location: 5006 & 5010 Mission, Montclair

Date of Drilling: 10/6/2021 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		Asphalt Pavement					
		FILL Silty (fine to coarse grained) SAND Brown, loose, damp					
		NATURAL Silty (fine to coarse grained) SAND Brown, medium dense, damp to moist; with occasional gravel and cobble					
5							
10		Sandy SILT Brown to grey brown, firm, moist; with occasional gravel					
15							
20		Boring completed at depth of 20'	☑				54
25							
30							
35							

GWT not encountered

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Appendix B
Field Infiltration Data

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Project: Don Julian Investments, LLC
Project No.: 22409-21
Date: 10/6/2021
Test No. TH-1
Depth: 15'
Tested By: J.S. Jr.

TIME (hr/min)	CHANGE TIME (min)	CUMULATIVE TIME (min)	INNER RING READING (cm)	INNER RING CHANGE	INNER RING FLOW (cc)	OUTER RING READING (cm)	OUTER RING CHANGE	OUTER RING FLOW (cc)	INNER RING INF RATE (cm/hr)	OUTER RING INF RATE (cm/hr)	INNER RING INF RATE (ft/hr)
9:20			38.0			99.5					
9:30	10	10	39.6	1.6		101.4	1.9				
9:30			39.6			101.4					
9:40	10	20	41.0	1.4		102.5	1.1				
9:40			41.0			102.5					
9:50	10	30	42.4	1.4		104.0	1.5				
9:50			42.0			104.0					
10:00	10	40	43.5	1.5		105.7	1.7				
10:00			35.5			99.1					
10:10	10	50	37.3	1.8		100.5	1.4				
10:10			37.3			100.5					
10:20	10	60	38.9	1.6		102.0	1.5				
10:20			37.0			99.0					
10:30	10	70	38.2	1.2		100.4	1.4		7.2	8.4	
10:30			38.2			100.4					
10:40	10	80	39.4	1.2		101.7	1.3		7.2	7.8	
10:40			39.4			101.7					
10:50	10	90	40.6	1.8		103.0	1.3		10.8	7.8	
10:50			40.6			103.0					
11:00	10	100	42.0	1.4		104.4	1.4		8.4	8.4	
11:00			37.1			100.4					
11:10	10	110	38.3	1.2		101.7	1.3		7.2	7.8	
11:10			38.3			101.7					
11:20	10	120	39.4	1.1		103.0	1.3		6.6	7.8	

Average = 7.9 / 8.0 cm/hr

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SOILS AND GEOTECHNICAL CONSULTANTS

Project: Don Julian Investments, LLC
Project No.: 22409-21
Date: 10/6/2021
Test No. TH-2
Depth: 15'
Tested By: J.S. Jr.

TIME (hr/min)	CHANGE TIME (min)	CUMULATIVE TIME (min)	INNER RING READING (cm)	INNER RING CHANGE	INNER RING FLOW (cc)	OUTER RING READING (cm)	OUTER RING CHANGE	OUTER RING FLOW (cc)	INNER RING INF RATE (cm/hr)	OUTER RING INF RATE (cm/hr)	INNER RING INF RATE (ft/hr)
9:20			74.0			46.5					
9:30	10	10	76.5	2.5		49.2	2.7				
9:30			69.5			42.0					
9:40	10	20	72.0	2.5		44.9	2.9				
9:40			72.0			44.9					
9:50	10	30	74.2	2.2		47.0	2.1				
9:50			69.0			41.8					
10:00	10	40	71.2	2.2		44.0	2.2				
10:00			71.2			44.0					
10:10	10	50	73.3	2.1		46.3	2.3				
10:10			69.5			42.7					
10:20	10	60	71.5	2.0		44.7	2.0		12.0	12.0	
10:20			71.5			44.7					
10:30	10	70	73.8	2.3		46.7	2.0		13.8	12.0	
10:30			69.0			42.0					
10:40	10	80	71.3	2.3		44.3	2.3		13.8	13.8	
10:40			71.3			44.3					
10:50	10	90	73.0	1.7		46.2	1.9		10.2	11.4	
10:50			73.0			46.2					
11:00	10	100	75.0	2.0		48.2	2.0		12.0	12.0	
11:00			69.3			41.9					
11:10	10	110	71.2	1.9		43.8	1.9		11.4	11.4	
11:10			71.2			43.8					
11:20	10	120	73.2	2.0		45.9	2.1		12.0	12.6	

Average = 12.2 / 12.2 cm/hr

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SOILS AND GEOTECHNICAL CONSULTANTS

Project: Don Julian Investments, LLC
Project No.: 22409-21
Date: 10/6/2021
Test No. TH-3
Depth: 20'
Tested By: J.S. Jr.

TIME (hr/min)	CHANGE TIME (min)	CUMULATIVE TIME (min)	INNER RING READING (cm)	INNER RING CHANGE	INNER RING FLOW (cc)	OUTER RING READING (cm)	OUTER RING CHANGE	OUTER RING FLOW (cc)	INNER RING INF RATE (cm/hr)	OUTER RING INF RATE (cm/hr)	INNER RING INF RATE (ft/hr)
11:43			36.7			68.5					
11:53	10	10	38.0	1.3		73.0	4.5				
11:53			38.0			73.0					
12:03	10	20	40.0	2.0		76.0	3.0				
12:03			37.5			70.0					
12:13	10	30	39.7	2.2		73.5	3.5				
12:13			39.7			73.5					
12:23	10	40	41.5	1.8		76.3	2.8				
12:23			41.5			76.3					
12:33	10	50	43.5	2.0		79.5	3.2				
12:33			36.5			68.0					
12:43	10	60	38.4	1.9		71.5	3.5		11.4	21.0	
12:43			38.4			71.4					
12:53	10	70	40.5	2.1		74.6	3.2		12.6	19.2	
12:53			40.5			74.6					
1:03	10	80	42.4	1.9		77.9	3.3		11.4	19.8	
1:03			38.0			70.5					
1:13	10	90	40.0	2.0		73.7	3.2		12.0	19.2	
1:13			40.0			73.7					
1:23	10	100	42.5	2.5		76.0	2.3		15.0	13.8	
1:23			37.0			69.2					
1:33	10	110	39.0	2.0		72.3	3.1		12.0	18.6	
1:33			39.0			72.3					
1:43	10	120	41.2	2.2		75.3	3.0		13.2	18.0	

Average = 12.5 / 18.5 cm/hr

NORCAL ENGINEERING

SOILS AND GEOTECHNICAL CONSULTANTS

Project: Don Julian Investments, LLC
Project No.: 22409-21
Date: 10/6/2021
Test No. TH-4
Depth: 20'
Tested By: J.S. Jr.

TIME (hr/min)	CHANGE TIME (min)	CUMULATIVE TIME (min)	INNER RING READING (cm)	INNER RING CHANGE	INNER RING FLOW (cc)	OUTER RING READING (cm)	OUTER RING CHANGE	OUTER RING FLOW (cc)	INNER RING INF RATE (cm/hr)	OUTER RING INF RATE (cm/hr)	INNER RING INF RATE (ft/hr)
11:43			100.5			39.2					
11:53	10	10	103.2	2.7		41.3	2.1				
11:53			97.0			33.0					
12:03	10	20	98.5	1.5		35.0	2.0				
12:03			100.0			38.5					
12:13	10	30	101.2	1.2		40.3	1.8				
12:13			101.2			40.3					
12:23	10	40	102.5	1.3		42.1	1.8				
12:23			102.5			42.1					
12:33	10	50	104.0	1.5		44.0	1.9				
12:33			99.0			38.8					
12:43	10	60	100.0	1.0		40.5	1.7		6.0	10.2	
12:43			100.0			40.5					
12:53	10	70	101.5	1.5		42.0	1.5		9.0	9.0	
12:53			101.5			42.0					
1:03	10	80	102.8	1.3		43.4	1.4		7.8	8.4	
1:03			100.5			38.0					
1:13	10	90	101.7	1.2		39.8	1.8		7.2	10.8	
1:13			101.7			39.8					
1:23	10	100	103.2	1.5		41.5	1.7		9.0	10.2	
1:23			103.2			41.5					
1:33	10	110	104.3	1.1		43.5	2.0		6.6	12.0	
1:33			100.3			38.2					
1:43	10	120	101.6	1.3		39.8	1.6		7.8	9.6	

Average = 7.6 / 10.0 cm/hr