MAGNUM ENGINEERING INC

GEOTECHNICAL ENGINEERING CONSULTANTS

GEOTECHNICAL ENGINEERING REPORT

DEERWOOD SUBDIVISION
MILTON, FLORIDA

PREPARED FOR:

Mr. James Thames
67 Whittion Road
Wellesley, MA 02582
c/o Dewberry Engineers Inc.
203 Aberdeen Parkway
Panama City, Florida 32405

1026 PIERSON DRIVE
LYNN HAVEN, FLORIDA 32444
TELEPHONE (850) 258.0994

MAGNUM ENGINEERING INC

GEOTECHNICAL ENGINEERING CONSULTANTS

July 27, 2020

Mr. James Thames
67 Whittion Road
Wellesley, MA 02582
c/o Dewberry Engineers, Inc.
203 Aberdeen Parkway
Panama City, Florida 32405

SUBJECT: Deerwood Subdivision - Geotechnical Services
Milton, Florida
MEI Project No. M120-100-283

Dear Mr. Thames:

This letter forwards the results of the geotechnical services performed for the proposed Deerwood Subdivision in Milton, Florida. The purpose of this exploration was to determine soil types, groundwater depths, and the estimated seasonal high groundwater levels in the proposed stormwater pond areas.

Project Description and Scope of Work

The subject site is located west of Tanglewood Drive and south of Willard Norris Road in Milton, Florida. At the time of our exploration, the easternmost portion of the site was developed with a plantation style residence with existing circle drive and gardens. Large mature oak trees were scattered across the property. The western side of the property was heavily wooded and consisted of mature pine trees.

Our exploration consisted of Three (3) 20-feet deep Standard Penetration Test (SPT) borings, Three (3) 10-feet deep auger borings, and Three (3) Double Ring Infiltrometer (DRI) Tests in the proposed stormwater management area.

Subsurface Conditions

Figure #1 shows the boring location plan and Figure #2 shows the Logs of Borings designated as B-1 through B-6. The borings were located in the field using the provided site plan with LAT/LONG coordinates and our hand-held GPS unit. Therefore, the boring locations should be considered only as accurate as the hand-held GPS unit (+/- 9 feet). The subsurface conditions encountered in the test borings will be discussed in general terms below.

The SPT borings (B-2. B-4, and B-6) generally encountered very loose to loose slightly silty fine sands from the ground surface to approximately 4 feet to 6 feet below existing grade underlain by loose to medium dense slightly clayey fine sands, clayey fine sands, and silty fine sands to the boring termination depth of 20 feet below existing grade.

The auger borings (B-1, B-3, and B-5) generally encountered slightly silty fine sands from the ground surface to approximately 4 ½ to 6 ½ feet below existing grades underlain by silty and clayey fine sands to the boring termination depth of 10 feet below existing grade.

The above subsurface descriptions are of a generalized nature, provided to highlight the major soil strata encountered. The Logs of Boring should be reviewed for specific subsurface conditions at each boring location. The stratifications shown on the Logs of Boring represent the subsurface conditions at the actual boring locations only, and variations in the subsurface conditions can and may occur between boring locations and should therefore be expected. The stratifications represent the approximate boundary between subsurface materials, and the transitions between strata may be gradual.

Please refer to the attached Logs of Borings presented as Figure #2 for a more detailed profile of the soils encountered.

Groundwater Conditions

Groundwater was encountered at roughly 13.0 feet below existing grade at the time of drilling (July 14, 2020), which was during a period of slightly below normal seasonal rainfall. By definition, the normal seasonal high groundwater table elevation is the highest level of the saturated zone in the soil during a year with normal rainfall. The procedure used in estimating the seasonal high groundwater table is based on adjusting the existing groundwater table encountered upward or downward and taking into consideration factors such as antecedent rainfall, redoximorphic features (identifying soil mottling) and vegetative indicators. The following Table #1 provides the groundwater levels and estimated seasonal high groundwater levels at each boring location. Groundwater levels will fluctuate with rainfall and could vary several feet during typical seasonal fluctuations. Larger fluctuations are possible under severe weather conditions.

TABLE #1
GROUNDWATER DATA

TEST LOCATION	DEPTH TO EXISTING GROUNDWATER TABLE (ft)	DEPTH TO ESTIMATED SEASONAL HIGH GROUNDWATER TABLE (ft)
B-1	>10.0 feet	10.0 feet
B-2	13.0 feet	10.0 feet
B-3	>10.0 feet	10.0 feet
B-4	13.0 feet	10.0 feet
B-5	>10.0 feet	10.0 feet
B-6	13.0 feet	10.0 feet

General

The following geotechnical related design recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there are any changes in these project criteria, including project location on the site, a review should be made by Magnum Engineering to determine if modifications to the recommendations are warranted.

Once final design plans and specifications are available, a general review by Magnum Engineering is recommended as a means to check that the evaluations made in preparation of this report are correct and that earthwork and foundation recommendations are properly interpreted and implemented

Double Ring Infiltrometer Test

Three (3) Double Ring Infiltrometer tests were performed in the field in general accordance with the procedures outlined in ASTM D-3385, ``Infiltration Rate of Soils in Field using Double Ring Infiltrometers''. Testing consisted of initially clearing all surface vegetation and topsoil from within the test area. The Infiltration test was performed approximately 1.5 feet below existing grade at test locations DRI-1, DRI-2, and DRI-3. The outer ring, which is approximately 24 inches in diameter, was then driven to a depth of 6 inches below the exposed ground surface. The inner ring, approximately 12 inches in diameter, was then centrally located within the outer ring and driven to a depth of 2 inches. The two rings were then simultaneously filled with water to a height of 4 inches above the exposed ground surface test soils. The water level was maintained at this height throughout the test period, with the required amount of water added to maintain this level in both rings recorded at time intervals of 5 minutes.

The infiltration rate for the inner ring and the annular space between the rings is determined by dividing (a) the water volume used (within each specific area) during the stabilized flow period of the test, by (b) the specific area and (c) the time interval. Infiltration rates are generally converted to units of inches per hour. The infiltration rate for the inner ring, if different than the infiltration rate of the annular area between the rings, according to ASTM, should be used as the infiltration rate for the soils.

ENVIRONMENTAL RESOURCE PERMITTING (ERP) DESIGN PARAMETERS

DRI-1

DESCRIPTION	LOCATION	DESIGN PARAMTER
SUSTAINED INFILTRATION RATE (K_{VU})	DRI-1	4.9* in/hr
TEST DEPTH	DRI-1	1.5 ft
FILLABLE POROSITY	DRI-1	25%
DEPTH TO EXISTING GROUNDWATER TABLE	DRI-1	13.0 feet
DEPTH TO ESTIMATED SEASONAL HIGH GROUNDWATER TABLE	DRI-1	10.0 feet

DRI-2

DESCRIPTION	LOCATION	DESIGN PARAMTER
SUSTAINED INFILTRATION RATE (K_{VU})	DRI-2	2.3* in/hr
TEST DEPTH	DRI-2	1.5 ft
FILLABLE POROSITY	DRI-2	25%
DEPTH TO EXISTING GROUNDWATER TABLE	DRI-2	13.0 feet
DEPTH TO ESTIMATED SEASONAL HIGH GROUNDWATER TABLE	DRI-2	10.0 feet

DRI-3

DESCRIPTION	LOCATION	DESIGN PARAMTER
SUSTAINED INFILTRATION RATE (K_{VU})	DRI-3	16.8* in/hr
TEST DEPTH	DRI-3	1.5 ft
FILLABLE POROSITY	DRI-3	25%
DEPTH TO EXISTING GROUNDWATER TABLE	DRI-3	13.0 feet
DEPTH TO ESTIMATED SEASONAL HIGH GROUNDWATER TABLE	DRI-3	10.0 feet

*** Note: The above infiltration rate has not been factored and is up to the designer to apply an appropriate factor of safety.**

We recommend using a transformation ratio of 1 horizontal to 1 vertical (i.e. the estimated ratio of horizontal to vertical permeability).

Warranty and Limitations of Study

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied. Magnum Engineering, Inc. is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

Soil conditions at other locations may differ from those encountered in the test borings, and the passage of time may cause the soils conditions to change from those described in this report.

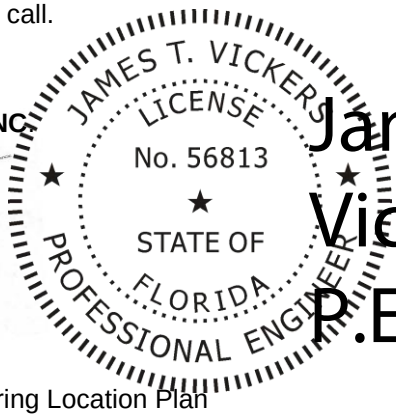
This report is intended for use by the designers of this project. While we have no objections to it being provided for review by parties to this project, it is not a specification document and is not to be used as a part of the specifications. If desired, we can assist in the development of specifications for this project based upon our exploration.

The nature and extent of variation and change in the subsurface conditions at the site may not become evident until the course of construction. Construction monitoring by the geotechnical engineer or his representative is therefore considered necessary to verify the subsurface conditions and to check that the soils connected construction phases are properly carried out. If significant variations or changes are in evidence, it may be necessary to reevaluate the recommendations in this report.

Furthermore, if the project characteristics are altered significantly from those discussed in this report, or if the project information contained in this report is incorrect and additional information becomes available, a review must be made by this office to determine if any modifications in the recommendations will be necessary.

We hope this letter provides sufficient information for the present. If you have any questions or comments, please feel free to call.

Sincerely,
MAGNUM ENGINEERING, INC.



James T. Vickers, P.E.
Digitally signed by James T. Vickers, P.E.
Date: 2020.07.27 13:32:10 -05'00'

JAMES T. VICKERS, P.E.
Sr. Geotechnical Engineer
Florida Reg. #56813

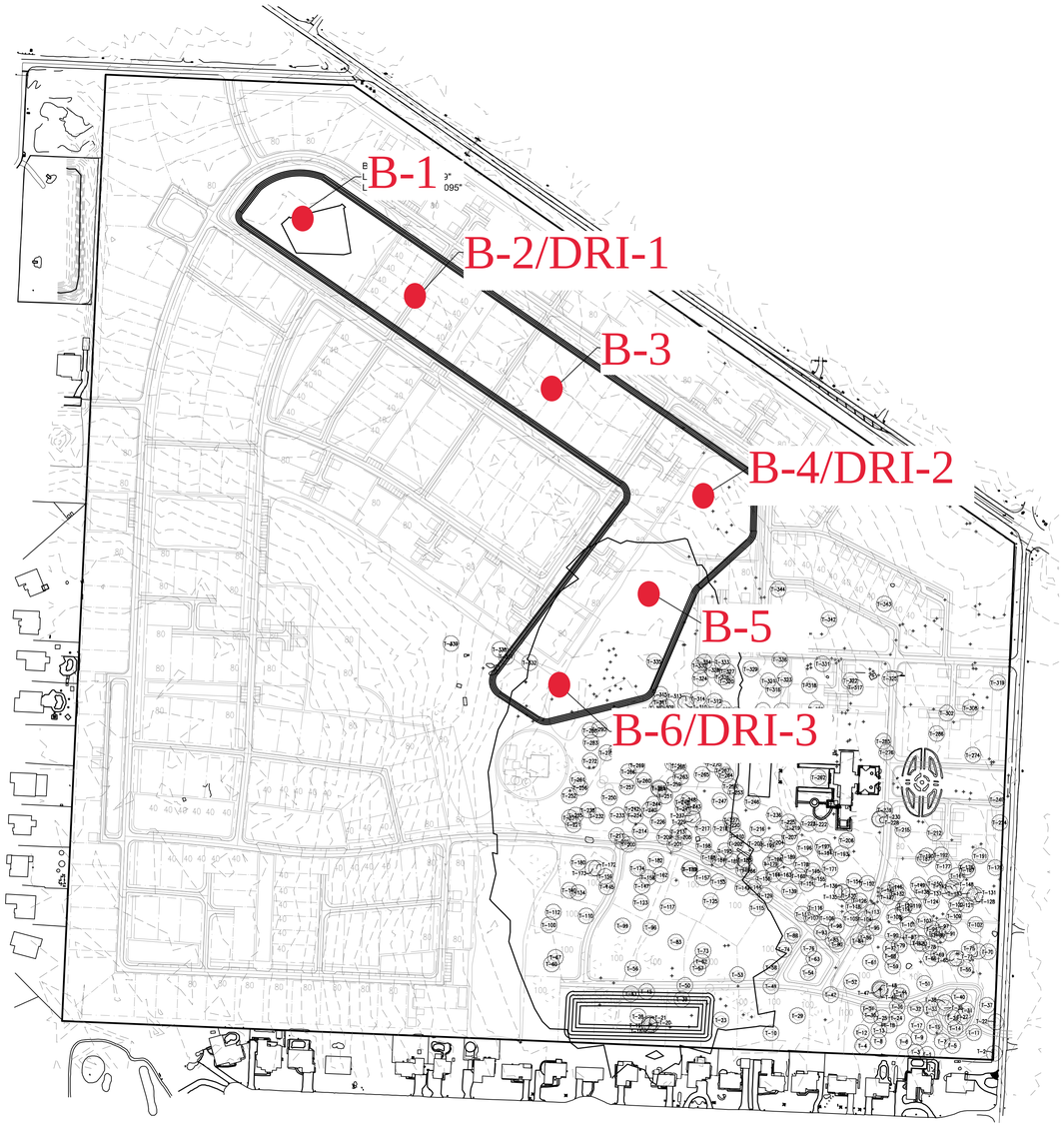
Attachments: Figure #1 – Boring Location Plan
Figure #2 – Logs of Borings
Appendix A – Double Ring Infiltrometer Test Results

MAGNUM ENGINEERING INC

GEOTECHNICAL ENGINEERING CONSULTANTS

BORING LOCATION PLAN

FIGURE # 1



Dewberry
203 Aberdeen Parkway
Panama City, FL 32405
850.522.0644

THAMES PROPERTY
DEERWOOD

SEAL

JONATHAN SKLARSKI, P.E. 67361
EB 0008794

PRELIMINARY DOCUMENTS
NOT FOR CONSTRUCTION

SCALE

0' 100' 200' 400'
SCALE: 1" = 200'

REVISIONS

NO.	DESCRIPTION	DATE

DRAWN BY BWR
APPROVED BY
CHECKED BY
DATE JUNE 2020

TITLE

BORE LOCATION MAP

PROJECT NO. 50112836

1

SHEET NO.

June 8, 2020 (07:04:33 EST)
K:\50112836_JAMES THAMES_DEERWOOD PUD_CIVIL\3D\FOLDER_EXHIBITS\2020-06-08_BLM\THAMES PROPERTY - PLAN 1-23-20 NO RETAILING BORE LOC MAP BY: BROCHER

MAGNUM ENGINEERING INC

GEOTECHNICAL ENGINEERING CONSULTANTS

LOGS OF BORINGS

FIGURE # 2

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-1

CLIENT Dewberry Engineers, Inc. **PROJECT NAME** Deerwood S/D Milton

PROJECT NUMBER M120-100-283 **PROJECT LOCATION** Milton, Florida

DATE STARTED 7/14/20 **COMPLETED** 7/14/20 **GROUND ELEVATION** _____ **HOLE SIZE** _____

DRILLING CONTRACTOR GeoDrill Tech, LLC **GROUND WATER LEVELS:**

DRILLING METHOD Hand Auger Boring **DEPTH TO GROUNDWATER AT TIME OF DRILLING** ---

LOGGED BY J. Governale **CHECKED BY** J. Vickers **ESTIMATED SEASONAL HIGH GWT** ---

NOTES _____ **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Brown Slightly Silty Fine SAND (SP-SM)	AU									
2.5												
5.0												
7.5		Brown Silty Fine SAND with Trace of Clay (SM)										
10.0		Boring Termination Depth at 10.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-2

CLIENT Dewberry Engineers, Inc. **PROJECT NAME** Deerwood S/D Milton

PROJECT NUMBER M120-100-283 **PROJECT LOCATION** Milton, Florida

DATE STARTED 7/14/20 **COMPLETED** 7/14/20 **GROUND ELEVATION** _____ **HOLE SIZE** _____

DRILLING CONTRACTOR GeoDrill Tech, LLC **GROUND WATER LEVELS:**

DRILLING METHOD Standard Penetration Test (SPT) ▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 13.0 ft

LOGGED BY J. Governale **CHECKED BY** J. Vickers **ESTIMATED SEASONAL HIGH GWT** ---

NOTES _____ **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Brown Slightly Silty Fine SAND (SP-SM)	SS 1		2-3-3-4 (6)							
		Brown/Orange Slightly Silty Fine SAND with Trace of Clay (SP-SM)	SS 2		1-2-1-2 (3)							
5		Orange/Brown Clayey Fine SAND (SC)	SS 3		3-4-4-5 (8)							
		Orange/Brown Slightly Clayey Fine SAND (SP-SC)	SS 4		3-4-3-4 (7)							
10		▽	SS 5		4-5-5-5 (10)							
15		Tan/Orange Silty Fine SAND (SM)	SS 6		6-10-12 (22)							
20		Brown/Orange Medium to Fine Clayey SAND (SW-SM)	SS 7		10-13-15 (28)							
		Boring Termination Depth at 20.0 feet.										

GEOTECH BH COLUMNS DEERWOOD SUBDIVISION MILTON.GPJ GINT STD US LAB.GDT 7/23/20

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-3

CLIENT Dewberry Engineers, Inc.
PROJECT NAME Deerwood S/D Milton
PROJECT NUMBER M120-100-283
PROJECT LOCATION Milton, Florida
DATE STARTED 7/14/20 **COMPLETED** 7/14/20
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GeoDrill Tech, LLC
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
DEPTH TO GROUNDWATER AT TIME OF DRILLING ---
LOGGED BY J. Governale **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Brown Slightly Silty Fine SAND (SP-SM)	AU									
2.5												
5.0		Brown Silty Fine SAND with Trace of Clay (SM)										
		Brown Silty Fine SAND (SM)										
7.5												
10.0		Boring Termination Depth at 10.0 feet.										

GEOTECH BH COLUMNS DEERWOOD SUBDIVISION MILTON.GPJ GINT STD US LAB.GDT 7/23/20

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-4

CLIENT Dewberry Engineers, Inc. **PROJECT NAME** Deerwood S/D Milton

PROJECT NUMBER M120-100-283 **PROJECT LOCATION** Milton, Florida

DATE STARTED 7/14/20 **COMPLETED** 7/14/20 **GROUND ELEVATION** _____ **HOLE SIZE** _____

DRILLING CONTRACTOR GeoDrill Tech, LLC **GROUND WATER LEVELS:**

DRILLING METHOD Standard Penetration Test (SPT) ▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 13.0 ft

LOGGED BY J. Governale **CHECKED BY** J. Vickers **ESTIMATED SEASONAL HIGH GWT** ---

NOTES _____ **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Brown Slightly Silty Fine SAND (SP-SM)	SS 1		3-4-4-5 (8)							
			SS 2		3-2-2-2 (4)							
5			SS 3		2-4-4-5 (8)							
		Red/Brown Clayey Fine SAND (SC)	SS 4		3-4-3-4 (7)							
		Red/Orange Slightly Clayey Fine SAND (SP-SC)	SS 5		3-4-6-6 (10)							
10		▽										
		Brown/Orange Clayey Fine SAND (SC)	SS 6		8-8-9 (17)							
15												
		Gray/Orange Slightly Silty Fine SAND with Trace of Clay (SP-SM)	SS 7		7-11-13 (24)							
20		Boring Termination Depth at 20.0 feet.										

GEOTECH BH COLUMNS DEERWOOD SUBDIVISION MILTON.GPJ GINT STD US LAB.GDT 7/23/20

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-5

CLIENT Dewberry Engineers, Inc. **PROJECT NAME** Deerwood S/D Milton

PROJECT NUMBER M120-100-283 **PROJECT LOCATION** Milton, Florida

DATE STARTED 7/14/20 **COMPLETED** 7/14/20 **GROUND ELEVATION** _____ **HOLE SIZE** _____

DRILLING CONTRACTOR GeoDrill Tech, LLC **GROUND WATER LEVELS:**

DRILLING METHOD Hand Auger Boring **DEPTH TO GROUNDWATER AT TIME OF DRILLING** ---

LOGGED BY J. Governale **CHECKED BY** J. Vickers **ESTIMATED SEASONAL HIGH GWT** ---

NOTES _____ **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Brown Slightly Silty Fine SAND (SP-SM)	AU									
5.0		Tan/Orange Slightly Clayey Fine SAND (SP-SC)										
7.5		Gray/Brown Clayey Fine SAND (SC)										
		Brown/Orange Slightly Clayey Fine SAND (SP-SC)										
10.0		Boring Termination Depth at 10.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-6

CLIENT Dewberry Engineers, Inc. **PROJECT NAME** Deerwood S/D Milton

PROJECT NUMBER M120-100-283 **PROJECT LOCATION** Milton, Florida

DATE STARTED 7/14/20 **COMPLETED** 7/14/20 **GROUND ELEVATION** _____ **HOLE SIZE** _____

DRILLING CONTRACTOR GeoDrill Tech, LLC **GROUND WATER LEVELS:**

DRILLING METHOD Standard Penetration Test (SPT) ▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 13.0 ft

LOGGED BY J. Governale **CHECKED BY** J. Vickers **ESTIMATED SEASONAL HIGH GWT** ---

NOTES _____ **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Brown Slightly Silty Fine SAND (SP-SM)	SS 1		2-3-3-2 (6)							
			SS 2		2-3-2-3 (5)							
5			SS 3		3-3-3-3 (6)							
		Brown/Orange Slightly Clayey Fine SAND (SP-SC)										
		Brown/Orange Clayey Fine SAND (SC)	SS 4		3-4-3-4 (7)							
			SS 5		3-3-3-3 (6)							
10												
		▽										
			SS 6		7-8-10 (18)							
15												
		Tan/Orange Silty Fine SAND with Trace of Clay (SM)	SS 7		8-10-12 (22)							
20		Boring Termination Depth at 20.0 feet.										

GEOTECH BH COLUMNS DEERWOOD SUBDIVISION MILTON.GPJ GINT STD US LAB.GDT 7/23/20

MAGNUM ENGINEERING INC

GEOTECHNICAL ENGINEERING CONSULTANTS

DOUBLE RING INFILTROMETER TEST RESULTS

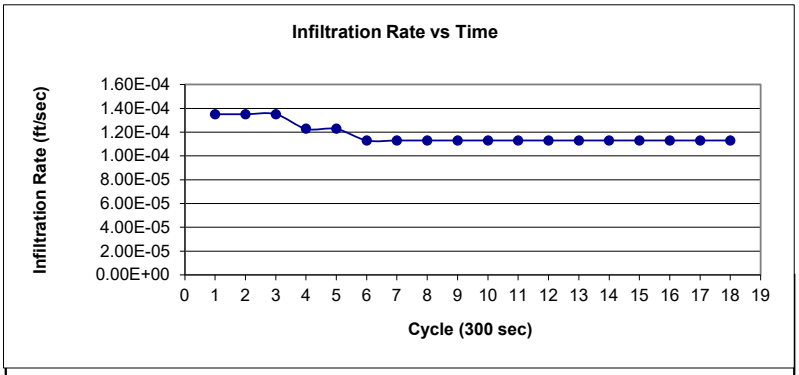
APPENDIX A

MAGNUM ENGINEERING INC
GEOTECHNICAL ENGINEERING CONSULTANTS

Double-Ring Field Infiltration Test

Test Location:	DRI at B-2			
Project Name:	Deerwood Subdivision			
Project Location:	Milton, Florida			
Test Depth:	1.5	ft		
Depth to GWT:	13	ft		
Inner Ring Diameter:	12	in	0.3048	m
Outer Ring Diameter:	24	in	0.6096	m
Pre-Saturation	30	min		
Area Outer Ring:	3.1416	ft^2	0.00202683	m^2
Area Inner Ring:	0.7854	ft^2	0.00050671	m^2
Net Outer Ring Area:	2.3562	ft^2	0.00152013	m^2

	Inner Ring		
Cycle	ElapTime (sec)	Vol Used (in^3)	Infiltration Rate (ft/sec)
1	300	55	1.35E-04
2	300	55	1.35E-04
3	300	55	1.35E-04
4	300	50	1.23E-04
5	300	50	1.23E-04
6	300	46	1.13E-04
7	300	46	1.13E-04
8	300	46	1.13E-04
9	300	46	1.13E-04
10	300	46	1.13E-04
11	300	46	1.13E-04
12	300	46	1.13E-04
13	300	46	1.13E-04
14	300	46	1.13E-04
15	300	46	1.13E-04
16	300	46	1.13E-04
17	300	46	1.13E-04
18	300	46	1.13E-04
Results	Sustained Rate	48	1.18E-04



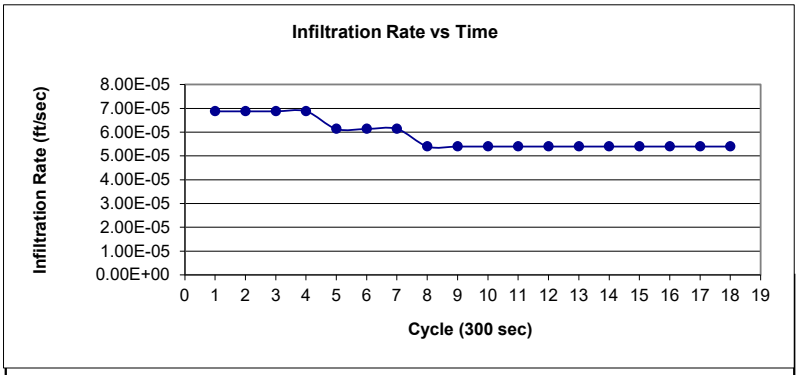
Infiltration Rate: **3.44E-03 cm/sec** **4.9 in/hr**

MAGNUM ENGINEERING INC
GEOTECHNICAL ENGINEERING CONSULTANTS

Double-Ring Field Infiltration Test

Test Location:	DRI at B-4			
Project Name:	Deerwood Subdivision			
Project Location:	Milton, Florida			
Test Depth:	1.5	ft		
Depth to GWT:	13	ft		
Inner Ring Diameter:	12	in	0.3048	m
Outer Ring Diameter:	24	in	0.6096	m
Pre-Saturation	30	min		
Area Outer Ring:	3.1416	ft^2	0.00202683	m^2
Area Inner Ring:	0.7854	ft^2	0.00050671	m^2
Net Outer Ring Area:	2.3562	ft^2	0.00152013	m^2

	Inner Ring		
Cycle	ElapTime (sec)	Vol Used (in^3)	Infiltration Rate (ft/sec)
1	300	28	6.88E-05
2	300	28	6.88E-05
3	300	28	6.88E-05
4	300	28	6.88E-05
5	300	25	6.14E-05
6	300	25	6.14E-05
7	300	25	6.14E-05
8	300	22	5.40E-05
9	300	22	5.40E-05
10	300	22	5.40E-05
11	300	22	5.40E-05
12	300	22	5.40E-05
13	300	22	5.40E-05
14	300	22	5.40E-05
15	300	22	5.40E-05
16	300	22	5.40E-05
17	300	22	5.40E-05
18	300	22	5.40E-05
Results	Sustained Rate	24	5.85E-05



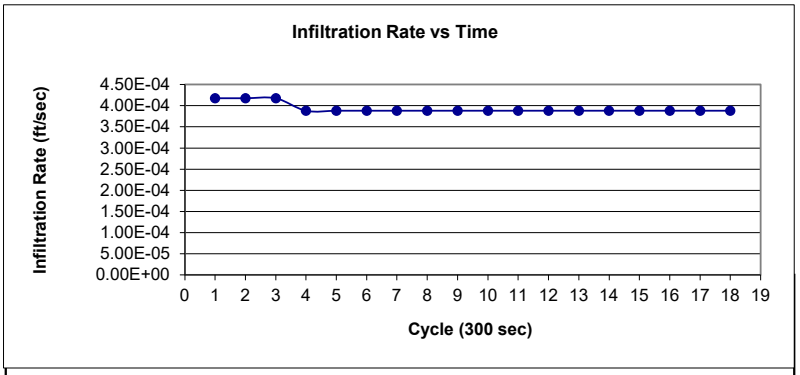
Infiltration Rate: **1.65E-03 cm/sec** **2.3 in/hr**

MAGNUM ENGINEERING INC
GEOTECHNICAL ENGINEERING CONSULTANTS

Double-Ring Field Infiltration Test

Test Location:	DRI at B-6			
Project Name:	Deerwood Subdivision			
Project Location:	Milton, Florida			
Test Depth:	1.5	ft		
Depth to GWT:	13	ft		
Inner Ring Diameter:	12	in	0.3048	m
Outer Ring Diameter:	24	in	0.6096	m
Pre-Saturation	30	min		
Area Outer Ring:	3.1416	ft^2	0.00202683	m^2
Area Inner Ring:	0.7854	ft^2	0.00050671	m^2
Net Outer Ring Area:	2.3562	ft^2	0.00152013	m^2

	Inner Ring		
Cycle	ElapTime (sec)	Vol Used (in^3)	Infiltration Rate (ft/sec)
1	300	170	4.18E-04
2	300	170	4.18E-04
3	300	170	4.18E-04
4	300	158	3.88E-04
5	300	158	3.88E-04
6	300	158	3.88E-04
7	300	158	3.88E-04
8	300	158	3.88E-04
9	300	158	3.88E-04
10	300	158	3.88E-04
11	300	158	3.88E-04
12	300	158	3.88E-04
13	300	158	3.88E-04
14	300	158	3.88E-04
15	300	158	3.88E-04
16	300	158	3.88E-04
17	300	158	3.88E-04
18	300	158	3.88E-04
Results	Sustained Rate	160	3.93E-04



Infiltration Rate: **1.18E-02 cm/sec** **16.8 in/hr**