Kenney Geotechnical Engineering Services, PLLC
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Phone: (315) 638-2706 Fax: (315) 638-1544

Kenney Geotechnical Services

May 18, 2020

Allen Homes
<via email>

Attn: Tom Douglas

Re.: Earthwork Material Evaluation
Woodland Hills – Hoag Lane Subdivision
Town of Manlius, NY

Dear Tom,

Pursuant to your request and authorization, Kenney Geotechnical Engineering Services, PLLC has performed additional subsurface investigation at the Woodland Hills project site. The purpose of the additional subsurface investigation was to provide evaluate the engineering characteristics of on site materials to determine if they are suitable for use during earthwork. The scope of the additional investigation included eight test pits (designated as TP-1 through TP-8) and laboratory testing. This report presents the results of the test pit investigation and laboratory testing and provides quality assurance/quality control recommendations for earthwork.

No environmental services are included in this study. No conclusions have been drawn regarding environmental conditions of the site, potential contaminants, potential special treatment or disposal of site materials, or other environmental considerations.

Subsurface investigation was performed at the locations designated on mapping prepared by Keplinger Freeman Associates Landscape Architecture (see attached). Test pits were excavated by J. K. Tobin Construction.

Subsurface Conditions Encountered- Test Pits

In general the test pits encountered glacial till consisting of stiff to hard reddish brown sandy clay with gravel, cobbles and boulders beneath a thin layer of topsoil. Topsoil ranged from 12 inches to 23 inches in thickness at the test pit locations.

Differing subsurface conditions were encountered at location TP-6. At this location, silty gravel with sand was encountered beneath approximately one foot of topsoil and extended to a depth of three feet, where highly weathered grey shale was encountered. The shale was brittle and could be excavated to a depth of five feet.

Test pit logs are attached to this report.

Laboratory Testing

Bulk samples were obtained from the test pits and tested in our Syracuse laboratory. Testing performed included:

- Moisture- Density Relationship Testing (Modified Effort) (ASTM D-1557)
- Natural Moisture Content (ASTM D 2216)
- Particle Size Analysis with Hydrometer (ASTM D-422)
- Atterberg Limits (ASTM D4318)

Test results are attached. Results are summarized in the following table:

Sample ID	Description	Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Max. Dry Density (pcf)	Optimum Moisture Content (%)	Fines (%)
TPS-1	Red-brown Till	9	21	15	6	-	-	57
TPS-2	Red-brown Till	10	22	15	7	-	-	53
TPS-3	Red-brown Till	11	21	14	7	-	-	56
TPS-4	Red-brown Till	10	23	19	4	-	-	54
TPS-5	Red-brown Till	10	-	-	-	136.2	7.2	57
TPS-6 TOP	Silty Gravel	35	-	-	-	104.4	17.5	38
TPS-6 BOTTOM	Weathered Shale	23	-	-	-	110.6	16.2	14
TPS-7	Red-brown Till	10	-	-	-	137.3	7.2	59
TPS-8	Sandy Silt w/ Gravel	20	-	-	0	122.3	11.9	55

Analysis and Recommendations

The on site soils are suitable for re-use during earthwork provided that they are properly managed during construction. The till has a significant silt content and will lose strength if disturbed by saturation or freezing. Completed lifts of earthwork should be sealed with a smoothdrum roller at the end of each work day.

Earthwork must be performed using methods that will result in a stable excavations and fills. Typical temporary earthwork measures such as temporary drainage swales, stabilized haul roads, and the use of protective layers of crushed stone can be employed at this site. It is recommended that earthwork is observed by geotechnical personnel to ensure that all organic material is removed from the structural and pavement areas. Additional recommendations are as follows:

- Strip existing topsoil, roots and organics from all areas that will receive new construction to establish subgrade.
- Proof-roll exposed subgrade with a fully loaded dump truck, or accepted alternative equipment, under the observation of geotechnical personnel. Areas that rut, weave, or deflect should be over-excavated and replaced with compacted structural fill (see below for structural fill characteristic requirements).
- Utilize engineered fill to raise site grades to the desired elevation. On site soil can be used as engineered fill provided that particles larger than 2 inches are removed and the material is placed, compacted, and maintained as described herein.
- Field moisture contents for engineered fill should be maintained within 2 percentage points of the optimum moisture content established by laboratory testing to provide adequate compaction. All fill should be placed in level lifts having a loose thickness no greater than 12 inches and should be compacted to at least the following minimum percentages of the Modified Proctor (ASTM D-1557) maximum dry density:

  - Below footings: 95%
  - Beneath slab-on-grade or pavements: 95%
  - Utility trench backfill: 95%
  - Beneath landscape areas: 90%
  - Beneath sidewalks and exterior slabs: 95%
  - Structural berms: 95%

  In-place density testing should be performed at a frequency of one test per 500 square feet per lift in open areas and one test per 25 feet per lift in trenches.
- If the structure is to be constructed during the winter months, or if the building interiors will be subjected to freezing temperatures after footer construction, adequate frost cover and protection must be provided. Earthwork cannot be performed with frozen material.
- Permanent slopes should be graded no steeper than 3 horizontal: 1 vertical unless reinforced with geosynthetic materials.

In utility trenches, or other confined areas, small compaction equipment may be necessary such as a vibratory plate, jumping jack or walk-behind vibratory roller. In-place density testing should be performed at a frequency of one test per 25 feet per lift in trenches. Utility trench fill should be placed in level lifts no greater than 8 inches in thickness and should be compacted to at least 95%the Modified Proctor (ASTM D-1557) maximum dry density. Adequate frost cover and protection must be provided during winter weather construction. Earthwork cannot be performed with frozen material.

Thank you for the opportunity to be of service, and please contact me at your convenience with any questions you may have.

Respectfully submitted,
Kenney Geotechnical Engineering Services PLLC

Christopher Kenney

Christopher M. Kenney, P.E.
President

Kenney Geotechnical Engineering Services, PLLC
6901 Herman Road
Syracuse, NY 13209
315-638-2706

TEST PIT NUMBER TPS-1

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 676 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			ML		(ML) TOPSOIL
1.5			CL-ML		(CL-ML) GLACIAL TILL: RED-BROWN SANDY SILTY CLAY WITH GRAVEL, COBBLES, AND BOULDERS, MOIST NO GROUNDWATER SEEPAGE WAS OBSERVED BULK SAMPLE RETRIEVED AT 5-10 FEET
2.5					
5.0					
7.5	GB 1	MC = 9% LL = 21 PL = 15 Fines = 57%			
10.0					

674.5

666.0

Bottom of test pit at 10.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/18/20 14:52 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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TEST PIT NUMBER TPS-2

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 674 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			ML		(ML) TOPSOIL
1.5			CL-ML		(CL-ML) GLACIAL TILL: RED-BROWN SANDY SILTY CLAY WITH GRAVEL, COBBLES, AND BOULDERS, MOIST NO GROUNDWATER SEEPAGE WAS OBSERVED BULK SAMPLE RETRIEVED FROM 5-10 FEET
2.5					
5.0					
7.5	GB 1	MC = 10% LL = 22 PL = 15 Fines = 53%			
10.0					

672.5

664.0

Bottom of test pit at 10.0 feet.

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TEST PIT NUMBER TPS-3

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 680 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
			ML		(ML) TOPSOIL	
					1.0	679.0
			CL-ML		(CL-ML) GLACIAL TILL: RED-BROWN SANDY SILTY CLAY WITH GRAVEL, COBBLES, AND BOULDERS, MOIST NO GROUNDWATER SEEPAGE OBSERVED BULK SAMPLE RETRIEVED FROM 5-10 FEET	
2.5						
5.0						
7.5	GB 1	MC = 11% LL = 21 PL = 14 Fines = 56%				
10.0					10.0	670.0

Bottom of test pit at 10.0 feet.

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TEST PIT NUMBER TPS-4

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 681 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0			ML		(ML) TOPSOIL	
1.0						680.0
			CL-ML		(CL-ML) GLACIAL TILL: RED-BROWN SANDY SILTY CLAY WITH GRAVEL, COBBLES, AND BOULDERS, MOIST NO GROUNDWATER SEEPAGE OBSERVED BULK SAMPLE RETRIEVED FROM 5-10 FEET	
2.5						
5.0						
7.5	GB 1	MC = 10% LL = 23 PL = 19 Fines = 54%				
10.0						671.0

Bottom of test pit at 10.0 feet.

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TEST PIT NUMBER TPS-5

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 716 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			ML		(ML) TOPSOIL
1.0			CL-ML		(CL-ML) GLACIAL TILL: RED-BROWN SANDY SILTY CLAY WITH GRAVEL, COBBLES, AND BOULDERS, MOIST NO GROUNDWATER SEEPAGE OBSERVED BULK SAMPLE RETRIEVED FROM 6-7 FEET (1 FOOT BELOW PROPOSED FINISHED GRADE)
2.5					
5.0					
7.0		MC = 10% Fines = 57%			Bottom of test pit at 7.0 feet.

715.0

709.0

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TEST PIT NUMBER TPS-6

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 704 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
			ML		(ML) TOPSOIL	
					1.0	703.0
			GM		(GM) BROWN SILTY GRAVEL WITH SAND, MOIST NO GROUNDWATER SEEPAGE WAS OBSERVED. BULK SAMPLE RETRIEVED	
		MC = 35% Fines = 38%				
2.5						
					3.0	701.0
					GREY/OLIVE HIGHLY WEATHERED SHALE, MOIST NO GROUNDWATER SEEPAGE WAS OBSERVED BULK SAMPLE RETRIEVED	
		MC = 23% Fines = 14%				
5.0					5.0	699.0

Bottom of test pit at 5.0 feet.

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TEST PIT NUMBER TPS-7

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 722 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			ML		(ML) TOPSOIL
1.0			CL-ML		(CL-ML) GLACIAL TILL: RED-BROWN SANDY SILTY CLAY WITH GRAVEL, COBBLES, AND BOULDERS, MOIST NO GROUNDWATER SEEPAGE WAS OBSERVED BULK SAMPLE RETRIEVED FROM 6-7 FEET (1 FOOT BELOW PROPOSED FINISHED GRADE)
2.5					
5.0					
7.0		MC = 10% Fines = 59%			Bottom of test pit at 7.0 feet.

721.0

715.0

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TEST PIT NUMBER TPS-8

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY
DATE STARTED 4/30/20 **COMPLETED** 4/30/20
GROUND ELEVATION 683 ft **TEST PIT SIZE** 5'-8'
EXCAVATION CONTRACTOR J.K. TOBIN
GROUND WATER LEVELS:
EXCAVATION METHOD CAT 220
AT TIME OF EXCAVATION ---
LOGGED BY CMK/NM **CHECKED BY**
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
			ML		(ML) TOPSOIL	
1.0						682.0
			ML		(ML) BROWN SANDY SILT WITH CLAY AND GRAVEL, MOIST NO GROUNDWATER SEEPAGE WAS OBSERVED BULK SAMPLE RETRIEVED	
2.5						
3.0		MC = 20% Fines = 55%				680.0

Bottom of test pit at 3.0 feet.

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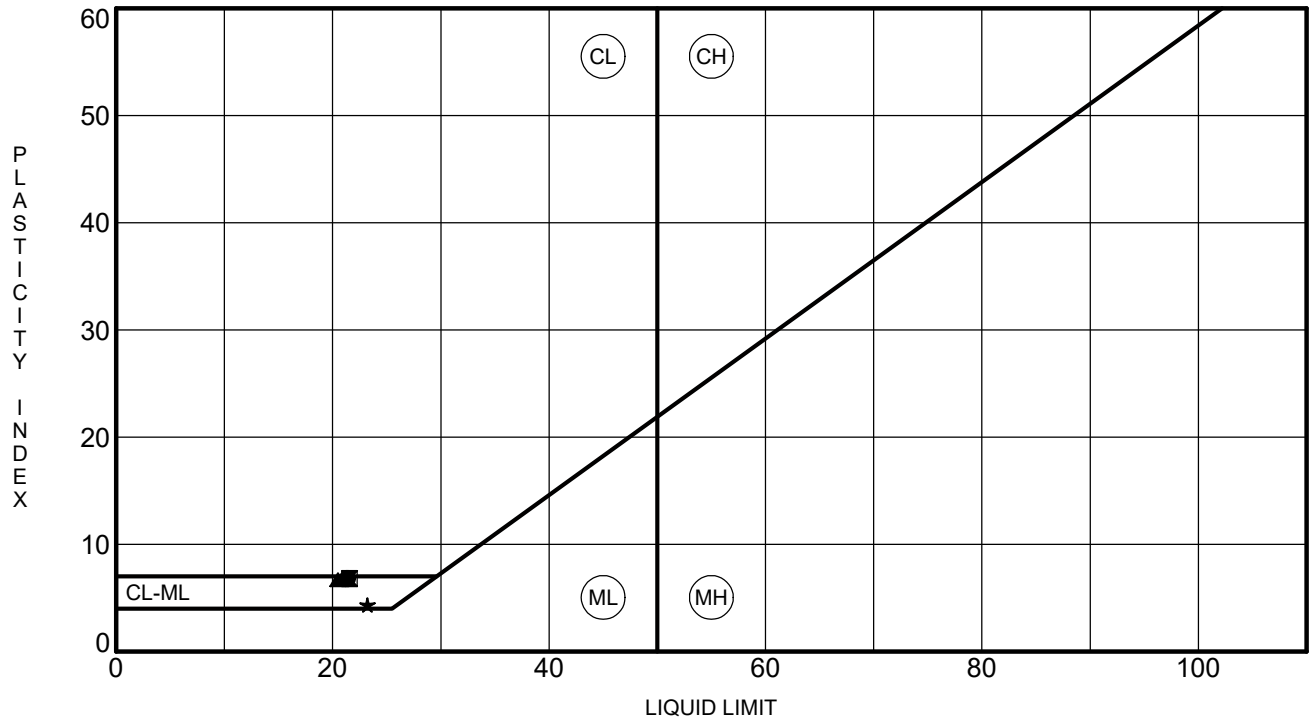
ATTERBERG LIMITS' RESULTS

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY



	Specimen Identification		LL	PL	PI	Fines	Classification
●	**TPS-1**	**7.5**	**21**	**15**	**6**	**57**	**SANDY SILTY CLAY with GRAVEL(CL-ML)**
⧗	**TPS-2**	**7.5**	**22**	**15**	**7**	**53**	**SANDY SILTY CLAY with GRAVEL(CL-ML)**
▲	**TPS-3**	**7.5**	**21**	**14**	**7**	**56**	**SANDY SILTY CLAY with GRAVEL(CL-ML)**
★	**TPS-4**	**7.5**	**23**	**19**	**4**	**54**	**SANDY SILTY CLAY with GRAVEL(CL-ML)**

ATTERBERG LIMITS - GINT STD US LAB.GDT - 5/11/20 13:11 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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315-638-2706

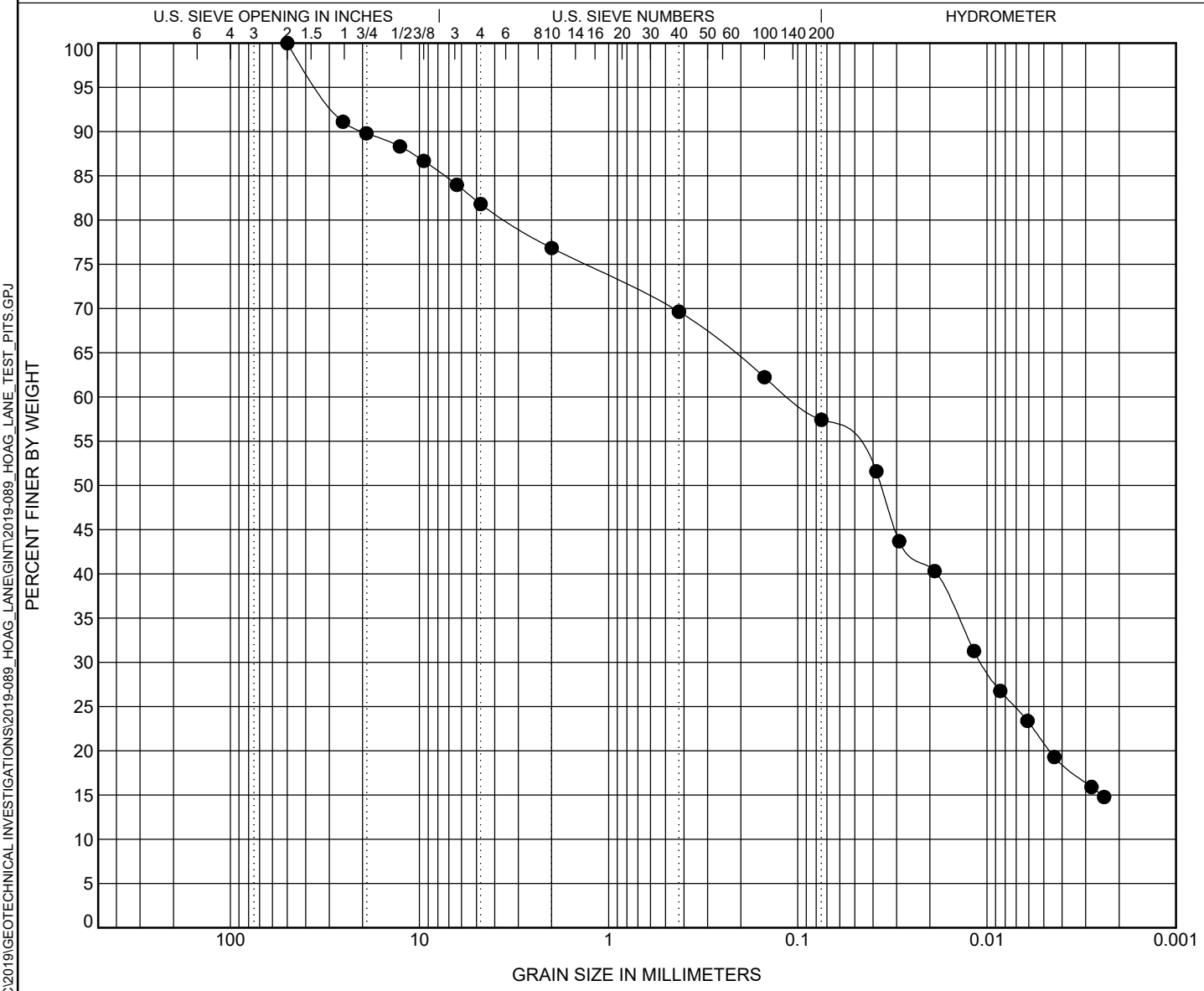
GRAIN SIZE DISTRIBUTION

CLIENT ALLEN HOMES

PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION

PROJECT NUMBER 2019-089

PROJECT LOCATION MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-1	7.5	**SANDY SILTY CLAY with GRAVEL(CL-ML)**	**21**	**15**	**6**		
⊠							
▲							
★							
⊙							

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-1	7.5	**50**	**0.109**	**0.011**		**18.2**	**24.4**	**36.5**	**20.9**
⊠									
▲									
★									
⊙									

GRAIN SIZE - GINT STD US LAB.GDT - 5/11/20 13:15 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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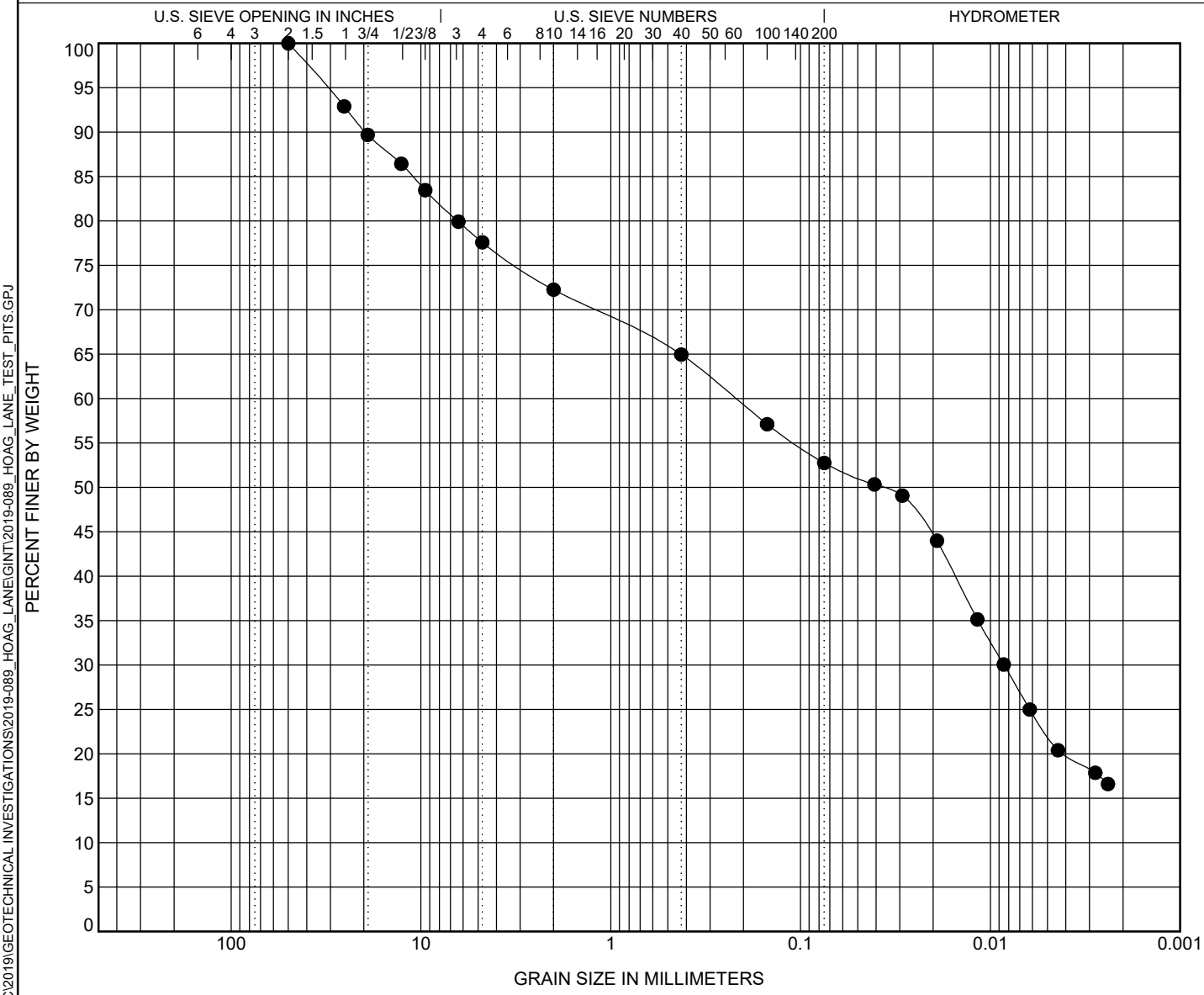
GRAIN SIZE DISTRIBUTION

CLIENT ALLEN HOMES **PROJECT NAME** WOODLAND HILLS - HOAG LANE SUBDIVISION

PROJECT NUMBER 2019-089 **PROJECT LOCATION** MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● **TPS-2**	**7.5**	**SANDY SILTY CLAY with GRAVEL(CL-ML)**	**22**	**15**	**7**		
⊠							
▲							
★							
⊙							

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **TPS-2**	**7.5**	**50**	**0.22**	**0.008**		**22.4**	**24.8**	**30.6**	**22.1**
⊠									
▲									
★									
⊙									

GRAIN SIZE - GINT STD US LAB.GDT - 5/11/20 13:15 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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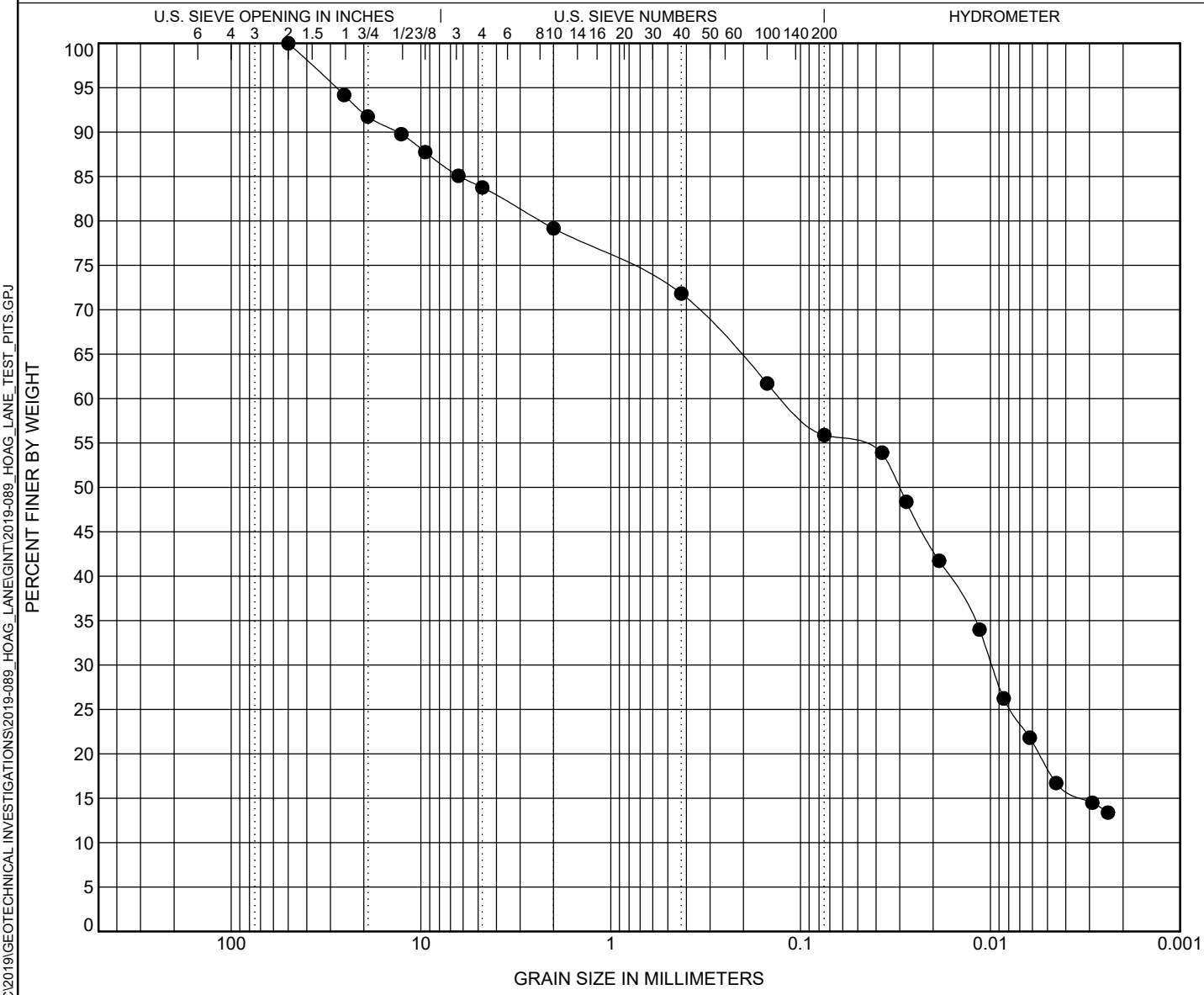
GRAIN SIZE DISTRIBUTION

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-3	7.5	**SANDY SILTY CLAY with GRAVEL(CL-ML)**	**21**	**14**	**7**		
⊠							
▲							
★							
⊙							

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-3	7.5	**50**	**0.123**	**0.01**		**16.2**	**27.9**	**37.5**	**18.4**
⊠									
▲									
★									
⊙									

GRAIN SIZE - GINT STD US LAB.GDT - 5/11/20 13:15 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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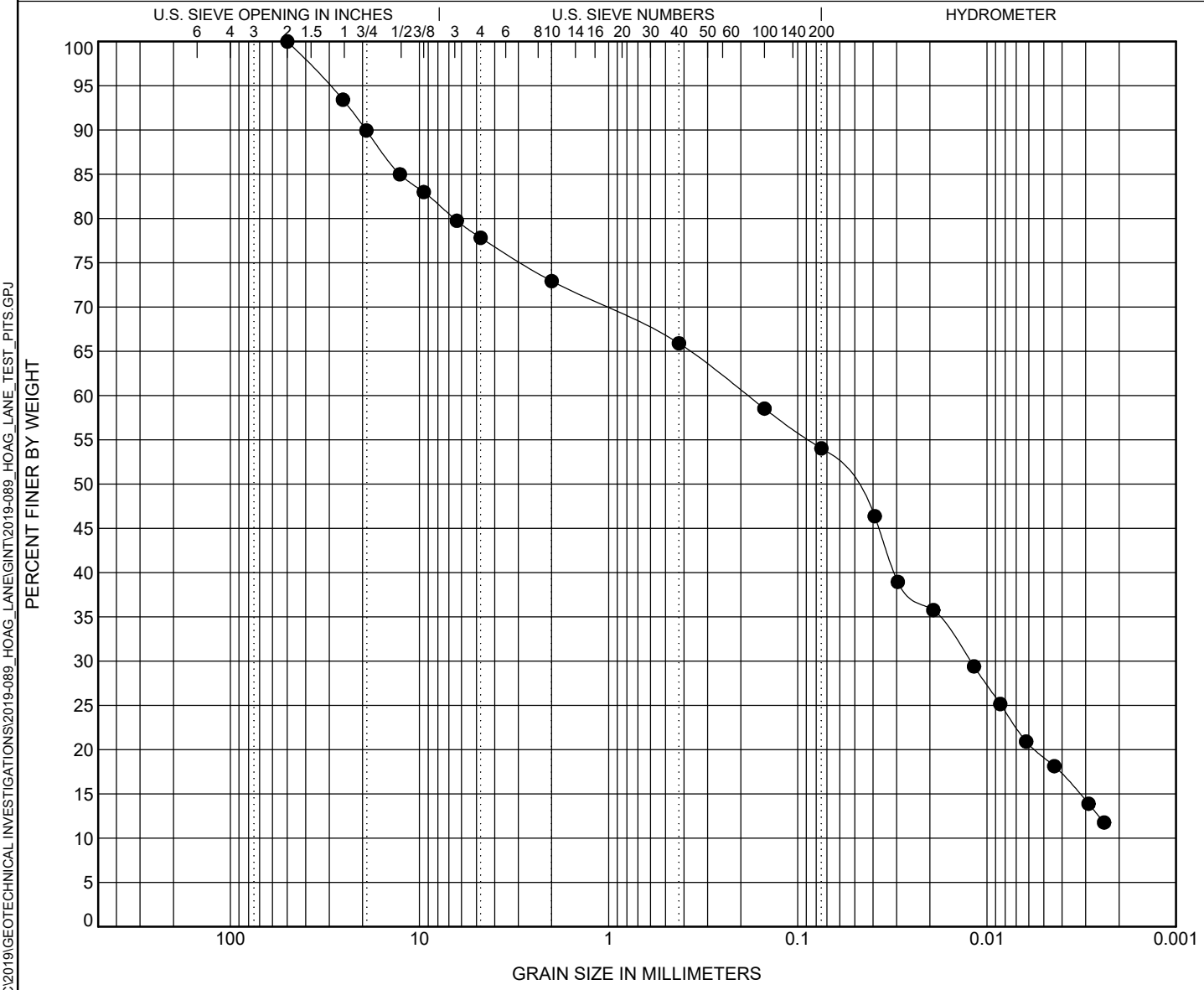
GRAIN SIZE DISTRIBUTION

CLIENT ALLEN HOMES **PROJECT NAME** WOODLAND HILLS - HOAG LANE SUBDIVISION

PROJECT NUMBER 2019-089 **PROJECT LOCATION** MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-4	7.5	**SANDY SILTY CLAY with GRAVEL(CL-ML)**	**23**	**19**	**4**		
⊠							
▲							
★							
⊙							

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-4	7.5	**50**	**0.185**	**0.012**		**22.2**	**23.8**	**34.9**	**19.2**
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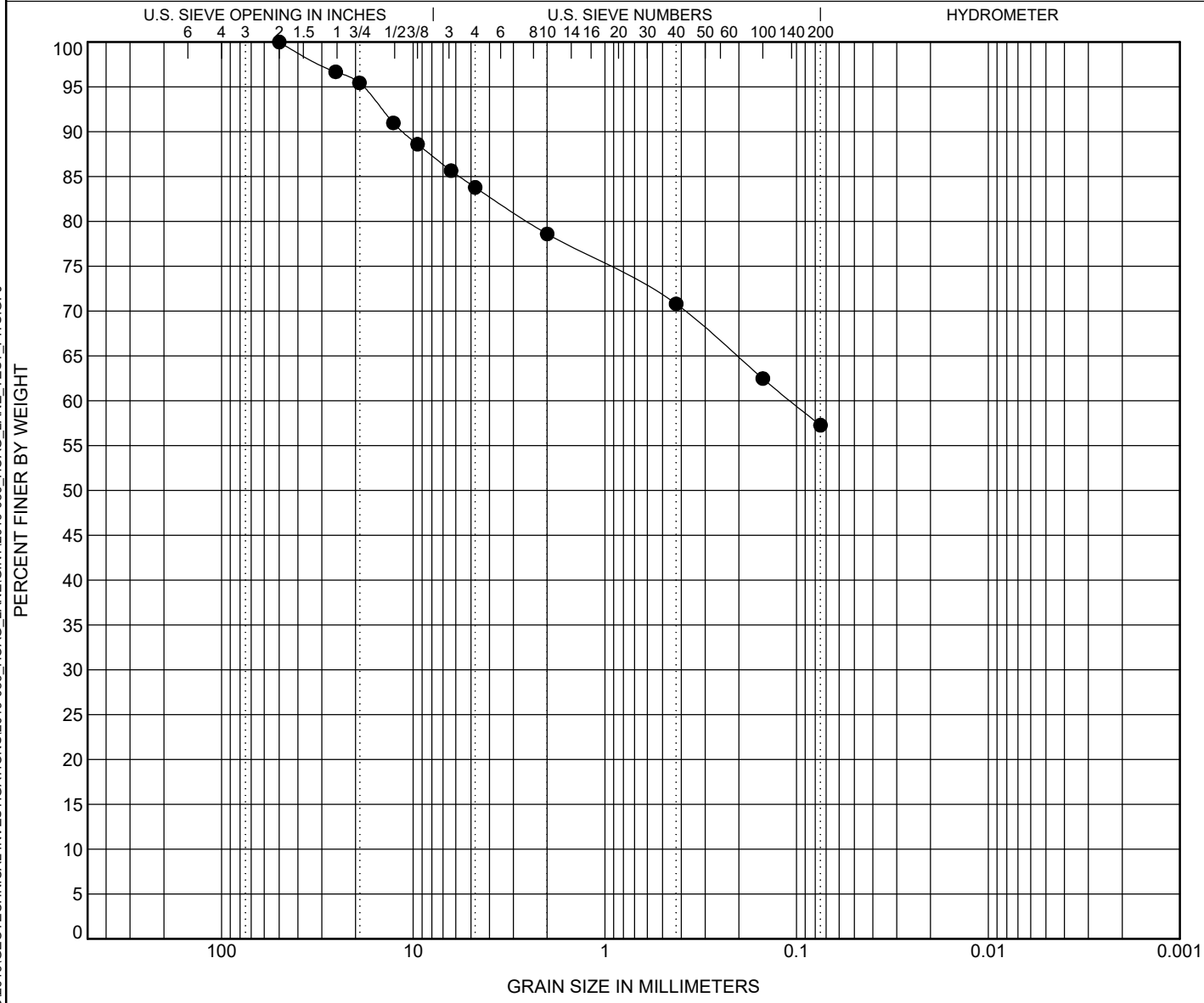
GRAIN SIZE - GINT STD US LAB.GDT - 5/11/20 13:15 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

Kenney Geotechnical Engineering Services, PLLC
6901 Herman Road
Syracuse, NY 13209
315-638-2706

GRAIN SIZE DISTRIBUTION

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-5	7.0	**RED-BROWN SANDY SILTY CLAY WITH GRAVEL**					
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Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-5	7.0	**50**	**0.108**			**16.2**	**26.5**	**57.3**	
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GRAIN SIZE - GINT STD US LAB.GDT - 5/18/20 15:25 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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GRAIN SIZE DISTRIBUTION

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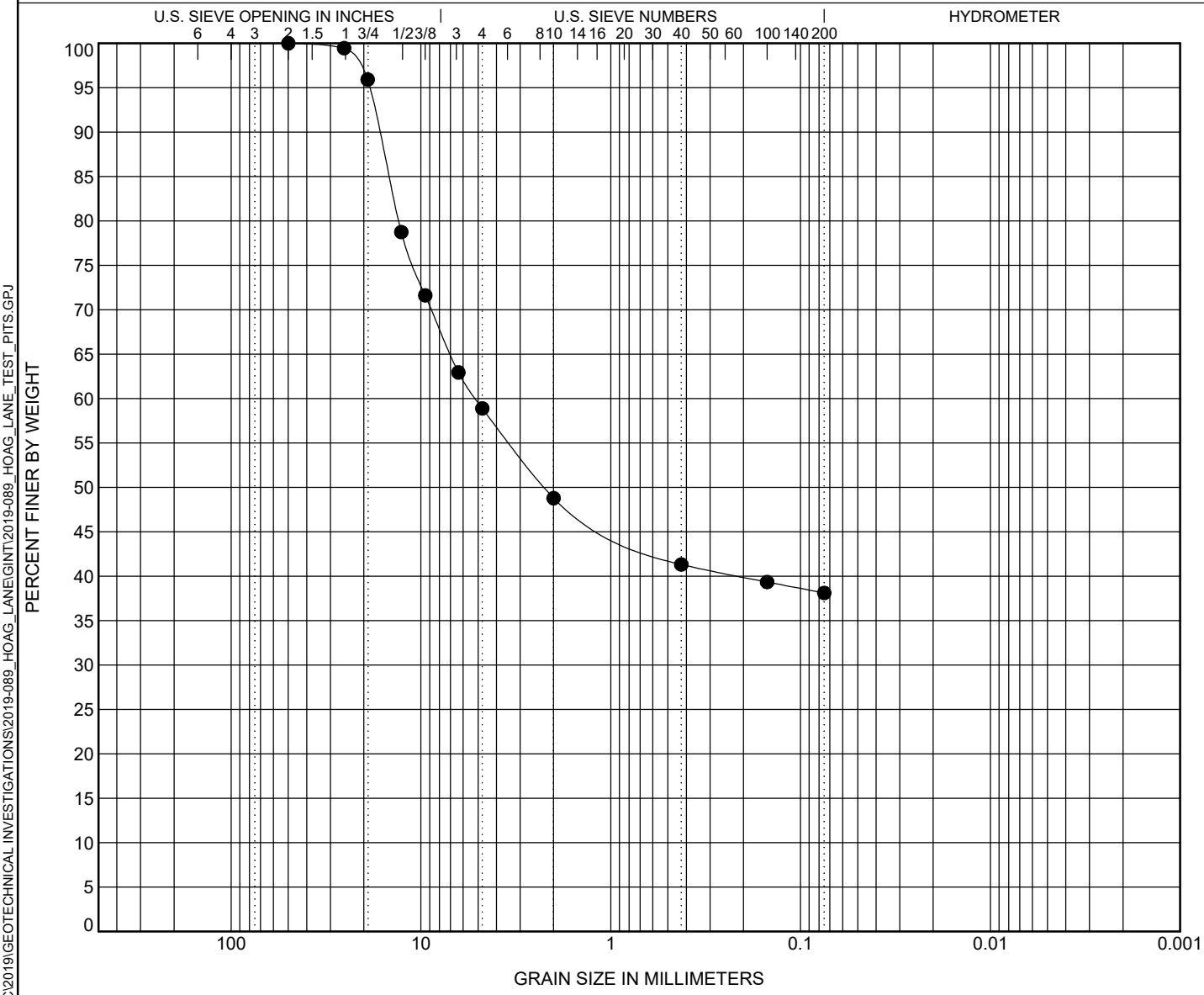
PROJECT NUMBER 2019-089

PROJECT LOCATION MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-6	2.0	**BROWN SILTY GRAVEL WITH SAND**					
⊠							
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★							
⊙							

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-6	2.0	**50**	**5.144**			**41.1**	**20.8**	**38.1**	
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GRAIN SIZE - GINT STD US LAB.GDT - 5/18/20 15:25 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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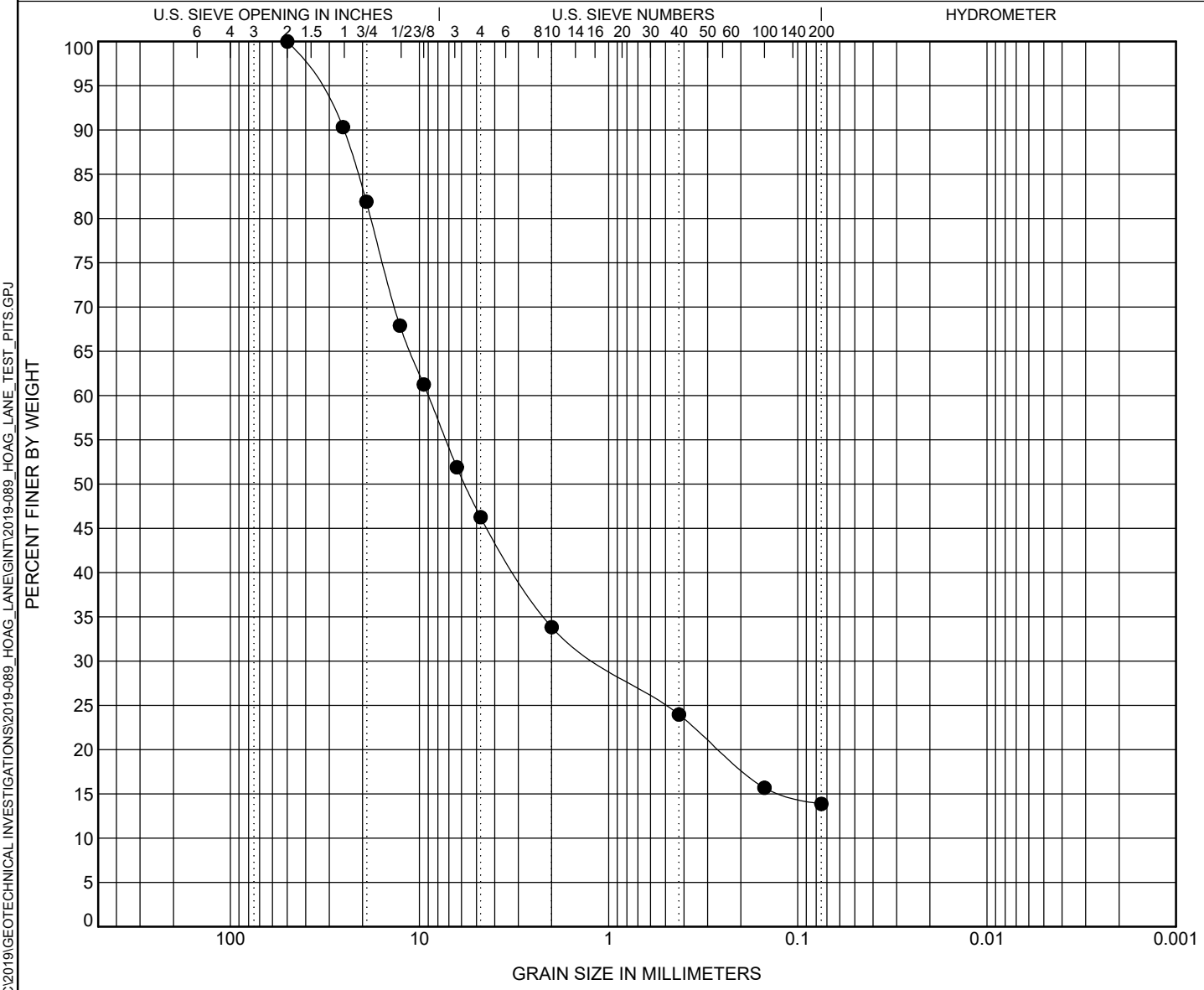

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-6	4.0	**GREY/OLIVE HIGHLY WEATHERED SHALE**					
⊠							
▲							
★							
⊙							

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-6	4.0	**50**	**9.001**	**1.096**		**53.7**	**32.4**	**13.9**	
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GRAIN SIZE - GINT STD US LAB.GDT - 5/18/20 15:25 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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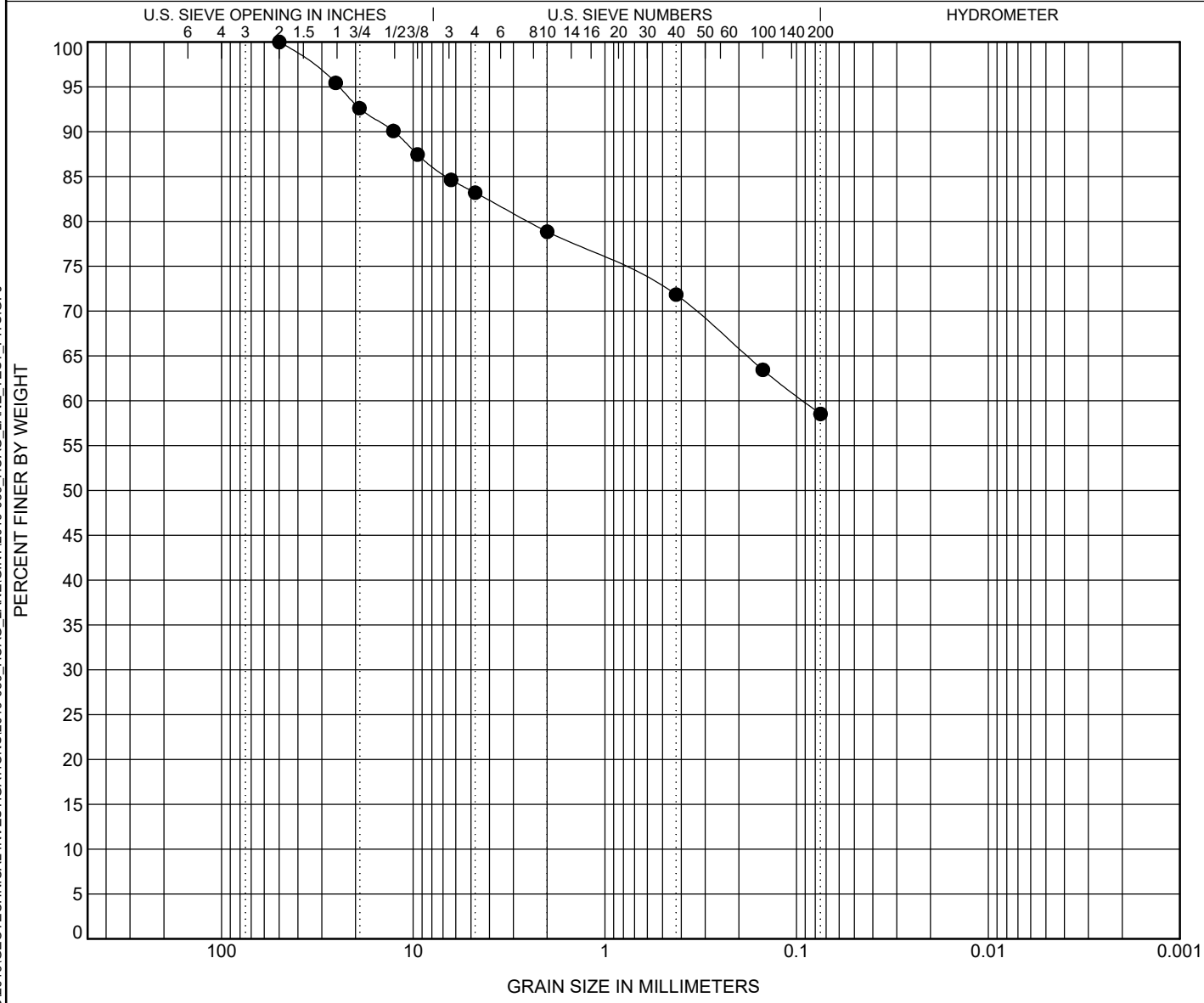
GRAIN SIZE DISTRIBUTION

CLIENT ALLEN HOMES **PROJECT NAME** WOODLAND HILLS - HOAG LANE SUBDIVISION

PROJECT NUMBER 2019-089 **PROJECT LOCATION** MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-7	7.0	**RED-BROWN SANDY SILTY CLAY WITH GRAVEL**					
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Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-7	7.0	**50**	**0.092**			**16.8**	**24.7**	**58.5**	
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GRAIN SIZE - GINT STD US LAB.GDT - 5/18/20 15:25 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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GRAIN SIZE DISTRIBUTION

CLIENT ALLEN HOMES

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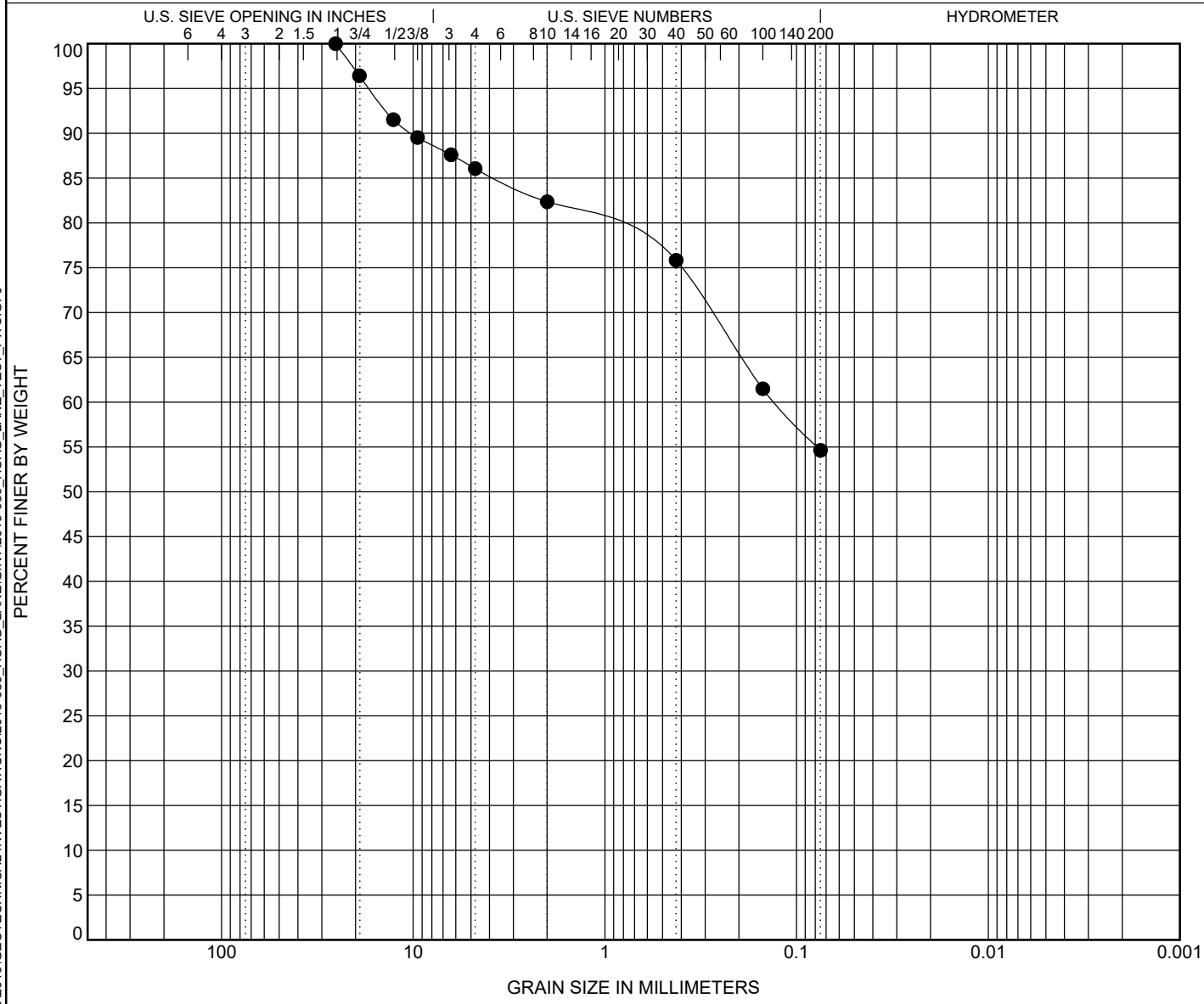
PROJECT NUMBER 2019-089

PROJECT LOCATION MANLIUS, NY



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● TPS-8	3.0	**BROWN SANDY SILT WITH CLAY AND GRAVEL**					
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★							
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Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TPS-8	3.0	**25.4**	**0.129**			**13.9**	**31.4**	**54.6**	
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GRAIN SIZE - GINT STD US LAB.GDT - 5/18/20 15:25 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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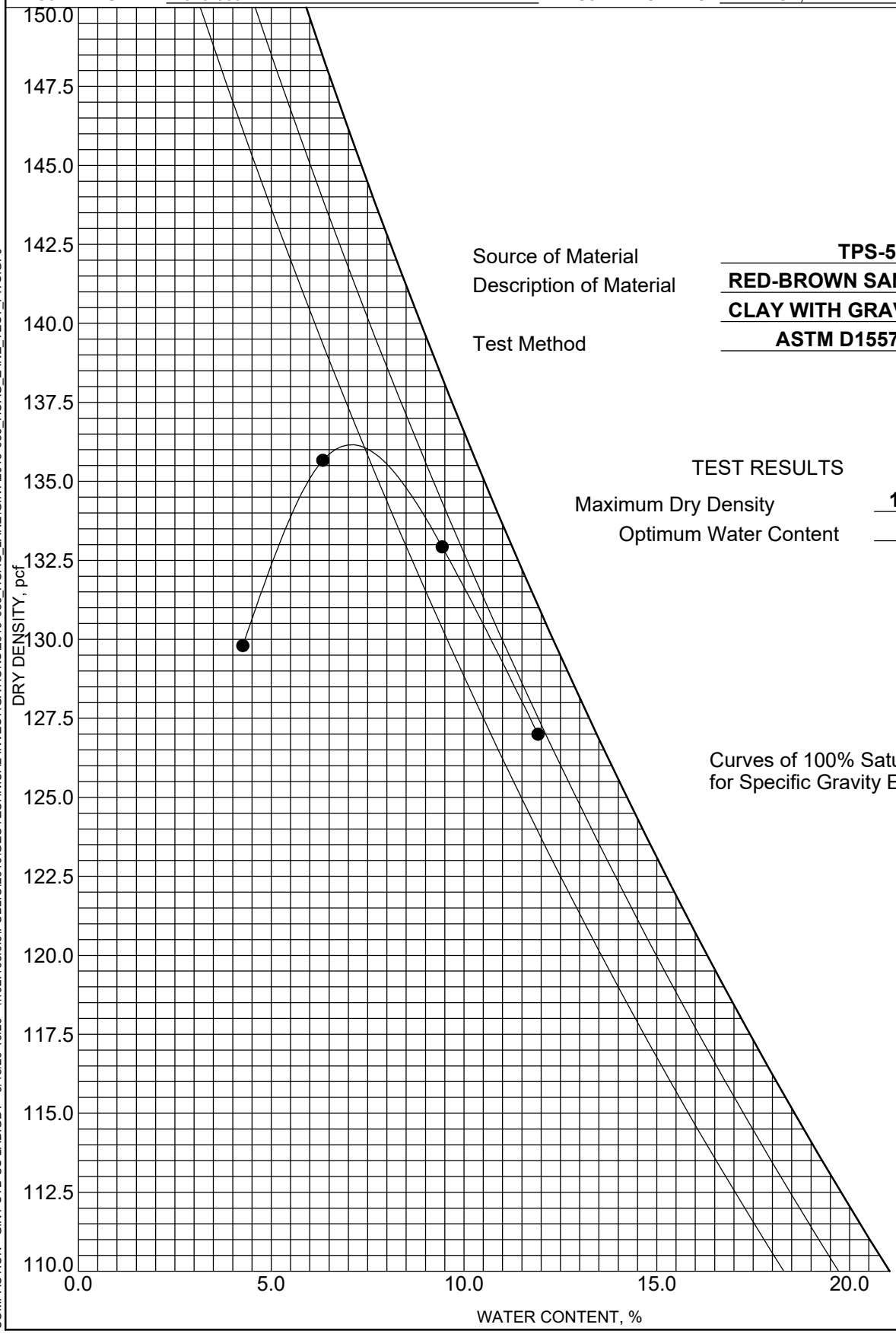
MOISTURE-DENSITY RELATIONSHIP

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY



Source of Material	**TPS-5 7.0**
Description of Material	**RED-BROWN SANDY SILTY CLAY WITH GRAVEL**
Test Method	**ASTM D1557 Method D**

TEST RESULTS

Maximum Dry Density	**136.2**	**PCF**
Optimum Water Content	**7.2**	**%**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION - GINT STD US LAB.GDT - 5/18/20 15:20 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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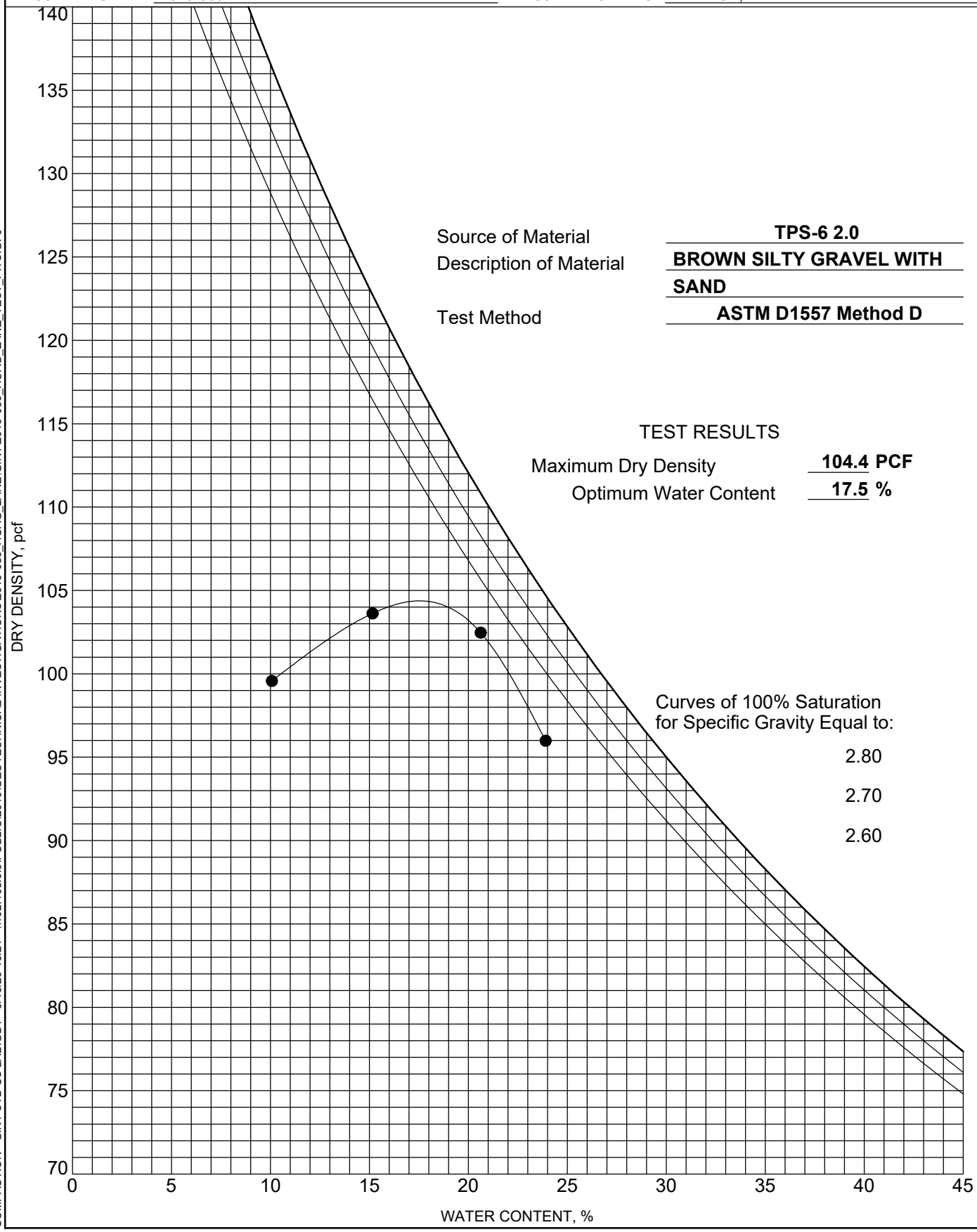
MOISTURE-DENSITY RELATIONSHIP

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY



Source of Material	**TPS-6 2.0**
Description of Material	**BROWN SILTY GRAVEL WITH SAND**
Test Method	**ASTM D1557 Method D**

TEST RESULTS

Maximum Dry Density	**104.4 PCF**
Optimum Water Content	**17.5 %**

COMPACTION - GINT STD US LAB.GDT - 5/18/20 15:21 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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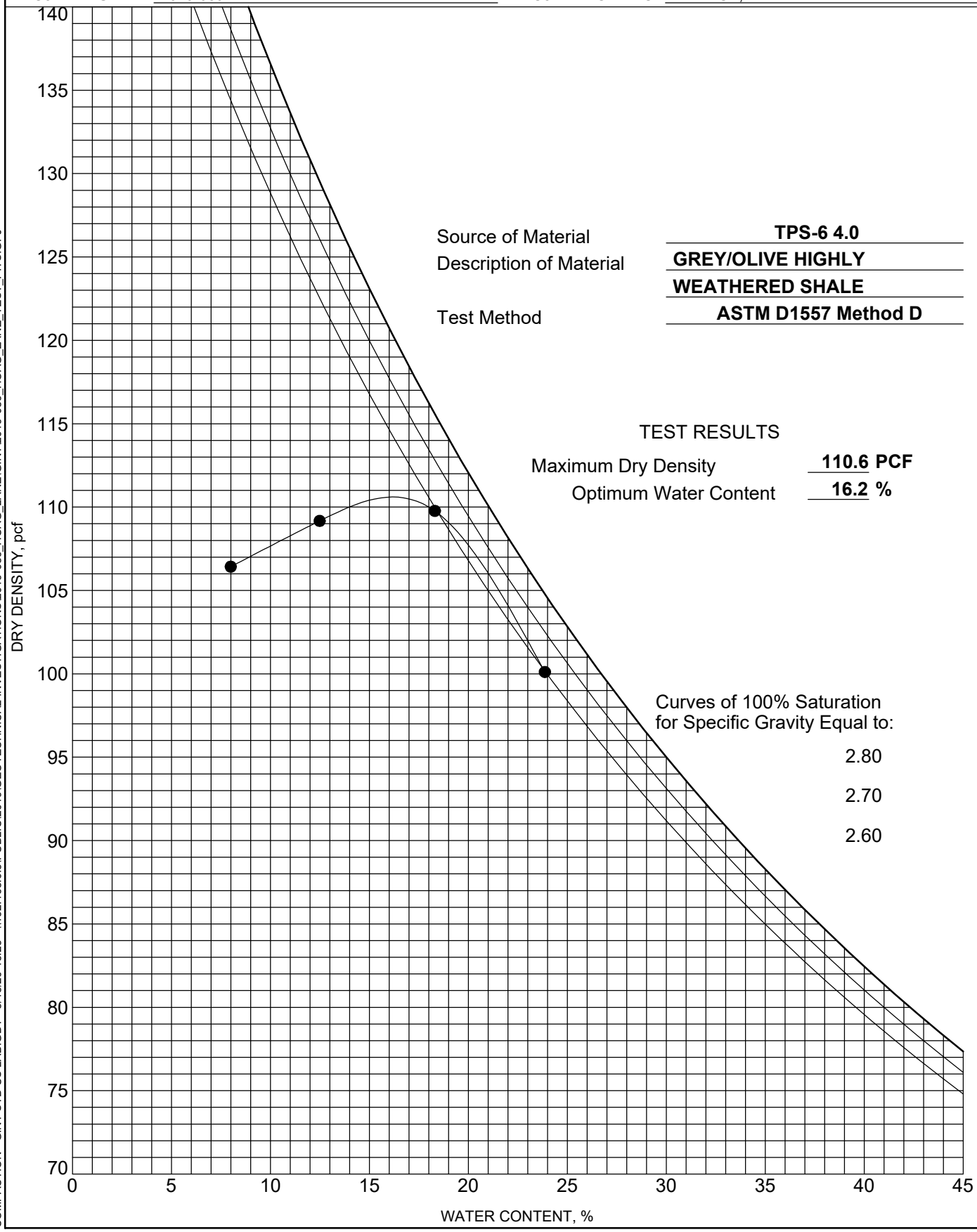
MOISTURE-DENSITY RELATIONSHIP

CLIENT ALLEN HOMES
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY



Source of Material	**TPS-6 4.0**
Description of Material	**GREY/OLIVE HIGHLY WEATHERED SHALE**
Test Method	**ASTM D1557 Method D**

TEST RESULTS

Maximum Dry Density	**110.6**	**PCF**
Optimum Water Content	**16.2**	**%**

COMPACTION - GINT STD US LAB.GDT - 5/18/20 15:23 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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MOISTURE-DENSITY RELATIONSHIP

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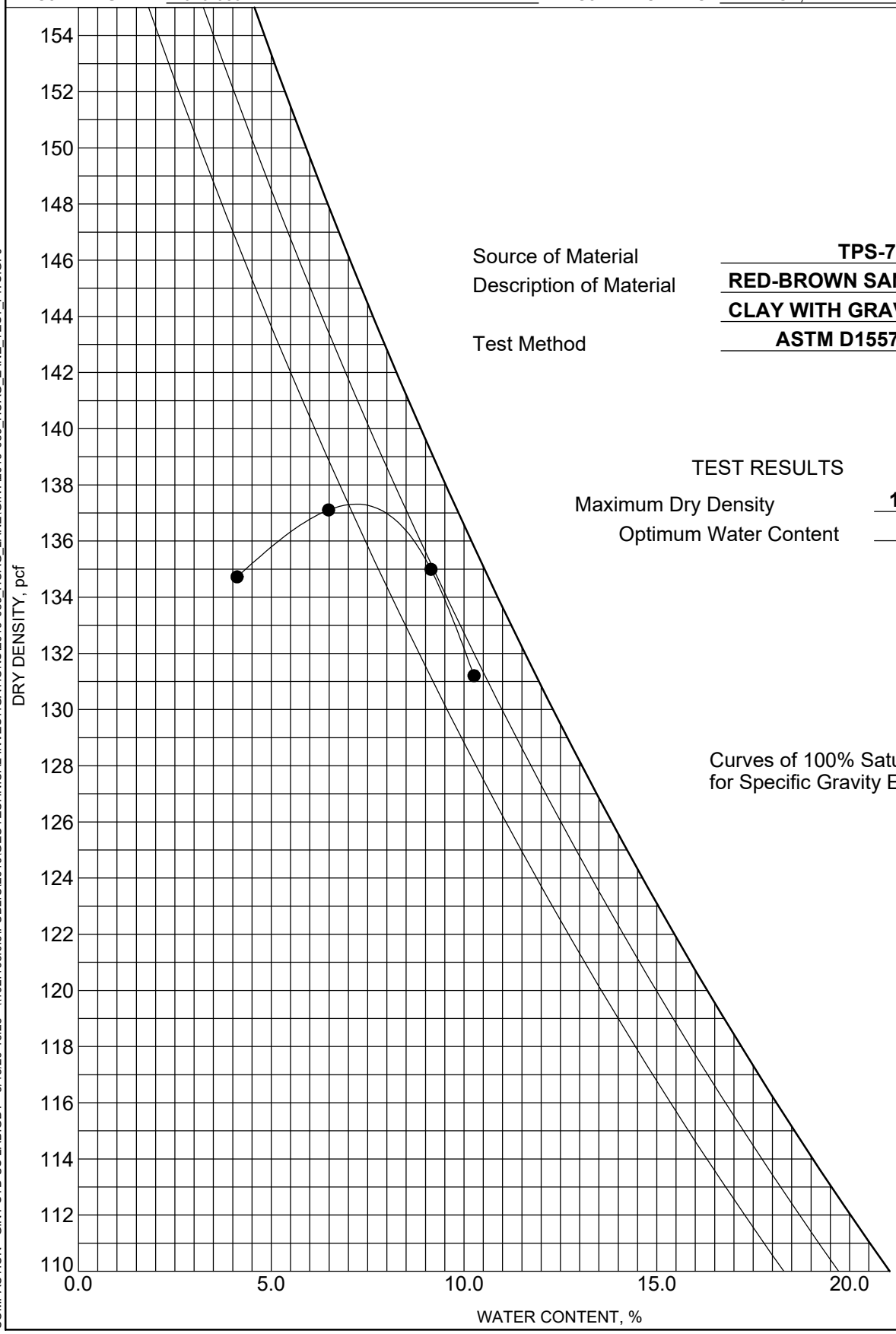

Source of Material	**TPS-7 7.0**
Description of Material	**RED-BROWN SANDY SILTY CLAY WITH GRAVEL**
Test Method	**ASTM D1557 Method D**

TEST RESULTS

Maximum Dry Density	**137.3**	**PCF**
Optimum Water Content	**7.2**	**%**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION - GINT STD US LAB.GDT - 5/18/20 15:23 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

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MOISTURE-DENSITY RELATIONSHIP

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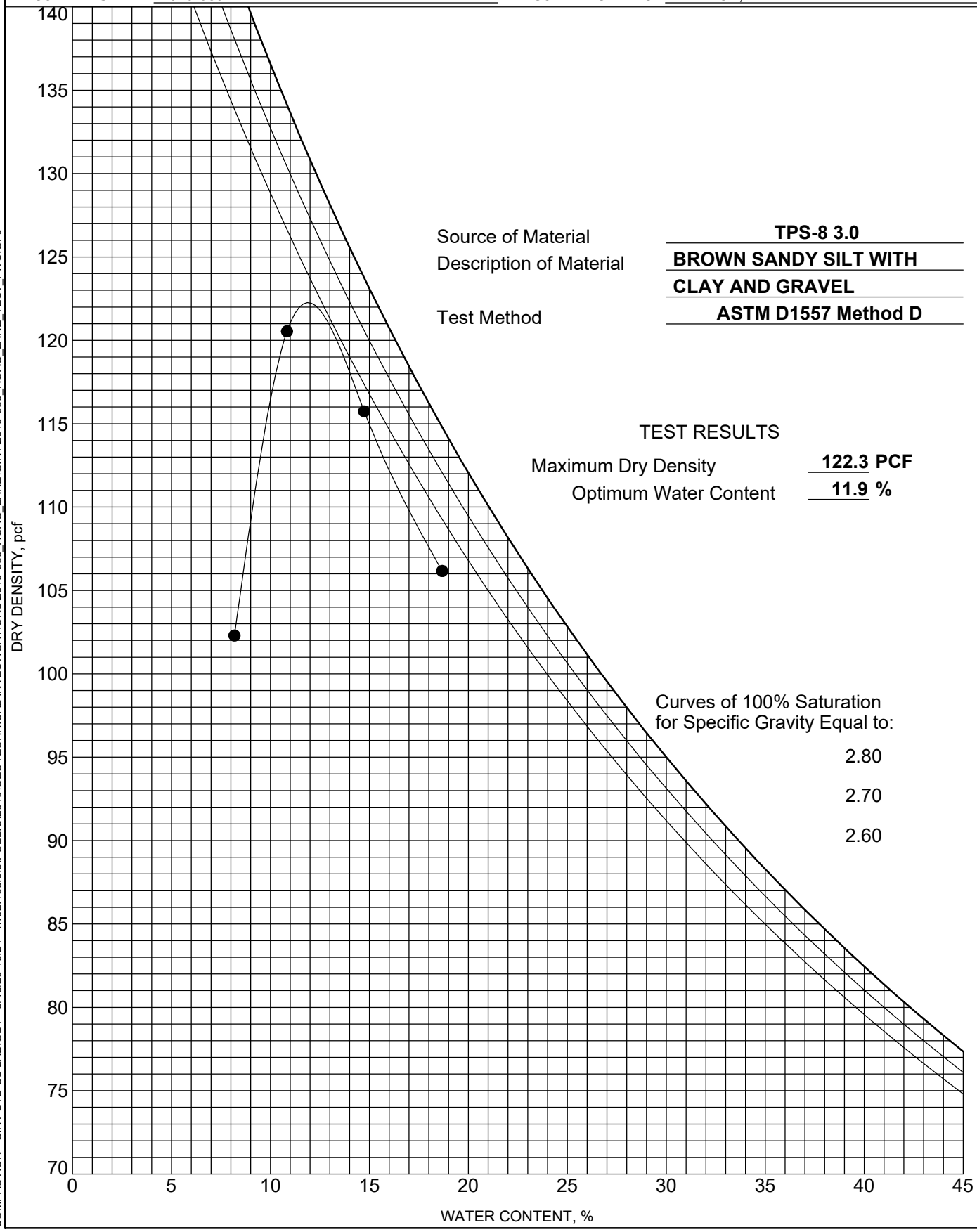
PROJECT NAME WOODLAND HILLS - HOAG LANE SUBDIVISION
PROJECT NUMBER 2019-089
PROJECT LOCATION MANLIUS, NY



COMPACTION - GINT STD US LAB.GDT - 5/18/20 15:24 - \\192.168.0.5\PUBLIC\2019\GEOTECHNICAL INVESTIGATIONS\2019-089_HOAG_LANE\GINT\2019-089_HOAG_LANE_TEST_PITS.GPJ

PERCOLATION TEST RESULTS

X-PERC TEST DATA

LOCATION NUMBER	DEPTH & SOIL DESCRIPTION	RATE OF INFILTRATION
PT-1	24" - SANDY LOAM	35 MINUTES/INCH
PT-2	24" - SILT LOAM	GREATER THAN 120 MIN/INCH
PT-3	24" - SANDY SILT LOAM	3 MINUTES/INCH
PT-4	24" - SANDY SILT LOAM	21 MINUTES/INCH
PT-5	14' - SANDY SILTY CLAY	0 MINUTES/INCH

NOTES:
1. CONDUCTED OCTOBER 10, 2017 BY A REPRESENTATIVE OF RZ ENGINEERING
2. PT-5 CONDUCTED DECEMBER 16, 2019 BY KENNEY GEOTECHNICAL

PROPOSED ADDITIONAL TEST PITS

PIT #	EX. GRADE	FINAL GRADE	DEPTH	TESTING / EVALUATIONS
PT-1	674.00	664.00	5'-10' DEEP	DAM GUIDELINES SEC. 8
PT-2	672.00	662.00	5'-10' DEEP	DAM GUIDELINES SEC. 8
PT-3	677.00	667.00	5'-10' DEEP	DAM GUIDELINES SEC. 8
PT-4	680.00	662.00	5'-10' DEEP	DAM GUIDELINES SEC. 8
PT-5	715.00	709.00	PER FINAL GRADE	FILL/SOIL EVALUATION
PT-6	705.00	700.00	PER FINAL GRADE	FILL/SOIL EVALUATION
PT-7	724.00	716.00	PER FINAL GRADE	FILL/SOIL EVALUATION

NOTES:
1. TESTS TO BE CONDUCTED BY A REPRESENTATIVE OF KENEEY GEOTECHNICAL AND JK TOBIN.
2. DATA CHARTS WILL BE UPDATED ONCE TESTING IS COMPLETE AND PROVIDED HERE.

BORING TEST RESULTS

B -1 0"-6" TOPSOIL 6"-24" SILTY CLAY 24"-96" SILTY CLAY 96"-120" SANDY SILTY CLAY	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED NO BEDROCK WITNESSED
B -2 0"-6" TOPSOIL 6"-48" SANDY SILTY CLAY 48"-72" SILTY CLAY 72"-120" SANDY SILTY CLAY	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED NO BEDROCK WITNESSED
B -3 0"-12" TOPSOIL 12"-72" SANDY SILTY CLAY 72"-120" SANDY SILTY CLAY	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED NO BEDROCK WITNESSED
B -4 0"-6" TOPSOIL 24"-96" SANDY SILTY CLAY 96"-114" SANDY SILTY CLAY 114"-168" GLACIAL TILL	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED NO BEDROCK WITNESSED
B -5 0"-24" TOPSOIL 24"-96" SANDY SILTY CLAY 96"-120" SANDY SILTY CLAY	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED NO BEDROCK WITNESSED
B -6 0"-6" TOPSOIL 6"-48" SANDY SILTY CLAY 48"-120" SANDY SILT	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED WEATHERED ROCK WITNESSED
B -7 0"-6" TOPSOIL 6"-24" SANDY SILTY CLAY 24"-120" SANDY SILTY CLAY	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED NO BEDROCK WITNESSED
B -8 0"-6" TOPSOIL 6"-24" SANDY SILTY CLAY 24"-72" SANDY SILTY CLAY 72"-120" SANDY SILTY CLAY	NO GROUNDWATER WITNESSED NO MOTTLING WITNESSED NO BEDROCK WITNESSED

NOTES:
1. CONDUCTED MAY 16TH, 2019 BY REPRESENTATIVES OF KENNEY GEOTECHNICAL ENGINEERING SERVICES, PLLC.
2. B-4 WAS RE-CONDUCTED ON DECEMBER 16TH, 2019 PER TOWN ENGINEER REQUEST BY REPRESENTATIVES OF KENNEY GEOTECHNICAL ENGINEERING SERVICES, PLLC.

LEGEND

EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION
100		CONTOUR		UD	UNDERDRAIN			PEA GRAVEL DIAPHRAGM/STONE SHOULDER
+377.7		SPOT ELEVATION	EX SAN	S	SANITARY PIPE-GRAVITY			OUTLET PROTECTION
	HP/LP	HIGH / LOW POINT		FM 3" LPS	SANITARY PIPE-LOW PRESSURE		6' 10' 3'	OUTLET PROTECTION FOR 6" PIPE OR LESS
	PT-2	PERCOLATION TEST PIT	E/T		OVERHEAD ELECTRIC		3' 15' 10'	OUTLET PROTECTION FOR 8"- 12" PIPE
	B-#	DEEP HOLE	E		UNDERGROUND ELECTRIC		X Y 3'	OUTLET PROTECTION FOR 15"+ PIPE, DIMENSIONS PER PLANS
		FENCE	T		TELEPHONE			TRAFFIC SIGN
		UTILITY POLE		ST MH	STORM STRUCTURE		SF	SILT FENCE
W	W	WATER LINE						EROSION CONTROL BLANKET
		FIRE HYDRANT		DI	INLET			
EX ST	ST	STORM PIPE		CB MH	CATCH BASIN/MANHOLE			
		TREE		CO	CLEAN OUT			
		SHRUB			SANITARY MANHOLE			
	QUANTITY / PLANT TYPE	PLANT KEY			ASPHALT PAVEMENT-DRIVEWAY			
		VEGETATION			ASPHALT PAVEMENT-ROAD			

X-HOAG-LEGEND

EXISTING CONDITIONS & REMOVAL/DEMOLITION NOTES

X-SITE-PREP-NOTES

REMOVE EXISTING PAVEMENTS - SEE NOTES 2 BELOW

1. SAWCUT ASPHALT OR CONCRETE PAVEMENT. SAWCUT ASPHALT IN NEAT STRAIGHT LINE AND SAWCUT CONCRETE PAVEMENT AT NEAREST SCORE JOINT.
2. REMOVE EXISTING ASPHALT PAVEMENT IN IT'S ENTIRETY INCLUDING ALL SUB-BASE MATERIAL.
3. REMOVE EXISTING VEGETATION IN IT'S ENTIRETY INCLUDING ROOTS AND STUMPS, AND DISPOSE OF ON SITE. MATERIAL TO BE CHIPPED AND PLACED ON SITE PER STAGING PLANS.
4. VEGETATION TO REMAIN PER HOMEOWNERS ASSOCIATION AGREEMENT. EASEMENTS TO BE SUBMITTED TO TOWN OF MANLIUS AT A LATER DATE.
5. OWNER TO CONTACT ELECTRICAL, GAS, AND WATER DEPARTMENT REGARDING DISCONNECTION PRIOR TO CONSTRUCTION.
6. DECOMMISSION EXISTING WATER PIT. EXISTING WATER LATERAL TO EXISTING HOUSE TO REMAIN UNTIL UTILITIES INSTALLED IN PHASE IV.
7. 4" CALIPER OR LARGER PLANT MATERIAL WAS CUT DOWN AS OF MARCH 2019. THE STUMPS, TREES AND SMALLER VEGETATION REMAINS.
8. CORE OPENING INTO EXISTING SANITARY MANHOLE FOR PROPOSED 6" SANITARY LINE.

GENERAL NOTES

1. TOPOGRAPHIC AND UTILITY INFORMATION TAKEN FROM SURVEY ENTITLED TOPOGRAPHIC MAP - LANDS OF HOAG ROAD PROPERTIES, LLC AS PREPARED BY SEGUIN LAND SURVEYING, PLLC, CHITTENANGO, NEW YORK, DATED NOVEMBER 6TH, 2017. OWNER AND ARCHITECT DO NOT CONFIRM THE COMPLETENESS OR ACCURACY OF SUCH INFORMATION. CONTRACTOR IS RESPONSIBLE FOR THOROUGH EXAMINATION AND VERIFICATION OF ALL EXISTING SURFACE AND SUBSURFACE CONDITIONS AFFECTING THE NATURE, SCOPE, COMPLEXITY AND COST OF THE CONTRACT WORK.

2. SAW CUT ONLY FOR PAVING REMOVALS. EXTEND REMOVAL LINES TO INCLUDE ANY ADJOINING BROKEN OR DETERIORATING PAVING. CAREFULLY REMOVE, STOCKPILE AND PROTECT ANY ITEMS NOTED FOR SALVAGE. ALL DEMOLITION RUBBLE, DEBRIS AND EXCESS SOILS TO BE PROMPTLY REMOVED FROM SITE UNLESS OTHERWISE NOTED. STRIP AND STOCKPILE SUFFICIENT EXISTING ORGANIC TOPSOILS FOR RESPREADING AS REQUIRED ON DISTURBED AND REGRADED AREAS TO BE ESTABLISHED IN LAWN AND FOR REPAIR OF DISTURBED EXISTING LAWNS TO REMAIN. STOCKPILE ALL MATERIALS IN APPROVED LOCATIONS WITHOUT INTERFERING WITH OTHER CONTRACTOR WORK, SCHOOL TRAFFIC OR DRAINAGE.

4. ALL FILL/BACKFILL OF EXCAVATIONS AND VOIDS RESULTING FROM REMOVALS AND RELATED WORK UNDER NEW OR REPLACEMENT PAVING AREAS SHALL ONLY BE COARSE AGGREGATE FILL MATERIAL THOROUGHLY COMPACTED.

5. PROTECT ALL FACILITIES AND IMPROVEMENTS ON AND ADJOINING THE PROPERTY WHICH ARE NOT SPECIFICALLY IDENTIFIED FOR REMOVAL. VERIFY LOCATIONS AND DEPTHS OF ALL SUBSURFACE UTILITIES TO REMAIN PRIOR TO ANY ADJACENT REMOVAL AND EXCAVATION WORK.

6. NOTIFY OWNER IMMEDIATELY IF ANY SURFACE OR SUBSURFACE CONFLICTS OR UNKNOWN CONDITIONS ARE ENCOUNTERED IN ORDER TO PERMIT ADJUSTMENT OF WORK IF NECESSARY.

7. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO COMMENCING WORK.

8. CONTRACTOR IS RESPONSIBLE FOR OBTAINING and CONFORMING TO ALL TOWN OF MANLIUS SPECIFICATIONS.

9. U.F.P.O. TO BE CONTACTED 72 HOURS PRIOR TO START OF EXCAVATION.

10. REFER TO PLANS L-102 TO L-105 FOR CONSTRUCTION STAGING OF REMOVALS AND INSTALLATION.

11. DUST MONITORING PER STORMWATER POLLUTION PREVENTION PLAN.

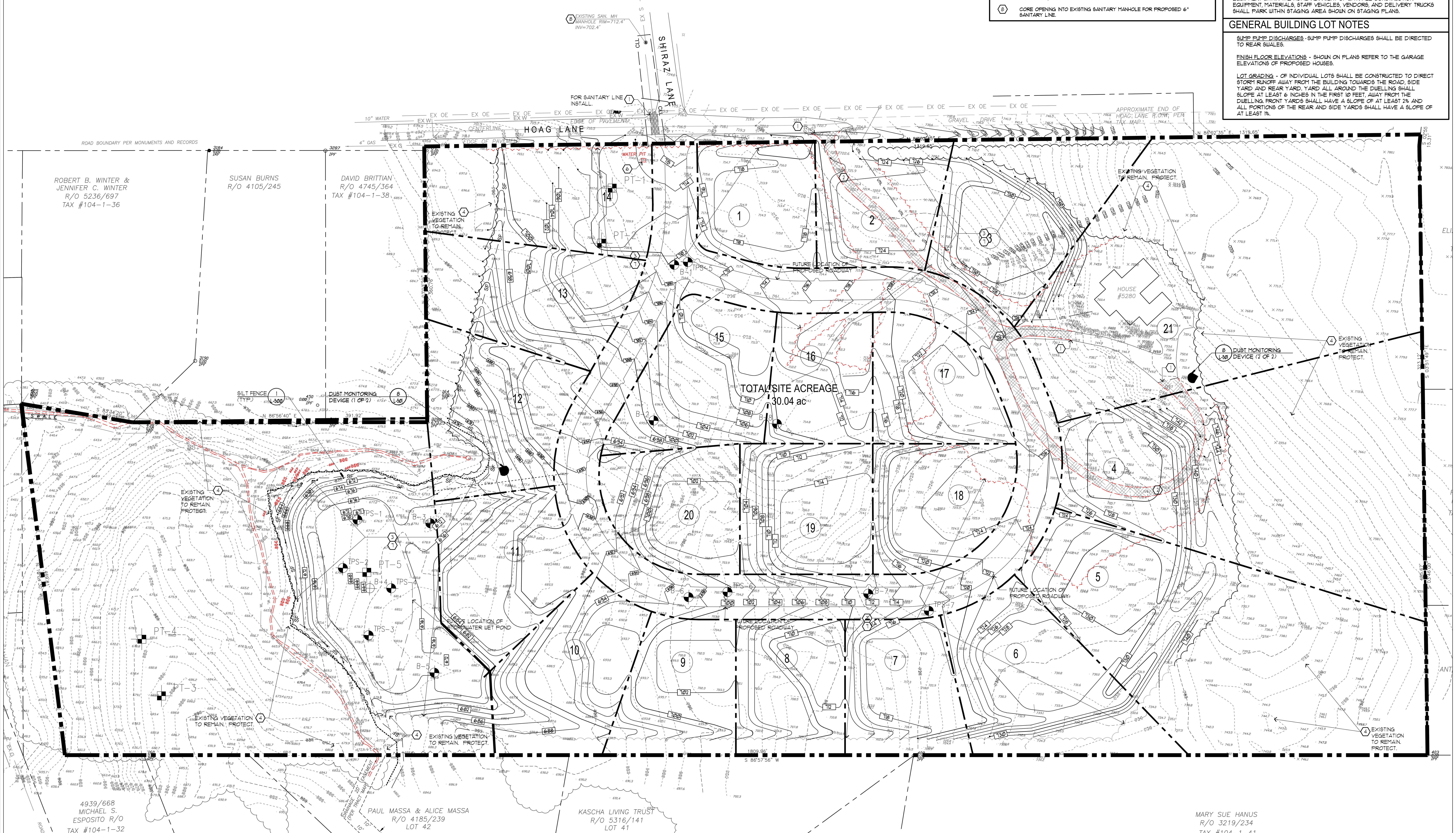
12. CONTRACTOR/ DEVELOPER SHALL NOT ALLOW PARKING OF ANY EQUIPMENT WITHIN THE HOAG RD. RIGHT OF WAY. ALL CONSTRUCTION EQUIPMENT, MATERIALS, STAFF VEHICLES, VENDORS, AND DELIVERY TRUCKS SHALL PARK WITHIN STAGING AREA SHOWN ON STAGING PLANS.

GENERAL BUILDING LOT NOTES

SUMP PUMP DISCHARGES - SUMP PUMP DISCHARGES SHALL BE DIRECTED TO REAR SWALES.

FINISH FLOOR ELEVATIONS - SHOWN ON PLANS REFER TO THE GARAGE ELEVATIONS OF PROPOSED HOUSES.

LOT GRADING - OF INDIVIDUAL LOTS SHALL BE CONSTRUCTED TO DIRECT STORM RUNOFF AWAY FROM THE BUILDING TOWARDS THE ROAD, SIDE YARD AND REAR YARD. YARD ALL AROUND THE DWELLING SHALL SLOPE AT LEAST 6 INCHES IN THE FIRST 10 FEET, AWAY FROM THE DWELLING. FRONT YARDS SHALL HAVE A SLOPE OF AT LEAST 2% AND ALL PORTIONS OF THE REAR AND SIDE YARDS SHALL HAVE A SLOPE OF AT LEAST 1%.



SITE PREPARATION PLAN (1 / L-100)

SCALE IN FEET: 0 50 100 150

FOR CONSTRUCTION

HOAG LANE SUBDIVISION

5280 HOAG LANE, MANLIUS, NY

KEPLINGER FREEMAN ASSOCIATES
LANDSCAPE ARCHITECTURE & LAND PLANNING
6320 FLY ROAD, SUITE 109 EAST SYRACUSE, NEW YORK 13057
PHONE: (315) 445-7980 FAX: (315) 445-7981

RZ Engineering, PLLC
STORMWATER SANITARY WATER ENVIRONMENTAL TRANSPORTATION
6320 FLY ROAD SUITE 109
EAST SYRACUSE, NY 13057
PH: 315.432.1089 FAX: 315.445.7981

STATE OF NEW YORK — RUDY L. ZONA — 079543 — LICENSED PROFESSIONAL ENGINEER

UTILIZED FOR STORMWATER AND SANITARY DESIGN

REGISTERED LANDSCAPE ARCHITECT — SCOTT LEE FREEMAN — STATE OF NEW YORK

CLIENT:
HOAG ROAD PROPERTIES, LLC

ISSUED AND REVISIONS NOTIFICATION

No.	Rev.	Description	Date	No.	Rev.	Description	Date
1	1	CHECK SET-TOWN OF MANLIUS	[illegible]	8	8	21 LOT SITE PLAN REVISIONS	01/04/19
2	2	CHECK SET-TOWN OF MANLIUS	[illegible]	9	9	MANLIUS- PLAN SUBMISSION	06/14/19
3	3	PUBLIC HEARING- MANLIUS	[illegible]	10	10	MANLIUS- PLAN SUBMISSION	07/12/19
4	4	PUBLIC HEARING- MANLIUS	06/04/19	11	11	MANLIUS- PLAN SUBMISSION	09/23/19
5	5	PUBLIC HEARING- MANLIUS	[illegible]	12	12	MANLIUS- PLAN SUBMISSION	12/18/19
6	6	TOWN REV.-21 LOTS-MANLIUS	09/23/19	13	13	MANLIUS- PLAN SUBMISSION	12/18/19
7	7	MANLIUS-21 HOME LOTS-PL BD	[illegible]				

△ - Symbol Indicates Revision Issued

Drawn By:	VER
Checked By:	SF
KFA Proj. No:	37050
Date:	DECEMBER 1, 2017
Scale:	AS NOTED

Title:
SITE PREPARATION AND BORING LOCATION PLAN

L-100

Plotted By:
Date Plotted:
Drawing File: