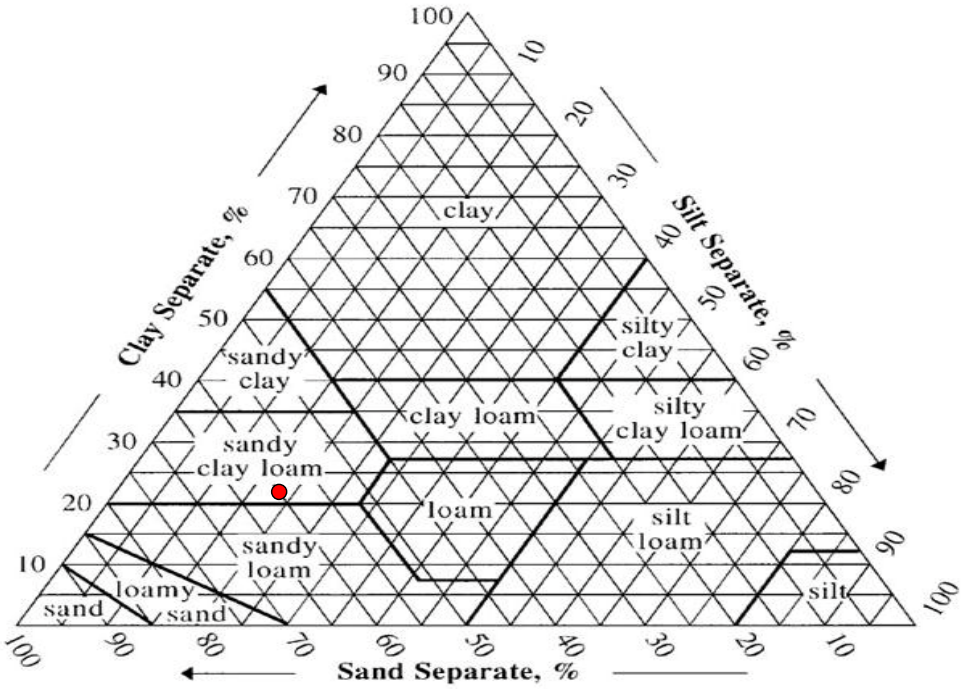
Soil Classification Report

Per ASTM Designations D 421 and D 422 (USDA Soil Textural Triangle)

April 12, 2024
Client: Prologis
Project: 7600 Linglestown Road
Project Number: 20213892.002A

Boring/ Test Pit: I-7
Sample: S-1
Depth: 5' - 6'
As-Received Moisture: 23.5%

Soil Texture Triangle



Sand %	Silt %	Clay %	Soil Textural Class
60.0%	18.5%	21.5%	SANDY CLAY LOAM

Reviewed by: S. Baker

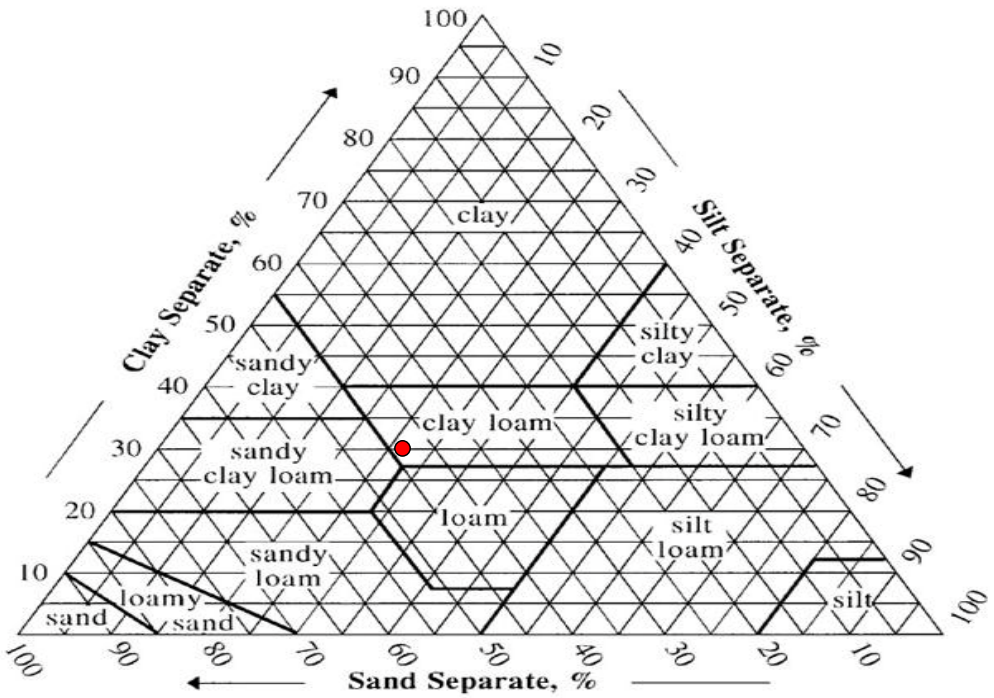
Soil Classification Report

Per ASTM Designations D 421 and D 422 (USDA Soil Textural Triangle)

April 12, 2024
Client: Prologis
Project: 7600 Linglestown Road
Project Number: 20213892.002A

Boring/ Test Pit: I-9
Sample: S-1
Depth: 1' - 2'
As-Received Moisture: 24.1%

Soil Texture Triangle



Sand %	Silt %	Clay %	Soil Textural Class
43.5%	26.7%	29.8%	CLAY LOAM

Reviewed by: S. Baker

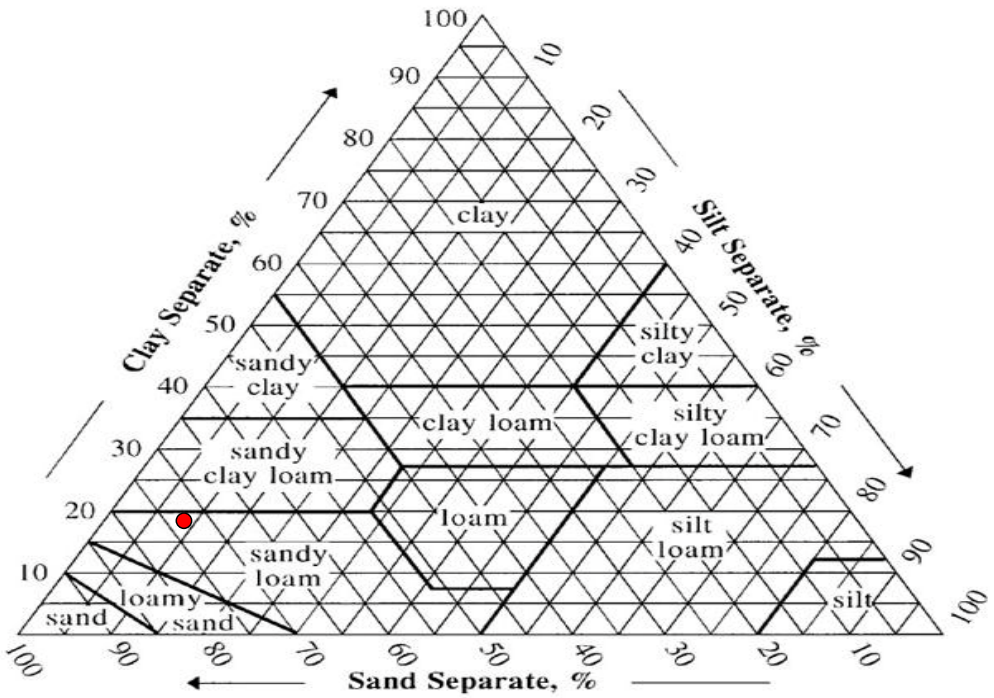
Soil Classification Report

Per ASTM Designations D 421 and D 422 (USDA Soil Textural Triangle)

April 12, 2024
Client: Prologis
Project: 7600 Linglestown Road
Project Number: 20213892.002A

Boring/ Test Pit: I-12
Sample: S-1
Depth: 3' - 4'
As-Received Moisture: 16.5%

Soil Texture Triangle



Sand %	Silt %	Clay %	Soil Textural Class
73.0%	8.9%	18.1%	SANDY LOAM

Reviewed by: S. Baker

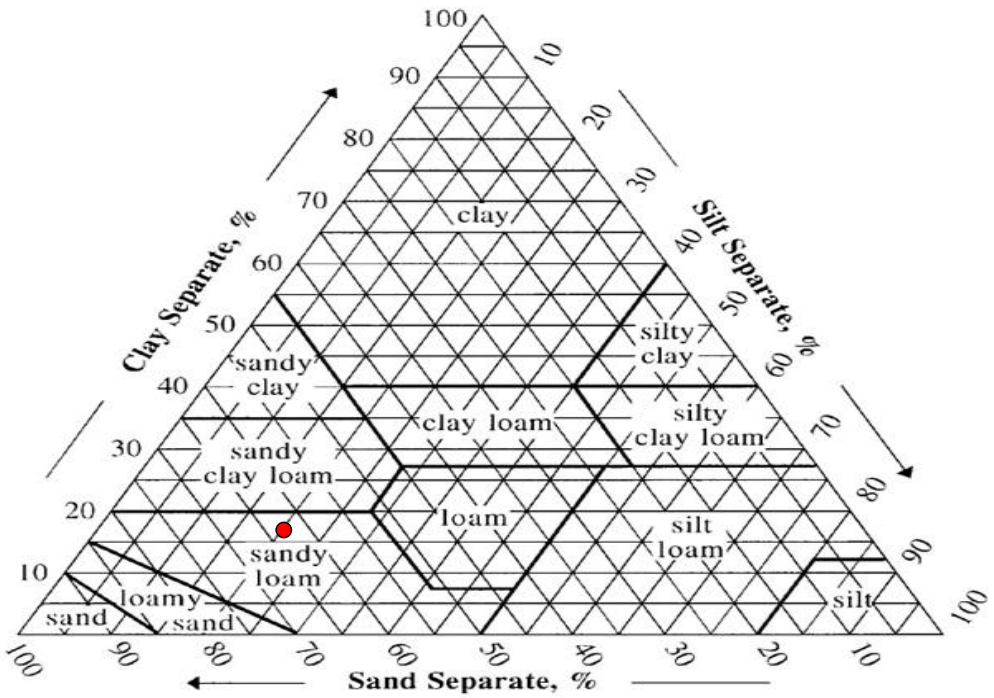
Soil Classification Report

Per ASTM Designations D 421 and D 422 (USDA Soil Textural Triangle)

April 12, 2024
Client: Prologis
Project: 7600 Linglestown Road
Project Number: 20213892.002A

Boring/ Test Pit: I-23
Sample: S-1
Depth: 3'
As-Received Moisture: 15.0%

Soil Texture Triangle



Sand %	Silt %	Clay %	Soil Textural Class
62.9%	20.5%	16.6%	SANDY LOAM

Reviewed by: S. Baker

Date Begin - End: 3/28/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 45° cloudy

TEST PIT LOG I-1

PA State Plane South
Latitude: 40.35570° N
Longitude: -76.74114° E
Approximate Ground Surface Elevation (ft.): 530.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 6" dark brown organic soil									
			Stratum I 529.5 **Silty CLAY (CL)**: brown, moist									
			Stratum II 528.3 **Silty GRAVEL with Sand (GM)**: brown, moist, (weathered bedrock)									
525	5											Infiltration testing conducted at 6.0 feet
			522.0									
520	10											

The test pit was terminated because of bucket refusal (▲) at approximately 8 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on March 28, 2024. Rock was encountered at a depth of 8 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-1

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-2

Date Begin - End:	3/28/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

FIELD EXPLORATION

PA State Plane South
Latitude: 40.35557° N
Longitude: -76.74145° E
Approximate Ground Surface Elevation (ft.): 533.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 6" dark brown organic soil									
			Stratum I 532.5 **Silty CLAY (CL)**: brown, moist									
			Stratum II 531.3 **Silty GRAVEL with Sand (GM)**: brown, moist, (weathered bedrock)									
530												
	5											Infiltration testing conducted at 5.0 feet
			526.0									
525												
	10											
520												

The test pit was terminated because of bucket refusal (▲) at approximately 7 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on March 28, 2024. Rock was encountered at a depth of 7 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-2

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-3

Date Begin - End:	3/28/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

FIELD EXPLORATION

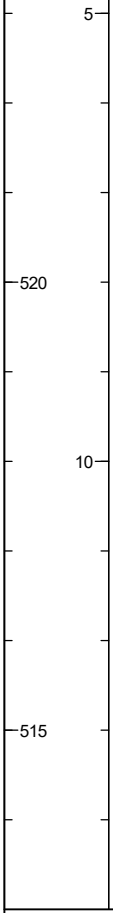
PA State Plane South
Latitude: 40.35554° N
Longitude: -76.73705° E
Approximate Ground Surface Elevation (ft.): 528.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 12" dark brown organic soil									
			Stratum I 527.0 **Silty CLAY with Gravel (CL)**: brown, moist									Infiltration testing conducted at 1.0 foot
525			525.0									

The test pit was terminated at approximately 3 ft. below ground surface.
The test pit was backfilled with excavated material on March 28, 2024.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 3 ft. below ground surface during excavation.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.



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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-3

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/28/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 45° cloudy

TEST PIT LOG I-4

Approximate Elevation (feet) / Depth (feet)	Graphical Log	FIELD EXPLORATION: Lithologic Description	Sample Type	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
525 / 0		PA State Plane South Latitude: 40.35492° N Longitude: -76.73659° E Approximate Ground Surface Elevation (ft.): 526.00 Surface Condition: Grass									
		Topsoil: 12" dark brown organic soil									
		Stratum II 525.5 **Silty GRAVEL (GM)**: brown, moist, (weathered bedrock), mottled									
		522.0									
520 / 5		The test pit was terminated at approximately 4 ft. below ground surface. The test pit was backfilled with excavated material on March 28, 2024.									
515 / 10											

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20213892.002A

DRAWN BY: BM

CHECKED BY: JT

DATE: 4/2/2024

TEST PIT LOG I-4

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/28/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 45° cloudy

TEST PIT LOG I-5

PA State Plane South
Latitude: 40.35486° N
Longitude: -76.73629° E
Approximate Ground Surface Elevation (ft.): 526.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 14" dark brown organic soil									
525			**Stratum II** 525.5 **Silty GRAVEL (GM)**: brown, moist, (weathered bedrock), mottled									
			522.0									
520	5		The test pit was terminated at approximately 4 ft. below ground surface. The test pit was backfilled with excavated material on March 28, 2024.									
515	10											

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-5

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-6

Date Begin - End:	3/28/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

PA State Plane South
Latitude: 40.35461° N
Longitude: -76.73605° E
Approximate Ground Surface Elevation (ft.): 532.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 6" dark brown organic soil									
531.5			**Stratum II**									
530			**Silty GRAVEL (GM)**: brown, moist, (weathered bedrock), mottled									
528.0												
525	5											
520	10											

FIELD EXPLORATION

LABORATORY RESULTS

The test pit was terminated at approximately 4 ft. below ground surface.
The test pit was backfilled with excavated material on March 28, 2024.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-6

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-7

Date Begin - End:	4/05/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

PA State Plane South
Latitude: 40.35873° N
Longitude: -76.73540° E
Approximate Ground Surface Elevation (ft.): 545.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 6" dark brown organic soil									
			Stratum II 544.5 **Clayey GRAVEL with Sand (GC)**: brown, (weathered bedrock)									
540	5		**Clayey GRAVEL with Sand (GC)**: orangish brown, (weathered bedrock) USDA Classification: Sandy Clay Loam									Infiltration testing conducted at 8.0 feet
535	10		533.0									

The test pit was terminated because of bucket refusal ( ) at approximately 12 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on April 05, 2024. Rock was encountered at a depth of 12 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 10 ft. below ground surface during excavation.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: MN
CHECKED BY: JT
DATE: 4/8/2024

TEST PIT LOG I-7

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-8

Date Begin - End:	4/05/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

PA State Plane South
Latitude: 40.35837° N
Longitude: -76.73546° E
Approximate Ground Surface Elevation (ft.): 545.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 10" dark brown organic soil									
			Stratum II 544.2 **Clayey GRAVEL with Cobbles (GC)**: reddish brown, (weathered bedrock)									Infiltration testing conducted at 3.0 feet
540	5		540.0									
535	10											

The test pit was terminated because of bucket refusal (▲) at approximately 5 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on April 05, 2024. Rock was encountered at a depth of 5 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20213892.002A
DRAWN BY:	MN
CHECKED BY:	JT
DATE:	4/8/2024

TEST PIT LOG I-8

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-9

Date Begin - End:	4/05/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

PA State Plane South
Latitude: 40.35833° N
Longitude: -76.73603° E
Approximate Ground Surface Elevation (ft.): 566.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
565	0		**Topsoil**: 4" dark brown organic soil									
			Stratum II 565.7 **Clayey GRAVEL with Sand (GC)**: tan									Infiltration testing conducted at 0.5 foot
			Clayey GRAVEL with Sand (GC): reddish brown, (weathered bedrock) USDA Classification: Clay Loam									
			562.0									
560	5											
555	10											

The test pit was terminated because of bucket refusal ( ) at approximately 4 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on April 05, 2024. Rock was encountered at a depth of 4 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: MN
CHECKED BY: JT
DATE: 4/8/2024

TEST PIT LOG I-9

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/29/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 55° cloudy

TEST PIT LOG I-10

PA State Plane South
Latitude: 40.35821° N
Longitude: -76.73586° E
Approximate Ground Surface Elevation (ft.): 574.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 3" dark brown organic soil									
			Stratum II 573.7 **GRAVEL with Sand (GM)**: red brown, moist									
570	5		**Silty SAND with Gravel (SM)**: orange brown, moist									
565	10		**Silty GRAVEL with Sand (GM)**: brown, moist, (weathered bedrock)									Infiltration testing conducted at 8.0 feet
			564.0									
560												

The test pit was terminated at approximately 10 ft. below ground surface.
The test pit was backfilled with excavated material on March 29, 2024.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: MN
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-10

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-11

Date Begin - End:	3/29/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	55° cloudy		

FIELD EXPLORATION

PA State Plane South
Latitude: 40.35805° N
Longitude: -76.73583° E
Approximate Ground Surface Elevation (ft.): 583.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 3" dark brown organic soil									
			Stratum II 582.7 **Silty GRAVEL with Sand (GM)**: red brown, moist, (weathered bedrock)									
580												
	5											Infiltration testing conducted at 5.0 feet
			576.0									
575												
	10											
570												

The test pit was terminated because of bucket refusal (▲) at approximately 7 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on March 29, 2024. Rock was encountered at a depth of 7 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: MN
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-11

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 4/05/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 45° cloudy

TEST PIT LOG I-12

PA State Plane South
Latitude: 40.35796° N
Longitude: -76.73535° E
Approximate Ground Surface Elevation (ft.): 558.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
557.8	0		**Topsoil**: 2" dark brown organic soil									
			Stratum II									
			Clayey GRAVEL with Cobbles (GC): reddish brown, (weathered bedrock)									
555												
			Clayey GRAVEL with Sand: reddish brown, USDA Classification: Sandy Loam									
	5											Infiltration testing conducted at 5.0 feet
551.0												
550			The test pit was terminated because of bucket refusal (▲) at approximately 7 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on April 05, 2024. Rock was encountered at a depth of 7 ft. during this exploration.									
	10											
545												

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: MN
CHECKED BY: JT
DATE: 4/8/2024

TEST PIT LOG I-12

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-13

Date Begin - End:	4/05/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

PA State Plane South
Latitude: 40.35813° N
Longitude: -76.73538° E
Approximate Ground Surface Elevation (ft.): 563.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 6" dark brown organic soil									
			Stratum II 562.5 **Clayey GRAVEL with Cobbles (GC)**: reddish brown, (weathered bedrock)									
560												
	5											Infiltration testing conducted at 4.0 feet
			557.0									
555												
	10											
550												

The test pit was terminated because of bucket refusal ( ) at approximately 6 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on April 05, 2024. Rock was encountered at a depth of 6 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20213892.002A
DRAWN BY: MN
CHECKED BY: JT
DATE: 4/8/2024

TEST PIT LOG I-13

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End:	4/05/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

TEST PIT LOG I-14

PA State Plane South
Latitude: 40.35812° N
Longitude: -76.73529° E
Approximate Ground Surface Elevation (ft.): 557.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
555	0		**Topsoil**: 6" dark brown organic soil									
			Stratum II 556.5 **Clayey GRAVEL with Cobbles (GC)**: reddish brown, (weathered bedrock)									Infiltration testing conducted at 3.0 feet
	5		552.0									
550												
	10											
545												

The test pit was terminated because of bucket refusal ( ) at approximately 5 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on April 05, 2024. Rock was encountered at a depth of 5 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20213892.002A
DRAWN BY:	MN
CHECKED BY:	JT
DATE:	4/8/2024

TEST PIT LOG I-14

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-15

Date Begin - End:	3/29/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	55° cloudy		

PA State Plane South
Latitude: 40.35797° N
Longitude: -76.73526° E
Approximate Ground Surface Elevation (ft.): 555.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 9" dark brown organic soil									
			Stratum II 554.2 **Silty GRAVEL with Sand (GM)**: red brown, moist, (weathered bedrock)									
550	5											Infiltration testing conducted at 5.0 feet
			548.0									
545	10											

The test pit was terminated because of bucket refusal (▲) at approximately 7 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on March 29, 2024. Rock was encountered at a depth of 7 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-15

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/29/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 55° cloudy

TEST PIT LOG I-16

PA State Plane South
Latitude: 40.35748° N
Longitude: -76.73514° E
Approximate Ground Surface Elevation (ft.): 520.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 3" dark brown organic soil									
			Stratum II 519.7 **Clayey SAND with Gravel (SC)**: brown, moist									Infiltration testing conducted at 1.5 feet
			Silty GRAVEL with Sand (GM): brown, moist, (weathered bedrock)									
			516.5									
515	5											
510	10											

The test pit was terminated at approximately 3.5 ft. below ground surface. The test pit was backfilled with excavated material on March 29, 2024.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 3.5 ft. below ground surface during excavation.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-16

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/29/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 55° cloudy

TEST PIT LOG I-17

PA State Plane South
Latitude: 40.35716° N
Longitude: -76.73512° E
Approximate Ground Surface Elevation (ft.): 532.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
531.8	0		**Topsoil**: 2" dark brown organic soil									
			Stratum II									
			Clayey SAND with Gravel (SC): olive brown, moist									
530												
			Silty GRAVEL with Sand (GM): black and brown, moist, (weathered bedrock)									
	5											Infiltration testing conducted at 5.5 feet
525												
524.5												

The test pit was terminated because of bucket refusal (▲) at approximately 7.5 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on March 29, 2024. Rock was encountered at a depth of 7.5 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20213892.002A	TEST PIT LOG I-17
	DRAWN BY: BM	7600 Linglestown Road West Hanover Township Dauphin County, Pennsylvania
	CHECKED BY: JT	
	DATE: 4/2/2024	Page: 1 of 1

TEST PIT LOG I-18

Date Begin - End:	3/29/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	55° cloudy		

PA State Plane South
Latitude: 40.35721° N
Longitude: -76.73497° E
Approximate Ground Surface Elevation (ft.): 527.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 3" dark brown organic soil									
			Stratum II 526.7 **Clayey SAND (SC)**: olive brown, moist									
525												
			Silty GRAVEL with Sand (GM): black and brown, moist									
	5											Infiltration testing conducted at 5.5 feet
520												
			519.5									
	10											
515												

The test pit was terminated because of bucket refusal ( ) at approximately 7.5 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on March 29, 2024. Rock was encountered at a depth of 7.5 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-18

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/29/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 55° cloudy

TEST PIT LOG I-19

PA State Plane South
Latitude: 40.35751° N
Longitude: -76.73485° E
Approximate Ground Surface Elevation (ft.): 514.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 6" dark brown organic soil									
			Stratum II 513.5 **Clayey SAND with Gravel (SC)**: olive brown, moist									Infiltration testing conducted at 1.0 foot
			Silty GRAVEL with Sand (GM): brown, moist									
510	5											
			507.0									
505	10											
500												

The test pit was terminated at approximately 7 ft. below ground surface.
The test pit was backfilled with excavated material on March 29, 2024.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 3 ft. below ground surface during excavation.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-19

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/28/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 45° cloudy

TEST PIT LOG I-20

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Lithologic Description	Sample Type	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			PA State Plane South Latitude: 40.35584° N Longitude: -76.74073° E Approximate Ground Surface Elevation (ft.): 529.00 Surface Condition: Grass									
			Topsoil: 6" dark brown organic soil									
525	0		**Stratum I** 528.5 **Silty CLAY with Sand (CL)**: brown, moist									Infiltration testing conducted at 3.0 feet
	5		524.0									
520	10											
515												

The test pit was terminated at approximately 5 ft. below ground surface.
The test pit was backfilled with excavated material on March 28, 2024.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-20

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/28/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 45° cloudy

TEST PIT LOG I-21

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Lithologic Description	Sample Type	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			PA State Plane South Latitude: 40.35583° N Longitude: -76.74057° E Approximate Ground Surface Elevation (ft.): 530.00 Surface Condition: Grass									
			Topsoil: 6" dark brown organic soil									
			Stratum I 529.5 **Sandy CLAY with Gravel (ML)**: brown, moist									Infiltration testing conducted at 3.0 feet
525	5		525.0									
520	10											

The test pit was terminated at approximately 5 ft. below ground surface.
The test pit was backfilled with excavated material on March 28, 2024.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-21

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

TEST PIT LOG I-22

Date Begin - End:	3/28/2024	**Excavation Company:**	Gleim Excavating
Logged By:	M. Nguyen	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	NAD83 - Assumed Elevation	**Excavation Equip.:**	John Deere 310SK
Plunge:	N/A degrees	**Excav. Dimensions:**	10x4 ft
Weather:	45° cloudy		

PA State Plane South
Latitude: 40.35592° N
Longitude: -76.73828° E
Approximate Ground Surface Elevation (ft.): 541.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 12" dark brown organic soil									
540			**Stratum I** 540.0 **Silty CLAY with Gravel (CL)**: brown, moist									
			Stratum II 538.0 **Silty GRAVEL with Sand (GM)**: brown, moist, (weathered bedrock)									Infiltration testing conducted at 3.0 feet
	5		536.0									
535												
	10											
530												

The test pit was terminated at approximately 5 ft. below ground surface.
The test pit was backfilled with excavated material on March 28, 2024.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-22

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

Date Begin - End: 3/28/2024 **Excavation Company:** Gleim Excavating

Logged By: M. Nguyen **Excavation Crew:** K. Morrill

Hor.-Vert. Datum: NAD83 - Assumed Elevation **Excavation Equip.:** John Deere 310SK

Plunge: N/A degrees **Excav. Dimensions:** 10x4 ft

Weather: 45° cloudy

TEST PIT LOG I-23

PA State Plane South
Latitude: 40.35593° N
Longitude: -76.73817° E
Approximate Ground Surface Elevation (ft.): 541.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil: 12" dark brown organic soil									
540			**Stratum I** 540.0 **Silty CLAY with Gravel (CL)**: brown, moist									
			Stratum II 538.0 **Silty GRAVEL with Sand (GM)**: brown, moist, (weathered bedrock) USDA Classification: Sandy Loam									Infiltration testing conducted at 3.0 feet
	5		536.0									
535												
	10											
530												

The test pit was terminated at approximately 5 ft. below ground surface.
The test pit was backfilled with excavated material on March 28, 2024.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20213892.002A
DRAWN BY: BM
CHECKED BY: JT
DATE: 4/2/2024

TEST PIT LOG I-23

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

SAMPLE/SAMPLER TYPE GRAPHICS

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after exploration completion)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS

WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit 50 or greater)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

KLEINFELDER
Bright People. Right Solutions.

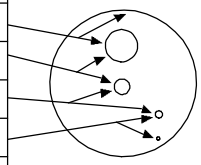
PROJECT NO.: 20213892.002A
DRAWN BY: MN
CHECKED BY: JT
DATE: 12/11/2023

GRAPHICS KEY

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5 ≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1 ≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2 ≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4 ≤ PP	>8000	Thumbnail will not indent soil.

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	Either the LL or the PI (or both) may be used to describe the soil plasticity. The ranges of numbers shown here do not imply that the LL ranges correlate with the PI ranges for all soils.	PI
Non-Plastic	NP		NP
Low	< 30		< 15
Medium	30 - 50		15 - 25
High	> 50		> 25

LL is from Casagrande, 1948. PI is from Holtz , 1959.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

KLEINFELDER
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SOIL DESCRIPTION KEY

7600 Linglestown Road
West Hanover Township
Dauphin County, Pennsylvania