

## **Appendix F**

### **Boring Logs**

**Appendix F  
Boring Logs  
Groundwater Remedial Investigation Report  
Garfield Avenue Group of Sites  
PPG, Jersey City, New Jersey**



Location ID
10W-MW101S
10W-MW102S
10W-MW105I
10W-SS101S
10W-SS102S
10W-SS105I
114-MW17B
114-MW24AR <sup>1</sup>
114-MW25C
114-MW26B
114-MW2B1-2I
114-MW39B
114-MW40B <sup>2</sup>
114-MW41A
114-MW41B
114-MW42A <sup>3</sup>
114-MW43A <sup>4</sup>
114-P1B-MW103D
MW-CR-3D
114-SS-39B
114-SS-40B

Location ID
132-P3A-MW104D-1 <sup>5</sup>
132-P3A-MW104D-2 <sup>5</sup>
114-SS-43A <sup>4</sup>
132-P3A-MW105I
132-P3A-SSI
135-MW1AR
135-MW3BR
135-P3C-MW102S
186-MW02R
DNAPL-S1
DNAPL-W1
GAR-PDI-A11B <sup>4</sup>
GAR-PDI-B`2A
GAR-PDI-B`3A
GAR-PDI-C13B
GAR-PDI-D14B
114-MW45C
114-MW48C
114-MW49C
114-MW50C
114-MW51C

Location ID
114-MW52C
114-MW52D
114-MW53C
114-MW54C
114-MW55C
114-MW56C
114-MW57C
114-MW57D
114-MW58C
114-MW59C
114-MW60C
114-MW61C
114-MW61D
114-MW62C
114-MW63C
114-MW64C
114-MW65C
114-MW66D
114-MW67C
114-MW68C
114-MW69C

Location ID
114-MW70C
114-BSB-01
114-BSB-02
114-BSB-03
132-P3-MW001D
HAL-P3-IRM-003I-B
HAL-P3-IRM-004I-B
HAL-P3-IRM-010I-B

**Notes:**

Boring logs were not generated for wells that were "shared" between this groundwater RI and the Phase I groundwater IRM on Site 114. These include: 114-P1-IRM-5I, 114-P1-IRM-27D, 114-P1-IRM-40D, and 114-P1-MW2I. These monitoring wells were installed by another consultant (ARCADIS).

<sup>1</sup> - 114-MW24AR is a replacement for original RI program well 114-MW24A, and was installed in the same location as the original. The boring log for original well 114-MW24A is provided.

<sup>2</sup> - 114-MW40B was installed in the same location as boring 114-SS-40B. Refer to the boring log for 114-SS-40B for borehole lithology.

<sup>3</sup> - 114-MW42A was installed in the same location as soil PDI boring GAR-PDI-B`2A. Refer to the boring log for GAR-PDI-B`2A for borehole lithology.

<sup>4</sup> - 114-SS-43A and 114-MW43A were installed in the same location as soil PDI boring GAR-PDI-A11B. Refer to the boring log for GAR-PDI-A11B for borehole lithology.

<sup>5</sup> - 132-P3A-MW104D-1 and 132-P3A-MW104D-2 were installed within the same boring. Borehole lithology for both of these locations is provided on the boring log for 132-P3A-MW104D-2.

IRM - interim remedial measure

PDI - pre-design investigation

RI - Remedial Investigation

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60507168	<b>Drilling Method:</b> Augers	<b>Coordinates (NJSPNAD83) x:</b> 610587.4
<b>Date Started Drilling:</b> 1/18/2018 9:30:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682617.1
<b>Date Finished Drilling:</b> 1/18/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 20 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 8.8
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 15.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0 - 1	3.5	0.0		CONCRETE		CONCRETE	
1 - 2			dry	FILL		fine to medium silty SAND, trace gravel trace wood, (7.5YR 3/3) dark brown, loose, dry no odor no staining	
2 - 4	3.5	0.0		FILL		ASH, trace gravel, (5YR 6/1) gray, loose, dry to wet no odor no staining, wet at 9'	
4 - 5			dry to wet				
5 - 10	3	0.0					
10 - 14							
14 - 15	4.5	0.0	wet	FILL		fine SAND, some silt, (5YR 4/3) reddish brown, medium dense, wet no odor no staining	
15 - 17							
17 - 18			moist	PT		PEAT (degraded vegetated material), 60% fibers, 20% organic silt, (7.5YR 4/1) dark gray, soft, moist slight organic odor. Soils consistent with MM.	
18 - 19							
19 - 20							

PPG - 2012-09 RA PPG\_LOGS\_A.GDT - 6/7/18 15:14

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60507168	<b>Drilling Method:</b> Augers	<b>Coordinates (NJSPNAD83) x:</b> 610516.5
<b>Date Started Drilling:</b> 1/19/2018 9:30:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682453.4
<b>Date Finished Drilling:</b> 1/19/2018 1:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 20 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 8.12
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 15.5 ft NAVD88







Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1	3	0.0		CONCRETE		CONCRETE	
2			dry	FILL		ASH, trace silt, (5YR 6/1) gray, loose, dry no odor no staining	
3			dry	FILL		fine to medium silty SAND, trace gravel trace wood, (7.5YR 3/4) dark brown, loose, dry no odor no staining	
4	3.5	0.0					
5							
6							
7			dry to wet	FILL		ASH, trace silt, (7.5YR 4/1) dark gray, loose, dry to wet no odor no staining, wet at 9'	
8	3.5	0.0					
9							
10							
11							
12							
13			wet	FILL		fine SAND, trace silt, (5YR 4/3) reddish brown, medium dense, wet no odor no staining	
14	3.5	0.0					
15							
16							
17			moist	PT		PEAT (degraded vegetated material), 60% fibers, 40% organic silt, (7.5YR 3/4) dark brown, soft, moist slight organic odor. Soils consistent with MM.	
18							
19							
20							

PPG - 2012-09 RA PPG\_LOGS\_A.GDT - 6/7/18 15:14

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60507168	<b>Drilling Method:</b> Augers/Mud Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610626.9
<b>Date Started Drilling:</b> 1/3/2018 11:30:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682304.3
<b>Date Finished Drilling:</b> 1/10/2018 4:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 40 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 4.82
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 11.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1			dry	ASPHALT FILL		ASPHALT fine to coarse silty SAND, (5YR 2.5/1) black, loose, dry to moist no odor no staining, wet at 5.5' (Hand Excavated)	
2							
3							
4							
5							
6			wet	FILL		fine to coarse silty SAND, trace gravel, (5YR 2.5/1) black, very loose, wet no odor no staining	
7	1	0.0					
8			wet	FILL		fine to medium silty SAND, trace gravel trace wood, very loose, wet no odor no staining	
9	1.17	0.0					
10			wet	FILL		SILT, little fine to medium sand, (5YR 5/1) gray, very soft, wet no odor no staining	
11	1.17	0.0					
12			moist	PT		PEAT (degraded vegetated material), 80% fibers, 20% Organic Silt, (7.5YR 4/1) dark gray, moist slight organic odor. Soils consistent with MM.	
13	1.83	0.0					
14							
15	0.5	0.0					
16				ML		SILT, trace fine sand, (5YR 5/1) gray, very soft, wet no odor no staining. Soils consistent with UNDorg.	
17	2	0.0					
18							
19	0.5	0.0					
20							
21	1.67	0.0					

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60507168	<b>Drilling Method:</b> Augers/Mud Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610626.9
<b>Date Started Drilling:</b> 1/3/2018 11:30:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682304.3
<b>Date Finished Drilling:</b> 1/10/2018 4:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 40 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 4.82
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 11.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID	
23	1.5	0.0	wet	SP		fine to medium SAND, trace silt trace gravel, (5YR 5/1) gray, medium dense, wet no odor no staining. Soils consistent with UNDno.		
24	1.33	0.0	wet	SP		fine to medium SAND, trace silt trace gravel, (5YR 4/3) reddish brown, loose, wet no odor no staining. Soils consistent with UNDno.		
25								
26	1	0.0						
27								
28	1	0.0	wet	SP			fine SAND, trace silt, (5YR 4/3) reddish brown, very loose, wet no odor no staining. Soils consistent with UNDno.	
29								
30	1	0.0						
31								
32	1.17	0.0						
33								
34	1.17	0.0						
35								
36	1	0.0						
37								
38	1	0.0						
39								
40								

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:





<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 610641.8
<b>Date Started Drilling:</b> 7/10/2017 12:00:00 PM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682588.8
<b>Date Finished Drilling:</b> 7/10/2017 1:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 20 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 15.3 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
		0.0		CONCRETE		CONCRETE	
1			dry	FILL		fine to coarse silty SAND, little fill debris, (5YR 2.5/1) black, dry to moist no odor no staining	
2			moist	FILL		SILT, trace fill debris, (5YR 2.5/1) black, moist no odor no staining	
3			moist	FILL		CINDERS, and ash, (5YR 4/1) dark gray, moist no odor no staining	
4	4			NR		NO RECOVERY	
5				NR		NO RECOVERY	
6							
7							
8							
9							
10	0						
11							
12							
13							
14							
15	0		saturated	FILL		CINDERS, and ash, (5YR 6/1) gray, saturated no odor no staining	
16			wet	FILL		fine to medium silty SAND, (5YR 5/3) reddish brown, wet no odor no staining	
17			wet	FILL		SILT, (5YR 2.5/1) black, wet no odor no staining	
18			moist	PT		PEAT (degraded vegetated material), (50% Organic Fiber, 50% Organic Silt), (5YR 2.5/1) black, moist moderate organic odor no staining	
19							
20	4						

PPG - 2012-09 RA PPG\_LOGS\_A.GDT - 6/7/18 14:48

<b>Notes:</b> bgs - below surface grade MM - meadow mat	COPR - chromite ore processing residue GGM - green grey mud	UNDno - non-organic undisturbed native deposits UNDorg - organic undisturbed native deposits	MGP - manufactured gas plant CCPW - chromate chemical production waste
<b>Comments:</b>			

<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 610568.1
<b>Date Started Drilling:</b> 7/11/2017 10:58:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682447.4
<b>Date Finished Drilling:</b> 7/11/2017 1:45:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 15 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 15.6 ft NAVD88



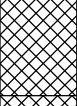
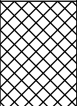
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1	3.5	0.0		CONCRETE		CONCRETE	
2			dry	FILL		fine to medium silty SAND, little fill debris (coal, brick, and metal), (7.5YR 5/2) brown, dry to moist no odor no staining	
3				NR		NO RECOVERY	
4	2	0.0		NR		NO RECOVERY	
5			moist	FILL		SILT, trace fine sand, fill debris (coal and glass), (7.5YR 4/2) brown, moist to saturated no odor no staining	
6			moist	FILL		ASH, little ash, (5YR 2.5/1) black, moist no odor no staining	
7				NR		NO RECOVERY	
8	0	0.0					
9							
10							
11							
12							
13							
14							
15							

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Comments:




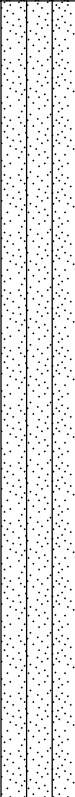
<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 610608
<b>Date Started Drilling:</b> 7/13/2017 11:15:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682323.4
<b>Date Finished Drilling:</b> 7/13/2017 1:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 35 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 11.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID	
1	5	0.0		ASPHALT		ASPHALT, and Subbase, (5YR 2.5/1) black		
2			dry	FILL		fine to medium silty SAND, (5YR 2.5/1) black, dry to moist no staining, slight naphthalene like odor		
3			moist	FILL		fine to coarse SAND, little fill debris, silt silt, (5YR 2.5/1) black, moist to wet no odor no staining		
4								
5	3.5	0.0						
6								
7								
8								
9				NR		NO RECOVERY		
10								
11								
12								
13	0	0.0						
14								
15								
16								
17	0	0.0						
18								
19								
20								
20	5	0.0	wet	FILL		fine to coarse silty SAND, (5YR 6/1) gray, wet no odor no staining		
21								

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Comments:

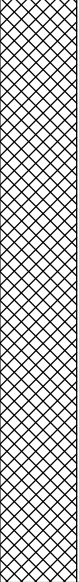
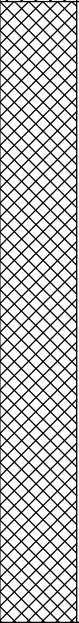



<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 610608
<b>Date Started Drilling:</b> 7/13/2017 11:15:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682323.4
<b>Date Finished Drilling:</b> 7/13/2017 1:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 35 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 11.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23			wet	SM		fine to coarse silty SAND, (5YR 3/3) dark reddish brown, wet no odor no staining. Soils consistent with UNDno.	
24							
25							
26							
27	5	0.0					
28							
29							
30							
31							
32	5	0.0					
33							
34							
35							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.1
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683901.8
<b>Date Finished Drilling:</b> 7/9/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1-7	72 /	0	DRY	FILL		Soft dig to 5 ft bgs; Brown and gray DGA, fine to medium SAND and fine to coarse GRAVEL, loose, little black material at 8', dry.		
8-16	96 /	0	WET	FILL		Black DGA (FILL) material, consisting of black SAND and GRAVEL, loose to medium dense, wet.		
17			WET	ML		Light gray sandy SILT, wet.		
18	120 /	0	WET	ML		Light gray sandy SILT, wet.		
19			WET	SW		Reddish brown, silty fine to medium SAND and GRAVEL, well graded, loose to medium dense, wet.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:35

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
 DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.1
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683901.8
<b>Date Finished Drilling:</b> 7/9/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88





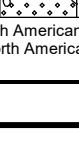
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21-22			WET	SW				
23-27			WET	SM		Gray, very fine silty SAND, loose to medium dense, wet.		
28-29	/	0	WET	SM		Gray, very fine silty SAND, wet.		
30-32			WET	SW		Reddish brown fine to medium SAND and fine to coarse GRAVEL, well graded, loose to medium dense, trace SILT, wet.		
33-34			WET	SP		SAND, poorly graded, loose to medium dense, wet.		
35-37			WET	SW		Reddish brown, fine to coarse SAND and subangular GRAVEL, well graded, medium dense, wet.		
38-39	60 /	0		NR		No Recovery		

PPG WITH WELL CONSTRUCTION - - 25/21 12:35

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DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.1
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683901.8
<b>Date Finished Drilling:</b> 7/9/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41				NR				
42								
43								
44								
45								
46			WET	SM/GM		Reddish brown, fine to medium silty SAND and fine to coarse GRAVEL, well graded, medium dense, density increases after 47' with lesser water content.		
47								
48	108 /	0						
49								
50			WET	SM/GM		Reddish brown, very fine to fine/medium silty SAND and fine to coarse subangular and subrounded GRAVEL, well graded, medium dense, trace SILT and CLAY, wet.		
51								
52								
53								
54								
55			WET	SW-GW		Reddish brown, fine SAND and fine to coarse GRAVEL, medium dense, with little SILT and CLAY and trace cobbles, wet.		
56								
57								
58	60 /	0	WET	SM-GM		Light brown-gray, fine silty SAND and fine to coarse GRAVEL, well graded, subangular and subrounded, wet.		
59			WET	SW-GW		Brown, fine to coarse SAND and fine to coarse GRAVEL, well graded, medium dense, wet.		

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.1
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683901.8
<b>Date Finished Drilling:</b> 7/9/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88


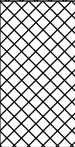

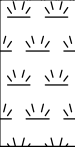


Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61			WET	SW-GW		Gray/brown SAND and fine to medium GRAVEL (angular to sub-angular), very dense, dry (Basal Till).		
62			DRY	SP-GP				
63	60 /	0	DRY	GP		Gray, broken fragments of possible bedrock, some angular gravel, dry (Basal Till).		
64						Black Diabase. End of boring at 68 ft.		
65				BEDROCK				
66								
67								
68								

PPG WITH WELL CONSTRUCTION - - 25/21 12:35

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611029
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683757.3
<b>Date Finished Drilling:</b> 7/10/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 73 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
0 - 5	0 /	0	DRY	FILL		Soft dig to 5 ft bgs. Gray fine to medium SAND and GRAVEL, loose, dry (DGA).		
6 - 7	24 /	0	DRY	FILL		Gray fine to medium SAND and GRAVEL, loose, dry (DGA).		
8 - 13	120 /	0	WET	FILL		DGA (FILL) material consisting of fine to medium SAND and GRAVEL, wet.		
14 - 15			DRY	PT		Brown, PEAT meadow mat, highly organic, mostly dry.		
16 - 17			MOIST	ML		Gray, clayey SILT with trace fine GRAVEL, soft, moist.		
18 - 19	108 /	0	WET	GC-GM		Gray, fine to medium GRAVEL and fine SAND, with some CLAY and SILT, loose, wet.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:35

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611029
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683757.3
<b>Date Finished Drilling:</b> 7/10/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 73 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21			WET	GC-GM				
22			WET	SM/GM		Reddish brown, fine silty SAND and fine to coarse GRAVEL, well graded, loose to medium dense, wet.		
23			WET	GP		Reddish brown, fine to medium GRAVEL with fine silty SAND, poorly graded, loose, wet.		
24			WET	SP		Reddish brown, fine to medium SAND with trace to little fine GRAVEL, poorly graded, loose to medium dense, wet.		
25			WET	SP				
26			WET	SP				
27			WET	SM		Reddish brown, fine silty SAND, medium dense, wet.		
28	96 /	0				Reddish brown, very fine to fine SAND with occasional silty SAND, poorly graded, loose, wet.		
29								
30								
31			WET	SP-SM				
32								
33								
34								
35								
36			MOIST TO WET	SM/GM		Reddish brown, very fine silty SAND and fine to coarse GRAVEL, well graded, medium dense to dense, tight, moist to wet.		
37								
38	108 /	0				Dark brown, fine to medium silty and clayey SAND, with some fine to coarse subangular and subrounded GRAVEL, medium dense, trace cobbles, moist to wet.		
39			MOIST TO WET	SM-SC				

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Comments:



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611029
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683757.3
<b>Date Finished Drilling:</b> 7/10/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 73 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-47			MOIST TO WET	SM-SC				
48-54	120 /	0	MOIST TO WET	SW-GW		Dark brown, fine to medium silty SAND with some fine to coarse subangular and subrounded GRAVEL, well graded, medium dense, trace cobbles, moist to wet.		
54-55			VERY DRY	SW		Brown, SAND with rock fragments, very dry.		
55-57			MOIST	SM		Dark brown, fine to medium silty SAND with some fine to medium subangular and subrounded GRAVEL, with trace cobble/broken cobble, dense, moist (Basal Till).		
58-59	60 /	0	MOIST TO WET	SM		Dark brown, fine to medium silty SAND with some fine to coarse GRAVEL (well graded), broken cobble, medium dense, moist to wet (Basal Till).		

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611029
<b>Date Started Drilling:</b> 7/9/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683757.3
<b>Date Finished Drilling:</b> 7/10/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 73 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61			MOIST TO WET	SM				
62				MH		Gray, clayey SILT with angular GRAVEL, highly compressed (Basal Till).		
63	60 /	0	DRY	BEDROCK		Gray, weathered BEDROCK, with some broken rock pieces, dry.		
64						Gray to light gray, weathered BEDROCK, with some small dark gray rock pieces less than 4" at 67.5' - 68'.		
65				BEDROCK				
66								
67								
68	48 /					Black Diabase. End of boring at 73.0 ft.		
69								
70				BEDROCK				
71								
72								
73								

PPG WITH WELL CONSTRUCTION - - 25/21 12:35

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611026.8
<b>Date Started Drilling:</b> 7/10/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683530.4
<b>Date Finished Drilling:</b> 7/11/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 81 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1-5	/	0	DRY TO WET	FILL		Soft dig to 5 ft bgs; Gray DGA material (FILL), fine to coarse SAND and GRAVEL, wet at 3'.		
6-7	/	0		FILL		Gray, DGA material (FILL), loose, trace FerroBlack-H at 7.5' to 8'.		
8-15	120 /	0	WET	FILL		Gray, DGA material (FILL), fine to coarse SAND and GRAVEL, cobbles, loose, wet, some clayey gray/brown fine sand with gravel at 15' - 16'.		
16-17				PT		Brown PEAT meadow mat, mostly dry, highly organic.		
18-19	120 /	0	WET	CL		Gray CLAY, soft, wet.		
			WET	CL		Gray CLAY and fine to medium GRAVEL, wet.		

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611026.8
<b>Date Started Drilling:</b> 7/10/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683530.4
<b>Date Finished Drilling:</b> 7/11/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 81 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

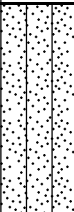




Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21			WET	CL				
22-23			WET	SP		Reddish brown, fine to coarse SAND and rounded GRAVEL, poorly graded, loose, wet.		
24-27			WET	SP		Reddish brown, fine to medium SAND, poorly graded, loose, wet.		
28-37	120 /	0	WET	SP/SM		Reddish brown, fine SAND, poorly graded, loose, wet. Intervals of fine silty SAND at 32' to 33' and 37' to 38'. Yellow groundwater observed leaching out of soil at 33' to 38'.		
38-39	120 /	0	WET	SM		Very fine silty SAND, loose, wet. Soil saturated with yellow leaching material.		

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611026.8
<b>Date Started Drilling:</b> 7/10/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683530.4
<b>Date Finished Drilling:</b> 7/11/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 81 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-42			WET	SM				
43-46			WET	CL-ML		Reddish brown, silty CLAY with some clayey SILT, soft to medium stiff, wet.		
47-48			WET	SW-GW		Reddish brown, gravelly SAND and fine to coarse GRAVEL, some sand and sandy gravel, trace cobbles, loose to medium dense, wet.		
48-58	48 /	0	WET TO DAMP	SM		Dark brown to reddish brown/gray, fine silty and clayey SAND and fine to coarse GRAVEL with cobbles, medium dense to dense, wet (53' to 58'). Possibly running sands from 48' to 53'. Becoming damp to dry at 57' to 58'. Subangular to angular gravel at 57' to 58'.		
58-59	12 /	0	DAMP TO DRY	SM-SC		Brown, fine silty and clayey SAND with fine to coarse GRAVEL, cobbles, loose to medium dense (appears to be continuation of lithology observed at 57' to 58').		

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611026.8
<b>Date Started Drilling:</b> 7/10/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683530.4
<b>Date Finished Drilling:</b> 7/11/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 81 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88


Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-62			DAMP TO DRY	SM-SC				
63-67	60 /	0		SM-SC		Brown, fine silty and clayey SAND with fine to coarse GRAVEL, cobbles, loose to medium dense.		
68-72	48 /	0		SW/GW		Dark brown, fine to coarse SAND and GRAVEL (subangular and subrounded), possible Basal Till, broken up into fragments due to water injection.		
73-75	36 /	7	MOIST TO WET	GM-GC		Dark brown to gray, fine to coarse silty and clayey GRAVEL with fine to coarse GRAVEL, medium dense, moist to wet (Basal Till). Broken rock fragments at 75.5' to 76'.		
76-79	30 /	0		BEDROCK		Dark gray to black siltstone (Lockatong Formation). End of boring at 81 ft.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:35

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DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS North America	<b>Top of PVC Elevation:</b> Not Applicable ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611026.8
<b>Date Started Drilling:</b> 7/10/2019	<b>Rig Type:</b> Track-Mounted Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683530.4
<b>Date Finished Drilling:</b> 7/11/2019	<b>Core Size:</b> 4 in	<b>Boring Total Depth:</b> 81 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88




Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81				BEDROCK				

PPG WITH WELL CONSTRUCTION - - 25/21 12:35

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**Comments:**

<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611639
<b>Date Started Drilling:</b> 10/17/2017 11:30:00 AM	<b>Rig Type:</b> CRS XL Max	<b>Coordinates (NJSPNAD83) y:</b> 683809
<b>Date Finished Drilling:</b> 10/20/2017 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 38 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> FSP		<b>Surface Elevation:</b> 24.1 ft NAVD88

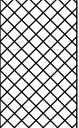
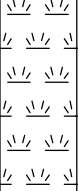


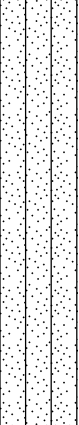
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1	5	0.0	dry	FILL		ASPHALT MILLINGS	
2			dry to moist	FILL		fine to medium silty SAND, little fill debris, (5YR 2.5/1) black, dry to moist no odor no staining	
3							
4							
5				NR		NO RECOVERY	
6							
7							
8							
9							
10							
11	2	0.0					
12							
13							
14							
15							
16							
17							
18			wet	FILL		fine to coarse silty SAND, some fine to coarse gravel, (5YR 4/3) reddish brown, wet no odor no staining	
19							
20							
21							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:



<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611639
<b>Date Started Drilling:</b> 10/17/2017 11:30:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683809
<b>Date Finished Drilling:</b> 10/20/2017 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 38 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> FSP		<b>Surface Elevation:</b> 24.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23	10	0.0					
24			moist	PT		PEAT (degraded vegetated material), (60% Organic Fiber, 40% Organic Silt, (5YR 2.5/1) black, moist moderate organic odor no staining	
25							
26							
27			wet	OH		organic SILT, little organic clay trace organics, (5YR 2.5/1) black, wet slight organic odor no staining	
28	wet	OH		organic clayey SILT, trace fine gravel, (5YR 2.5/1) black, wet slight organic odor no staining			
29							
30							
31	8	0.0					
32			wet	SM		fine to medium silty SAND, little fine to medium gravel, (5YR 4/3) reddish brown, wet no odor no staining	
33							
34							
35							
36							
37							
38							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 611688.5
<b>Date Started Drilling:</b> 2/5/2018 7:00:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683902
<b>Date Finished Drilling:</b> 2/9/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 33 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 7.08
<b>Physical Location:</b> Berry Lane Park		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1	5	0		FILL		Organic Topsoil	
2-3			dry	FILL		fine to medium SAND, trace silt trace gravel, (5Y 2.5/2) black, loose, dry no odor no staining	
4-5	3	0	moist	FILL		fine to medium SAND, trace silt trace gravel, (7.5YR 3/3) dark brown, loose, moist to wet no odor no staining	
6-8			wet	FILL		fine to medium SAND, trace silt trace gravel, (5Y 2.5/1) black, loose, wet no odor no staining	
9-12			moist	FILL		SILT, trace fine sand, (7.5YR 4/2) brown, soft, moist no odor no staining	
13-14	10	0	moist	PT		PEAT (degraded vegetated material), 80%fibers 20% organic silt, soft, moist slight organic odor. Soils consistent with MM.	
15-16			moist	ML		SILT, trace clay trace fine sand, (5YR 6/1) gray, soft, moist to wet no odor no staining. Soils consistent with UNDno.	
17-18			moist	CL		silty CLAY, trace fine sand, (5Y 5/1) gray, medium stiff, moist no odor no staining. Soils consistent with UNDno.	
19	10	0	wet	GW		fine to coarse GRAVEL, trace fine sand, (5YR 4/3) reddish brown, wet no odor no staining. Soils consistent with UNDno.	
20-21			wet	SP		fine to medium SAND, trace gravel, (5YR 4/3) reddish brown, medium dense, wet no odor no staining. Soils consistent with UNDno.	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

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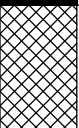
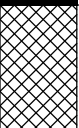



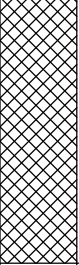
<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 611688.5
<b>Date Started Drilling:</b> 2/5/2018 7:00:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683902
<b>Date Finished Drilling:</b> 2/9/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 33 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 7.08
<b>Physical Location:</b> Berry Lane Park		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23							
24							
25							
26							
27							
28							
29							
30	5	0					
31							
32							
33							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

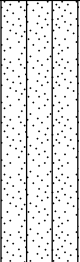
<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Hurricane	<b>Coordinates (NJSPNAD83) x:</b> 611670
<b>Date Started Drilling:</b> 11/29/2011	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683682.5
<b>Date Finished Drilling:</b> 12/1/2011	<b>Core Size:</b> 12 in	<b>Boring Total Depth:</b> 15 ft
<b>Logged By:</b> M. Merdinger	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Forrest St		<b>Surface Elevation:</b> 11.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1			dry	ASPHALT FILL		Asphalt and Gravel	MW24A-0.0
2			dry	FILL		Very Dark Grayish Brown (10YR 3/2) fine to medium SAND and fine to medium rounded Gravel (5% COPR), little Silt, medium dense.	
3			wet	CONCRETE		Dark Reddish Brown (5YR 3/2) fine to medium SAND and fine to medium rounded Gravel (10% COPR), little Silt, medium dense.	MW24A-2.0
4			wet	FILL		Green-stained CONCRETE, weathered.	
5			wet	FILL		Black SILT, little fine angular Gravel, loose. Coal tar odor.	
6			wet	VOID		Black-stained medium to coarse crushed FILL (gravel, coal, glass, ceramics), little fine to coarse Sand and Silt, loose. Slight coal tar odor.	MW24A-5.0
7						No Recovery.	
8							
9							
10			wet	FILL		Black-stained medium to coarse crushed FILL (gravel, coal, glass, ceramics), little fine to coarse Sand and Silt, loose, sheen from 13.6 to 14.0 ft. Strong coal tar odor.	MW24A-10.0
11							
12							
13							
14			moist	PEAT		Dark Reddish Brown (5YR 3/2) PEAT, high Organics, some Silt, stiff. Sulfur and coal tar odor.	MW24A-14.0
15			moist	SILT AND GRAVEL NULL		Reddish Brown (2.5YR 5/4) SILT and fine angular Gravel, trace fine Sand, very dense.	
						End of boring at 15 ft. Well set at 14 ft.	

**Notes:**  
 bgs - below surface grade      COPR - chromite ore processing residue      UNDno - non-organic undisturbed native deposits      MGP - manufactured gas plant  
 MM - meadow mat                  GGM - green grey mud                  UNDOrg - organic undisturbed native deposits      CCPW - chromate chemical production waste

**Comments:** Same borehole lithology for replacement well 114-MW24AR

<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611795.8
<b>Date Started Drilling:</b> 11/3/2017 1:30:00 PM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683600.4
<b>Date Finished Drilling:</b> 10/12/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 58 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Forrest Street		<b>Surface Elevation:</b> 10.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1						See Log for Well 114-MW25B	
2-5	5	0.0					
6-10	5	0.0					
11-15	5	0.0					
16-18	5	0.0					
18-20			wet	SM		fine to medium silty SAND, trace coarse sand, (5YR 4/3) reddish brown, wet no odor no staining	
20-21							

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**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611795.8
<b>Date Started Drilling:</b> 11/3/2017 1:30:00 PM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683600.4
<b>Date Finished Drilling:</b> 10/12/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 58 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Forrest Street		<b>Surface Elevation:</b> 10.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23-24	5	0.0	wet	SM		fine to medium silty SAND, (5YR 4/3) reddish brown, wet no odor no staining	
24-25			wet	SM		fine to medium SAND, little coarse sand, (5YR 4/4) reddish brown, wet no odor no staining	
25-26			wet	SM		fine to medium silty SAND, (5YR 4/3) reddish brown, wet no odor no staining, Green staining to suspended water	
27-28	5	0.0	wet	SM		fine to medium silty SAND, some fine to medium gravel trace coarse sand, (5YR 4/3) reddish brown, wet no odor no staining	
28-29			wet	SM		fine to medium silty SAND, trace coarse sand, (5YR 4/3) reddish brown, wet no odor no staining	
31-32			wet	SM		fine to medium silty SAND, trace clay, (5YR 4/4) reddish brown, wet no odor no staining, Clay occurs in bands of light brown medium plasticity	
33-34	5	0.0	wet	SM		fine to medium silty SAND, trace coarse sand, (5YR 4/3) reddish brown, wet no odor no staining	
38-39			wet	SM		fine silty SAND, (5YR 4/3) reddish brown, wet no odor no staining	
42-43	5	0.0					

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**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611795.8
<b>Date Started Drilling:</b> 11/3/2017 1:30:00 PM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683600.4
<b>Date Finished Drilling:</b> 10/12/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 58 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Forrest Street		<b>Surface Elevation:</b> 10.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45	5	0.0					
46			wet	SM		fine to medium silty SAND, some black angular gravel, (5YR 4/3) reddish brown, wet no odor no staining	
47			wet	GW		fine to coarse GRAVEL, little fine to medium sand trace silt, (7.5YR 4/3) brown, wet no odor no staining	
48	5	0.0					
49							
50							
51	3	0.0					
52							
53							
54							
55			moist	BEDROCK		weathered BEDROCK, (5YR 2.5/1) black, moist no odor no staining	
56							
57							
58							

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**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Garfield Avenue Group of Sites	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611844.2
<b>Date Started Drilling:</b> 10/6/2017 9:00:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683496.2
<b>Date Finished Drilling:</b> 10/10/2017 4:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 43 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Forrest Street		<b>Surface Elevation:</b> 11.6 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID	
0-1	5	0.0		ASPHALT		Asphalt and Subase		
1-2			dry	FILL		fine to medium silty SAND, little fill debris, (5YR 2.5/1) black, dry to moist slight organic odor no staining		
2-3			moist	FILL		CINDERS and ASH, trace fill debris, (5YR 2.5/1) black, moist to wet no staining, slight fuel oil like odor		
3-5	5	0.0	wet	SM		fine to medium silty SAND, trace fine to medium gravel, (5YR 4/3) reddish brown, wet no odor no staining. Soils consistent with UNDno.		
5-10								
10-14								
14-15	5	0.0	wet	SW		fine to coarse SAND, little silt trace fine to coarse gravel, (5YR 3/4) dark reddish brown, wet no odor no staining. Soils consistent with UNDno.		
15-17								
17-20								
20-21			wet	SM		fine to coarse SAND, with silt, (5YR 4/4) reddish brown, wet no odor no staining. Soils consistent with UNDno.		

**Notes:**  
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Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 11:28



<b>Project Name:</b> Garfield Avenue Group of Sites	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611844.2
<b>Date Started Drilling:</b> 10/6/2017 9:00:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683496.2
<b>Date Finished Drilling:</b> 10/10/2017 4:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 43 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Forrest Street		<b>Surface Elevation:</b> 11.6 ft NAVD88













Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23-24	5	0.0	wet	SM		fine to medium silty SAND, (5YR 4/3) reddish brown, wet no odor no staining. Soils consistent with UNDno.	
28-29	5	0.0	wet	SM		fine silty SAND, (5YR 4/3) reddish brown, wet no odor no staining. Soils consistent with UNDno.	
38-39	5	0.0	wet	SM		fine to medium silty SAND, little black sub-angular gravel, (5YR 4/3) reddish brown, wet no odor no staining. Soils consistent with UNDno.	
40-41				GW		Fragmented GRAVEL and COBBLES, (5YR 6/1) gray. Soils consistent with UNDno.	
42-43	3	0.0	wet	SM		fine to medium silty SAND, trace black sub-angular gravel, (5YR 4/3) reddish brown, wet no odor no staining. Soils consistent with UNDno.	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
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Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 11:29

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611599.8
<b>Date Started Drilling:</b> 10/16/2017 10:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682533.1
<b>Date Finished Drilling:</b> 10/16/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 50 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.32
<b>Physical Location:</b> Eden Wood		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1	5			FILL		DGA	
2			dry	FILL		CINDERS, and ash little fill debris, (7.5YR 4/3) brown, dry to wet no odor no staining	
3	5	0.0					
4							
5							
6	5	0.0					
7							
8							
9							
10	5	0.0					
11							
12	5	0.0					
13							
14							
15	5	0.0	wet	FILL		fine to medium silty SAND, trace fill debris, (5YR 4/3) reddish brown, wet no odor no staining	
16							
17	5	0.0	moist	PT		(70% Fibers and 30% Organic Silts) PEAT (degraded vegetated material), (7.5YR 4/2) brown, moist moderate organic odor no staining. Soils consistent with UNDorg.	
18							
19							
20							
21			moist	SM		fine to medium silty SAND, (5YR 6/1) gray, moist to wet no odor no staining. Soils consistent with UNDno.	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611599.8
<b>Date Started Drilling:</b> 10/16/2017 10:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682533.1
<b>Date Finished Drilling:</b> 10/16/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 50 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.32
<b>Physical Location:</b> Eden Wood		<b>Surface Elevation:</b> 11.1 ft NAVD88





Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23-25	5	0.0	moist	OL		organic SILT, trace organic fibers, fine sand, (5YR 6/1) gray, moist slight organic odor no staining. Soils consistent with UNDorg.	
26-30	5	0.0	wet	SM		fine to medium SAND, little silt, (5YR 6/1) gray, wet no odor no staining. Soils consistent with UNDno.	
31-35	5	0.0	wet	SM		fine silty SAND, (5YR 4/4) reddish brown, wet no odor no staining. Soils consistent with UNDno.	
36-37	5	0.0	moist	ML		SILT, little fine sand, (5YR 4/4) reddish brown, moist no odor no staining. Soils consistent with UNDno.	
37-40			dry	CL		CLAY, little fine sand, silt, (5YR 4/3) reddish brown, low plasticity, dry no odor no staining. Soils consistent with UNDno.	
41-43	5	0.0	wet	SM		fine silty SAND, (5YR 4/4) reddish brown, wet no odor no staining. Soils consistent with UNDno.	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 15:27

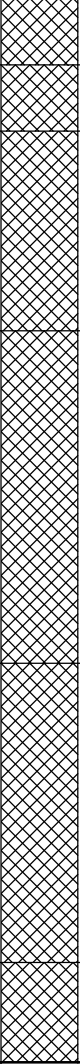
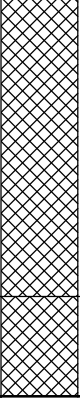
<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611599.8
<b>Date Started Drilling:</b> 10/16/2017 10:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682533.1
<b>Date Finished Drilling:</b> 10/16/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 50 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.32
<b>Physical Location:</b> Eden Wood		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45	4.5	0.0	dry	CL		CLAY, little fine sand, silt fine sand, (5YR 4/4) reddish brown, low plasticity, dry to moist no odor no staining. Soils consistent with UNDno.	
46			dry	CH			
47			dry	CL			
48			dry	CL		CLAY, little fine sand, silt, (5YR 4/3) reddish brown, low plasticity, dry to moist no odor no staining. Soils consistent with UNDno.	
49							
50							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611376.162
<b>Date Started Drilling:</b> 10/25/2017 11:45:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683888.751
<b>Date Finished Drilling:</b> 10/25/2017 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 16 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b>		<b>Surface Elevation:</b> 14.803 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1	10	0.0		FILL		DGA	
2			moist	FILL		CINDERS and ASH, some fill debris, trace COPR (<5%), (5YR 2.5/1) black, loose, moist no odor no staining	
3			wet	FILL		fine to coarse SAND, little fill debris, (5YR 4/3) reddish brown, medium dense, wet no odor green staining, water at 4.5 feet	
4							
5			moist	FILL		GGM (90%), little fill debris, (10GY 5/1) greenish gray, soft, wet no odor no staining	
6							
7							
8							
9							
10							
11	6	0.0	wet	FILL		CINDERS and ASH, little fill debris, (5YR 2.5/1) black, medium dense, wet moderate MGP-like odor, free product globules and sheen	
12							
13			wet	FILL		SILT, some fine sand, little fill debris, (7.5YR 4/2) brown, firm, wet slight organic odor no staining	
14							
15							
16							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDOrg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611366.586
<b>Date Started Drilling:</b> 10/23/2017 11:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683891.626
<b>Date Finished Drilling:</b> 10/25/2017 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 28 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b>		<b>Surface Elevation:</b> 15.118 ft NAVD88

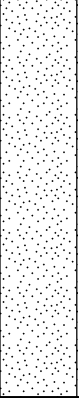
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID	
1	10	0.0	dry	FILL		ASH and CINDERS, little fill debris, (5YR 2.5/1) black, medium dense, dry no odor no staining		
2			moist	FILL		CINDERS and ASH, little fill debris, trace COPR (<5%), (5YR 2.5/1) black, medium dense, moist slight MGP-like odor, green staining		
3			moist	FILL				GGM (100%), (5G_/2) 4/2 grayish green, soft, moist to wet no odor no staining, water at 5.0 feet
4								
5								
6	10	0.0	wet	FILL		fine to medium silty SAND, (5YR 4/3) reddish brown, medium dense, wet slight MGP-like odor and staining		
7			wet	FILL		CINDERS and ASH, some fill debris, (5YR 2.5/1) black, wet, moderate MGP-like odor, free product globules and sheen		
8			wet	FILL			SILT, trace fill debris, (7.5YR 4/2) brown, soft, wet slight organic odor no staining	
9								
10								
11	10	0.0	wet	SP		fine to coarse silty SAND, little fine to medium gravel, (5YR 4/3) reddish brown, dense, wet no odor no staining		
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 12/7/17 15:57

<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611366.586
<b>Date Started Drilling:</b> 10/23/2017 11:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683891.626
<b>Date Finished Drilling:</b> 10/25/2017 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 28 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b>		<b>Surface Elevation:</b> 15.118 ft NAVD88


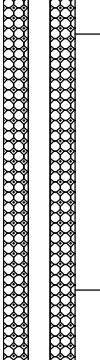



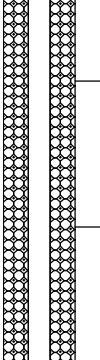


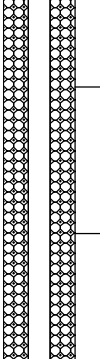



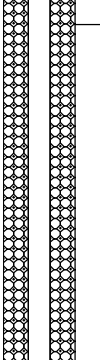


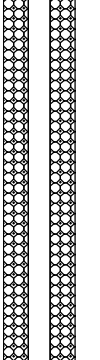



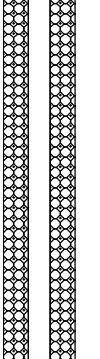


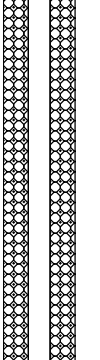


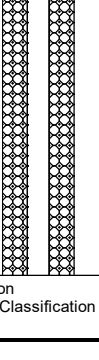

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23							
24							
25	8	0.0					
26							
27							
28							

PPG - 2012-09 RA PPG\_LOGS\_A.GDT - 12/7/17 15:57

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611021.9
<b>Date Started Drilling:</b> 1/20/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683615.9
<b>Date Finished Drilling:</b> 1/20/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 85 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.3 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	0 / 5	0	MOIST	FILL		Soft dig to 5 ft bgs. Gray fine to medium GRAVEL, trace fine sand (DGA), loose, moist.		8-inch steel protective casing (stick up)
2			MOIST	FILL		Brownish gray well graded fine to coarse GRAVEL, trace to little fine to coarse sand, trace silt, very dense, moist.		
3			MOIST	FILL		Brownish gray well graded fine to coarse GRAVEL, some silty fine sand, very dense, moist.		
4	3 / 5	0	MOIST	FILL		Gray fine to coarse GRAVEL, some silty fine sand, very dense, wet.		Riser set in grout
5			WET	FILL				
6	3 / 5	0	WET	FILL		Gray fine to coarse SAND, little fine to coarse gravel, very dense, wet.		Portland-Bentonite Grout: 0-44 ft bgs
7			WET	FILL		Gray fine to coarse SAND, little fine to coarse gravel, very dense, wet.		
8			WET	FILL		Gray fine to coarse SAND, little fine to coarse gravel, very dense, wet.		
9	3 / 5	0	WET	FILL		Gray fine to coarse SAND, little fine to coarse gravel, very dense, wet.		4-inch PVC riser: 0-50 ft bgs
10			WET	FILL				
11	5 / 5	0	WET	PT		Gray organic CLAY, fibrous (30%), medium stiff, wet.		
12			WET	PT		Gray organic CLAY, fibrous (30%), medium stiff, wet.		
13			WET	PT		Gray organic CLAY, fibrous (30%), medium stiff, wet.		
14	5 / 5	0	WET	CL		Gray CLAY, trace silt, organics, medium stiff, wet.		
15			WET	CL				
16	5 / 5	0	WET	CL		Gray CLAY, trace silt, organics, medium stiff, wet.		
17			WET	CL				
18	5 / 5	0	WET	CL		Gray CLAY, trace silt, organics, medium stiff, wet.		
19			WET	CL				


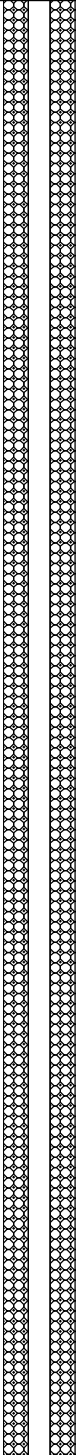

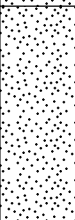
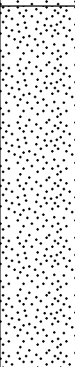

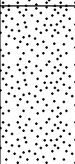




PPG WITH WELL CONSTRUCTION - - 2/16/21 16:28

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

Comments:



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611021.9
<b>Date Started Drilling:</b> 1/20/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683615.9
<b>Date Finished Drilling:</b> 1/20/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 85 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.3 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	5 / 5	0	WET	CL		Gray CLAY, trace silt, organics, medium stiff, wet.		
22			WET	SP		Gray fine to medium SAND, little fine to medium gravel, loose, wet.		
23			WET	SP		Gray fine SAND, little silt, loose, wet.		
24	2.5 / 5	0	WET	SP		Brown fine to medium SAND, little fine to coarse subrounded gravel, trace silt, loose, saturated.		
25			WET	SP		Brown fine to medium SAND, little fine to coarse subrounded gravel, trace silt, loose, saturated.		
26						WET		
27	4.5 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
28			WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
29						WET		
30	4 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
31			WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
32						WET	SP	
33	4 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
34			WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
35						WET	SP	
36	4 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
37			WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
38						WET	SP	
39	4 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
40			WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
41						WET	SP	

PPG WITH WELL CONSTRUCTION - - 2/16/21 16:28

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611021.9
<b>Date Started Drilling:</b> 1/20/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683615.9
<b>Date Finished Drilling:</b> 1/20/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 85 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.3 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
41	4 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, medium dense, wet.			
42			WET	SP		Reddish brown fine SAND, little silt, loose, wet.			
43			WET	SP		Reddish brown fine SAND, trace silt, loose, wet.			
44	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.					
45	4.5 / 5	0	WET	SP		Reddish brown fine SAND, little silt, loose, saturated.			Bentonite: 44-46 ft bgs
46			WET	SP		Reddish brown fine SAND, little silt, loose, saturated.			
47			WET	SP		Reddish brown fine SAND, little silt, loose, saturated.			
48	3.5 / 5	0	WET	ML		Reddish brown SILT, little fine sand, medium stiff, saturated.			#00 Filter Sand: 46-48 ft bgs
49			WET	ML		Reddish brown SILT, little fine sand, medium stiff, saturated.			#0 Filter Sand: 48-58 ft bgs
50			WET	SP		Reddish brown fine SAND, trace silt, loose, saturated.			
51	3.5 / 5	0	WET	SP		Reddish brown fine SAND, little silt, loose, wet. Yellow water observed.	4-inch PVC well screen: 50-56 ft bgs		
52			WET	SP		Reddish brown fine SAND, little silt, loose, wet.			
53			WET	SP		Reddish brown fine SAND, little silt, trace clay, loose, wet.			
54			WET	SP		Reddish brown fine SAND, little silt, trace clay, loose, laminated with fine sand, wet.			
55	3 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, loose, saturated	4-inch PVC Sump: 56-58 ft bgs		
56			WET	SM		Reddish brown fine to medium SAND, some silt, trace fine to coarse gravel, dense, wet (Basal Till).			
57			WET	SM		Reddish brown fine to medium SAND, some silt, trace fine to coarse gravel, dense, wet (Basal Till).			
58	3 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, trace fine to coarse gravel, dense, wet (Basal Till).	#00 Filter Sand: 58-60 ft bgs		
59			WET	SM		Reddish brown fine to medium SAND, some silt, trace fine to coarse gravel, dense, wet (Basal Till).			

PPG WITH WELL CONSTRUCTION - - 2/16/21 16:28

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611021.9
<b>Date Started Drilling:</b> 1/20/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683615.9
<b>Date Finished Drilling:</b> 1/20/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 85 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.3 ft NAVD88


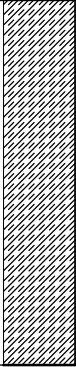
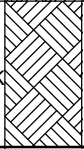
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-65	3.5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, trace fine to coarse gravel, very dense, wet (Basal Till).		
65-69	3.5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, trace to little fine to coarse gravel, very dense, wet (Basal Till).		
69-75	3.5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, trace to little fine to coarse gravel, very dense, wet (Basal Till).		Bentonite: 60-85 ft bgs
75-77	4.5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, trace to little fine to coarse subangular gravel, very dense, wet (Basal Till).		
77-78			NA	BEDROCK		Diabase boulder.		
78-79			WET	SM		Gray fine to medium SAND, some silt, trace fine to coarse subangular gravel, very dense, wet (Basal Till).		

PPG WITH WELL CONSTRUCTION - - 2/16/21 16:28

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611021.9
<b>Date Started Drilling:</b> 1/20/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683615.9
<b>Date Finished Drilling:</b> 1/20/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 85 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.3 ft NAVD88

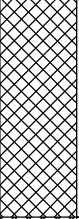
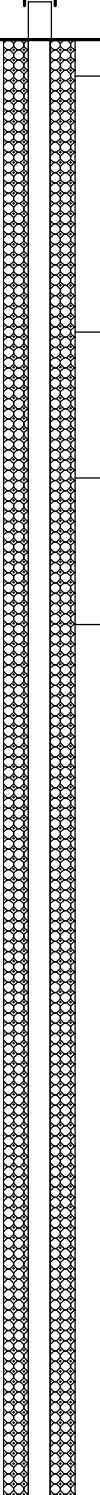
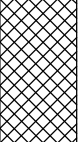
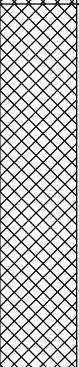
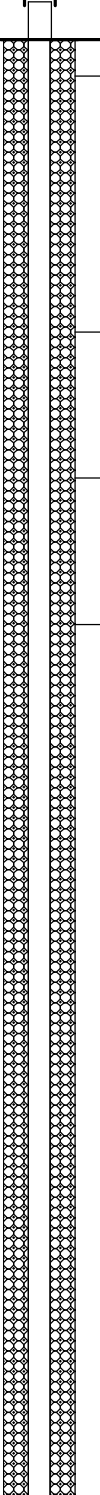
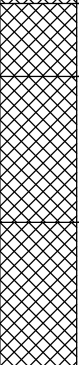
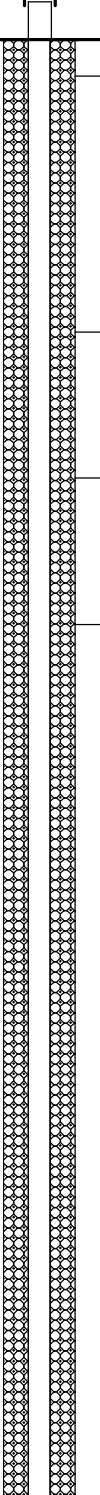
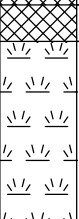
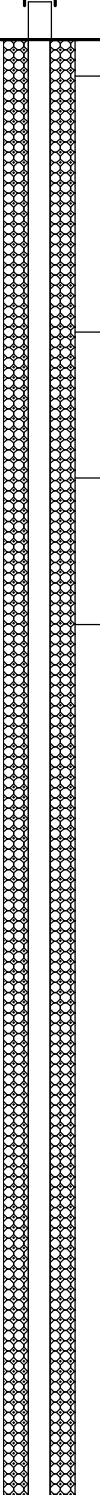

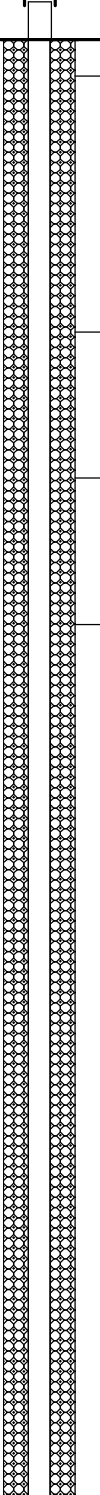

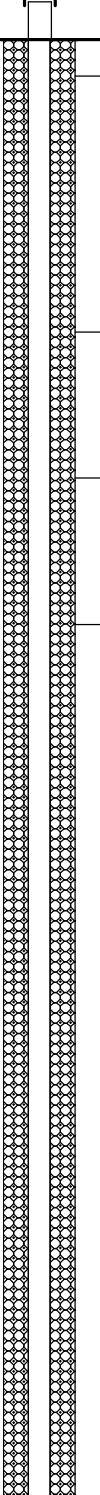

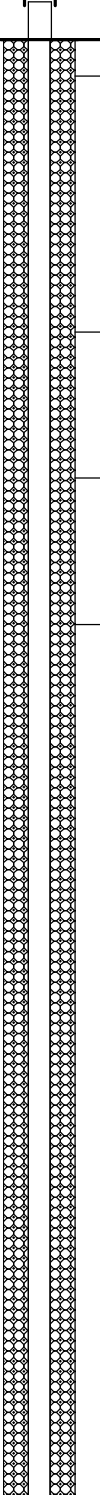

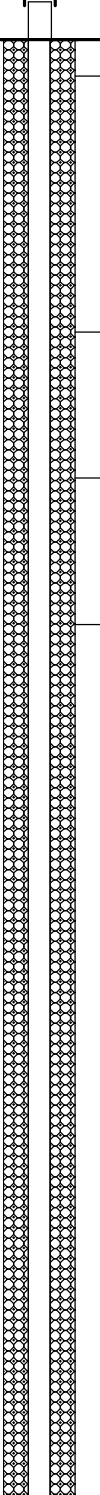
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81	4 / 5	0	NA	SM		Gray fine to medium SAND, some silt, trace to little fine to coarse subangular gravel, very dense (Basal Till).		
82								
83								
84			NA	BEDROCK		Light gray broken rock, slightly weathered, hard (Lockatong formation).		
85								

PPG WITH WELL CONSTRUCTION - - 2/16/21 16:28

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.75 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610851.6
<b>Date Started Drilling:</b> 1/18/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683321.4
<b>Date Finished Drilling:</b> 1/19/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88


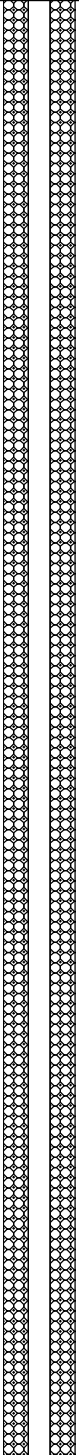

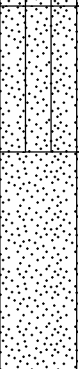
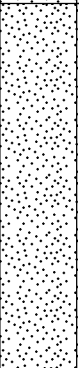
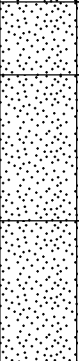
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	0 / 5	0	DRY TO MOIST	FILL		Soft dig to 5 ft bgs. Brownish gray well graded GRAVEL, some silty sand, very dense (DGA), dry to moist.		8-inch steel protective casing (stick up)
2			DRY TO MOIST	FILL		Gray fine to coarse GRAVEL, trace to little fine sand, trace silt, well graded, very dense (DGA), dry to moist.		Riser set in grout
3	3.5 / 5	0	MOIST	FILL		Gray fine to medium SAND, some fine to coarse subrounded gravel, very dense (DGA), moist.		Portland-Bentonite Grout: 0-45 ft bgs
4								
5								
6	3.5 / 5	0	WET	FILL		Gray fine to medium SAND, little fine to medium gravel, very dense (DGA), wet.		4-inch PVC riser: 0-50 ft bgs
7								
8								
9	3.5 / 5	0	WET	FILL		Red brown fine SAND, little fine to medium gravel (DGA), wet.		
10								
11								
12	5 / 5	0	WET	PT		Black stained wood.		
13								
14								
15	5 / 5	0	WET	FILL		Black fine to medium GRAVEL, little fine to medium sand, dense, wet.		
16								
17								
18	5 / 5	0	WET	CL		Gray CLAY, fibrous (30%-40%), organic, medium stiff, wet.		
19								
19	5 / 5	0	WET	CL		Gray CLAY, trace silt, organic, medium stiff, wet.		
20								

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.75 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610851.6
<b>Date Started Drilling:</b> 1/18/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683321.4
<b>Date Finished Drilling:</b> 1/19/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21-22	4 / 5	0	WET	CL		Gray CLAY, trace silt, organic, medium stiff, wet.		
23-24			WET	SM		Reddish brown fine SAND, some silt, little fine to medium gravel, medium dense, wet.		
25-26	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to medium, gravel, wet.		
27-28			WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
30-32	5 / 5	0	WET	SP		Brown fine SAND, trace silt, loose, wet to saturated.		
35-36			WET	SP		Red brown fine SAND, trace silt, loose, wet.		
37-38	4 / 5	0	WET	SP		Brown fine SAND, little silt, loose, wet.		
38-39			WET	SP		Black fine SAND, trace silt, loose, wet.		

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.75 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610851.6
<b>Date Started Drilling:</b> 1/18/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683321.4
<b>Date Finished Drilling:</b> 1/19/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	5 / 5	0	WET	CL		Red brown CLAY, trace silt, medium stiff, wet.		
42			WET	SM		Red brown fine SAND, some silt, little clay, loose, wet.		
43			WET	CL		Gray CLAY, little silt, medium stiff, wet.		
44	5 / 5	0	WET	CL		Brown CLAY, little silt, medium stiff, wet.		Bentonite: 45-46 ft bgs
45			WET	CL				
46			WET	CL				
47	3 / 5	0	WET	CL		Reddish brown SAND, some silt, trace clay, medium dense, wet.		#00 Filter Sand: 46-48 ft bgs
48			WET	CL				
49			WET	CL				
50	2.5 / 5	0	WET	SM		Reddish brown SAND, some silt, trace clay, medium dense, wet.		4-inch PVC well screen: 50-56 ft bgs
51			WET	SM				
52			WET	SM				
53	2.5 / 5	0	WET	SM		Reddish brown fine SAND, some silt, trace clay, medium dense, wet.		4-inch PVC Sump: 56-58 ft bgs
54			WET	SM				
55			WET	SM				
56	2.5 / 5	0	WET	SM		Reddish brown fine to coarse SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		#00 Filter Sand: 58-60 ft bgs
57			WET	SM				
58			WET	SM				
59	2.5 / 5	0	WET	SM				

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.75 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610851.6
<b>Date Started Drilling:</b> 1/18/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683321.4
<b>Date Finished Drilling:</b> 1/19/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	5 / 5	0	WET	SM		Reddish brown fine to coarse, SAND, some silt, little fine to coarse, subrounded gravel, very dense, wet (Basal Till).		
62								
63								
64	4 / 5	0	WET	SM		Reddish brown fine to coarse, SAND, some silt, little fine to coarse, subrounded gravel, very dense, wet (Basal Till).		
65								
66								
67								
68	4 / 5	0	WET	SM		Reddish brown fine to coarse, SAND, some silt, little fine to coarse, gravel, very dense, wet (Basal Till).		Bentonite: 60-80 ft bgs
69								
70								
71	4 / 5	0	WET	SM		Reddish brown fine to coarse, SAND, some silt, little fine to coarse, gravel, very dense, wet (Basal Till).		
72								
73	4 / 5	0		NA		Rock fragments, weathered, Diabase.		
74								
75								
76	4 / 5	0		NA		Green broken rock fragments, weathered, Diabase.		
77								
78	5 / 5	0		NA		Gray broken rock, unweathered, Diabase. End of boring at 80 ft bgs.		
79								

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

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DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

Comments:



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> NA ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.2
<b>Date Started Drilling:</b> 1/21/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683213.2
<b>Date Finished Drilling:</b> 1/21/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	0 / 5	0	DRY	FILL		Soft dig to 5 ft bgs. Brown fine to medium SAND, some fine to coarse gravel, well graded, very dense (DGA), dry.		No well installed.
2								
3								
4								
5								
6	3.5 / 5	52	MOIST	FILL		Brown fine to coarse GRAVEL, trace fine to medium sand, loose, moist.		
7			WET	FILL		Brown fine to medium SAND, little fine to coarse gravel, trace silt, loose, wet.		
8			WET	FILL		Gray fine to coarse SAND, some fine to coarse gravel, stained black between approximately 7-8 ft bgs from coal tar oil, odorous, saturated.		
9	4 / 5	32	MOIST	FILL		Gray fine to coarse SAND, some fine to coarse gravel, loose, moist.		
10								
11			MOIST	PT			Gray organic CLAY, fibrous (40%), medium stiff, moist. Coal tar free product observed at 13-13.5 ft bgs.	
12	4.5 / 5	10	WET	CL		Gray organic CLAY, medium stiff, wet. Slight petroleum odor.		
13								
14								
15								
16								
17								
18								
19								

PPG WITH WELL CONSTRUCTION - - 2/25/21 09:34

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** No well installed at this location.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> NA ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.2
<b>Date Started Drilling:</b> 1/21/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683213.2
<b>Date Finished Drilling:</b> 1/21/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88


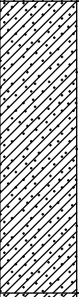
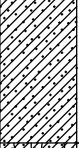
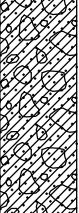

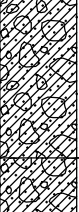


Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	5 / 5	260	WET	SP		Gray fine to medium SAND, trace silt, loose, wet. Coal tar staining and odor.		
22			WET	SM		Gray fine to coarse SAND, some silt, little fine to coarse gravel, dense, wet. Coal tar staining and odor.		
23			WET	GW		Gray fine to coarse GRAVEL, trace fine to coarse sand, loose, wet. Coal tar staining and odor.		
24	3.5 / 5	5.6	WET	SM		Gray fine to coarse SAND, some silt, little fine to coarse subrounded gravel, medium dense, wet. Coal tar staining and odor.		
25			WET	SP		Reddish brown fine sand, trace silt, loose, wet. Petroleum staining from 27-27.5 ft bgs with odor.		
26			WET	SP		Reddish brown fine sand, trace silt, loose, wet.		
27	4 / 5	0	WET	SP		Reddish brown fine sand, trace silt, loose, wet.		
28			WET	SP		Reddish brown fine sand, trace silt, loose, wet.		
29			WET	CL		Reddish brown CLAY, medium stiff, wet.		
30	4 / 5	0	WET	SP		Reddish brown fine sand, trace silt, loose, wet.		
31			WET	CL		Reddish brown CLAY, medium stiff, wet.		
32								
33								
34								
35								
36								
37								
38								
39								

PPG WITH WELL CONSTRUCTION - - 2/25/21 09:34

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** No well installed at this location.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> NA ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.2
<b>Date Started Drilling:</b> 1/21/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683213.2
<b>Date Finished Drilling:</b> 1/21/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	5 / 5	0	WET	CL		Reddish brown CLAY, stiff, wet.		
42						Gray CLAY, varved with stringers of 1/8" thick fine SAND, medium stiff, wet.		
43	3.5 / 5	0	WET	CL-SP		Gray CLAY, varved with stringers of 1/8" thick fine SAND, medium stiff, wet.		
44						Reddish brown fine SAND, some silt, trace clay, medium dense, wet (Basal Till).		
45	2 / 5	0	WET	CL-SP		Gray CLAY, varved with stringers of 1/8" thick fine SAND, medium stiff, wet.		
46						Reddish brown fine to medium SAND, some silt, little fine gravel, very dense, wet (Basal Till).		
47	4 / 5	0	WET	SM		Reddish brown fine SAND, some silt, trace clay, medium dense, wet (Basal Till).		
48						Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		
49	2 / 5	0	WET	SM		Reddish brown fine SAND, some silt, little fine gravel, very dense, wet (Basal Till).		
50						Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		
51	4 / 5	0	WET	SM		Reddish brown fine SAND, some silt, little fine gravel, very dense, wet (Basal Till).		
52						Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		
53	4 / 5	0	WET	SM		Reddish brown fine SAND, some silt, little fine gravel, very dense, wet (Basal Till).		
54						Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		
55	4 / 5	0	WET	SM		Reddish brown fine SAND, some silt, little fine gravel, very dense, wet (Basal Till).		
56						Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		

PPG WITH WELL CONSTRUCTION - - 2/25/21 09:34

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** No well installed at this location.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> NA ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611145.2
<b>Date Started Drilling:</b> 1/21/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683213.2
<b>Date Finished Drilling:</b> 1/21/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-65	3.5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		
65-68	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, very dense, wet (Basal Till).		
68-70			NA	BEDROCK		Broken rock, unweathered, fine sandstone, hard (Stockton formation).		
70-75	0 / 5	0	NA	BEDROCK		Broken rock, unweathered, fine sandstone, hard (Stockton formation). End of boring at 75 ft bgs.		

PPG WITH WELL CONSTRUCTION - - 2/25/21 09:34

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**Comments:** No well installed at this location.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.79 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611331.4
<b>Date Started Drilling:</b> 1/22/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682887
<b>Date Finished Drilling:</b> 1/25/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	0 / 5	0	DRY	FILL		Soft dig to 5 ft bgs, brown fine to coarse SAND, some fine to coarse gravel, very dense (DGA), dry.		8-inch steel protective casing (stick up)
2								Riser set in grout
3								
4								
5								
6	3 / 5	0	MOIST	FILL		Gray fine to coarse GRAVEL, little fine to coarse sand, well graded (DGA), dense, moist.		Portland-Bentonite Grout: 0-80 ft bgs
7								
8								
9	3 / 5	0	MOIST	FILL		Black fine to coarse GRAVEL, little fine sand, well graded, dense (DGA), moist.		4-inch PVC riser: 0-85 ft bgs
10								
11								
12	3 / 5	0	MOIST	FILL		Black fine to coarse GRAVEL, little fine sand, well graded, dense (DGA), moist.		
13								
14								
15	4 / 5	0	MOIST	FILL		Black fine to coarse SAND, little fine to coarse gravel, dense (DGA), moist.		
16								
17								
18	4 / 5	0	WET	FILL		Black fine to coarse SAND, some fine to coarse gravel, dense (DGA), wet.		
19								
20								
21	4 / 5	0	WET	PT		Gray organic CLAY, fibrous (60%), medium stiff, wet.		
22								
23								
24	4 / 5	0	WET	CL		Gray organic CLAY, trace silt, medium stiff, wet.		
25								
26								

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.79 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611331.4
<b>Date Started Drilling:</b> 1/22/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682887
<b>Date Finished Drilling:</b> 1/25/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	4 / 5	0	WET	CL		Gray organic CLAY, trace silt, medium stiff, wet.		
			WET	SP		Grayish brown fine sand, little silt, little fine to medium gravel, wet.		
22	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse gravel, dense, wet.		
23			WET	SP		Reddish brown fine SAND, trace silt, trace fine gravel, loose, wet.		
24	3.5 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, trace fine gravel, loose, wet.		
25			WET	SP		Reddish brown fine SAND, trace silt, trace fine gravel, loose, wet.		
26	4 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, trace fine gravel, loose, wet.		
27			WET	SP		Reddish brown fine SAND, trace silt, trace fine gravel, loose, wet. Petroleum-impacted free product observed at 37 ft bgs; staining from 35-37 ft bgs.		
28	4 / 5	2.5	WET	SP		Reddish brown fine SAND, little silt, loose, wet.		
29			WET	SP		Reddish brown fine SAND, little silt, loose, wet.		

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.79 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611331.4
<b>Date Started Drilling:</b> 1/22/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682887
<b>Date Finished Drilling:</b> 1/25/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88


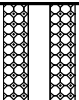

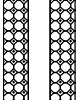

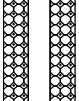
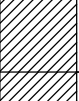
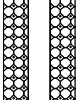

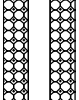
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	4 / 5	2.2	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.		
42						Reddish brown fine SAND, little silt, loose, wet.		
43						Reddish brown fine SAND, trace silt, loose, wet.		
44	3.4	WET	SP		Reddish brown fine SAND, trace silt, loose, wet.			
45	4.2	WET	SP		Reddish brown fine to medium SAND, trace silt, loose, wet.			
46	2.5 / 5	0.8	WET	SP		Reddish brown fine SAND, trace silt, loose, wet. Yellow coloration to water.		
47						Reddish brown fine SAND, little silt, loose, wet. Yellow coloration to water.		
48						Reddish brown fine SAND, little silt, loose, wet. Yellow coloration to water.		
49	4.5 / 5	2.0	WET	SP		Reddish brown fine SAND, little silt, loose, wet. Yellow coloration to water.		
50						Reddish brown fine SAND, little silt, loose, wet. Yellow coloration to water.		
51	4.5 / 5	0	WET	SP		Reddish brown fine SAND, little silt, loose, wet. Yellow coloration to water.		
52						Reddish brown fine SAND, little silt, loose, wet. Yellow coloration to water.		
53						Reddish brown fine SAND, little silt, loose, wet. Yellow coloration to water.		
54	4.5 / 5	0	WET	CL		Gray to reddish brown CLAY, medium stiff to stiff, wet.		
55						Gray to reddish brown CLAY, medium stiff to stiff, wet.		
56						Gray to reddish brown CLAY, medium stiff to stiff, wet.		
57								
58								
59								

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
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Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.79 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611331.4
<b>Date Started Drilling:</b> 1/22/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682887
<b>Date Finished Drilling:</b> 1/25/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-64	5 / 5	0	WET	CL		Reddish brown CLAY, trace silt, stiff, wet.		
65-68	5 / 5	0	WET	CL		Gray CLAY, trace silt, stiff, wet.		
69-70			WET	CL-SP		Reddish brown CLAY, trace silt, varved with 1/8" stringers of fine SAND, wet.		
71-74	4.5 / 5	0	WET	CL-SP		Reddish brown CLAY, trace silt, varved with 1/8" stringers of fine SAND, wet.		
75-78	5 / 5	0	WET	CL		Reddish brown CLAY, trace silt, medium stiff, wet.		

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

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DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

Comments:



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.79 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611331.4
<b>Date Started Drilling:</b> 1/22/2021	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682887
<b>Date Finished Drilling:</b> 1/25/2021	<b>Core Size:</b> 8 in.	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

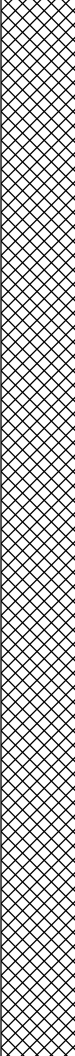
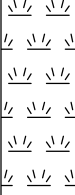
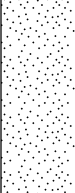
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81	5 / 5	0	WET	CL		Reddish brown CLAY, trace silt, medium stiff, wet.		Bentonite: 80-81 ft bgs
82			WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, medium dense, wet.		#00 Filter Sand: 81-83 ft bgs
83	4.5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, medium dense, wet.		#0 Filter Sand: 83-97 ft bgs
84			WET	SP				
85			WET	SM				
86	4 / 5	0	WET	SP		Reddish brown fine SAND, trace to little silt, medium dense, wet.		4-inch PVC well screen: 85-95 ft bgs
87			WET	SM				
88	4 / 5	0	WET	SP		Reddish brown fine SAND, trace to little silt, medium dense, wet.		4-inch PVC well screen: 85-95 ft bgs
89			WET	SM				
90	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, medium dense, wet.		4-inch PVC well screen: 85-95 ft bgs
91			WET	SM				
92	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, medium dense, wet.		4-inch PVC well screen: 85-95 ft bgs
93			WET	SM				
94	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subrounded gravel, medium dense, wet.		4-inch PVC well screen: 85-95 ft bgs
95			WET	SM				
96	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse gravel, very dense, wet (Basal Till). End of boring at 100 ft bgs.		4-inch PVC Sump: 95-97 ft bgs
97			WET	SM				#00 Filter Sand: 97-98 ft bgs
98			WET	SM				Bentonite: 98-100 ft bgs
99			WET	SM				

PPG WITH WELL CONSTRUCTION - - 2/17/21 08:31

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**Comments:**

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 610887.2
<b>Date Started Drilling:</b> 11/9/2017 7:00:00 AM	<b>Rig Type:</b> B-60/ CRS XL Max	<b>Coordinates (NJSPNAD83) y:</b> 683237
<b>Date Finished Drilling:</b> 11/13/2017 2:00:00 PM	<b>Core Size:</b> 6	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> M. Forbes	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114 (Phase 1B)		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1-3	3	0	dry	FILL		DGA, (5YR 5/1) gray, dense, dry to wet no odor no staining	
3-8	5	0					
8-13	10	0					
13-16			moist	PT		PEAT (degraded vegetated material), 80% fibers, 20% organic silt, (7.5YR 3/3) dark brown, moist slight organic odor. Soils consistent with MM.	
16-19							
19-21	10	0	moist	SP		fine to coarse SAND, trace coarse gravel, dense, moist to wet no odor no staining. Soils consistent with UNDno.	

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 11:17

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 610887.2
<b>Date Started Drilling:</b> 11/9/2017 7:00:00 AM	<b>Rig Type:</b> B-60/ CRS XL Max	<b>Coordinates (NJSPNAD83) y:</b> 683237
<b>Date Finished Drilling:</b> 11/13/2017 2:00:00 PM	<b>Core Size:</b> 6	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> M. Forbes	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114 (Phase 1B)		<b>Surface Elevation:</b> 13.5 ft NAVD88










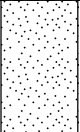
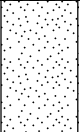
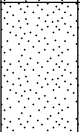
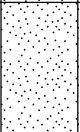
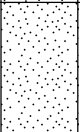
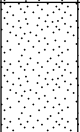
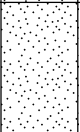
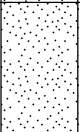
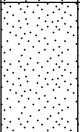
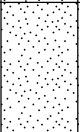
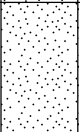
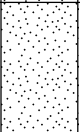
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23							
24			wet	SP		fine SAND, trace silt, (5YR 4/3) reddish brown, medium dense, wet no odor no staining, green water at 35'. Soils consistent with UNDno.	
25							
26							
27							
28							
29							
30							
31							
32	10	0					
33							
34							
35							
36			moist	CH		CLAY, trace silt, (7.5R 6/6) light red, medium stiff, moist no odor no staining. Soils consistent with UNDno.	
37							
38							
39							
40							
41	10	0					
42							
43							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 11:17

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 610887.2
<b>Date Started Drilling:</b> 11/9/2017 7:00:00 AM	<b>Rig Type:</b> B-60/ CRS XL Max	<b>Coordinates (NJSPNAD83) y:</b> 683237
<b>Date Finished Drilling:</b> 11/13/2017 2:00:00 PM	<b>Core Size:</b> 6	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> M. Forbes	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114 (Phase 1B)		<b>Surface Elevation:</b> 13.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45							
46							
47							
48							
49							
50							
51							
52	10	0					
53							
54			wet	SP		fine SAND, trace silt, medium dense, wet no odor no staining. Soils consistent with UNDno.	
55							
56			moist	SP		fine SAND, little silt little fine to medium gravel, dense, moist no odor no staining, glacial till. Soils consistent with UNDno.	
57							
58							
59							
60							
61							
62	10	0					
63							
64							
65							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 610887.2
<b>Date Started Drilling:</b> 11/9/2017 7:00:00 AM	<b>Rig Type:</b> B-60/ CRS XL Max	<b>Coordinates (NJSPNAD83) y:</b> 683237
<b>Date Finished Drilling:</b> 11/13/2017 2:00:00 PM	<b>Core Size:</b> 6	<b>Boring Total Depth:</b> 68 ft
<b>Logged By:</b> M. Forbes	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114 (Phase 1B)		<b>Surface Elevation:</b> 13.5 ft NAVD88


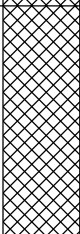
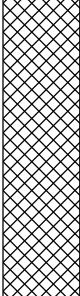

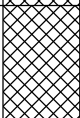
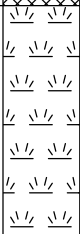
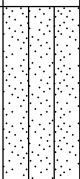
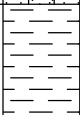

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
67					[Dotted Pattern]		
68							

PPG - 2012-09 RA PPG\_LOGS\_A.GDT - 6/7/18 11:17

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611599.8
<b>Date Started Drilling:</b> 10/16/2017 10:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682533.1
<b>Date Finished Drilling:</b> 10/16/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 49.5 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Eden Wood		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness: 11.1	Sample ID
0 - 1			dry			DGA	
1 - 5	5					CINDERS, and ash little fill debris, (7.5YR 4/3) brown, dry to wet no odor no staining	
5 - 10		0.0					
10 - 14	5						
14 - 15			wet			fine to medium silty SAND, trace fill debris, (5YR 4/3) reddish brown, wet no odor no staining	
15 - 20		0.0					
20 - 23	5		wet			(70% Fibers and 30% Organic Silts) PEAT (degraded vegetated material), (7.5YR 4/2) brown, moist moderate organic odor no staining	
23 - 24			wet			fine to medium silty SAND, (5YR 6/1) gray, moist to wet no odor no staining	
24 - 24			wet			organic SILT, trace organic fibers, fine sand, (5YR 6/1) gray, moist slight organic odor no staining	

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 1/10/18 09:56

<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b>
<b>Date Started Drilling:</b> 10/16/2017 10:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b>
<b>Date Finished Drilling:</b> 10/16/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 49.5 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Eden Wood		<b>Surface Elevation:</b> ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
26-27	5	0.0	wet			fine to medium SAND, little silt, (5YR 6/1) gray, wet no odor no staining	
30-31	5	0.0	wet			fine silty SAND, (5YR 4/4) reddish brown, wet no odor no staining	
35-36	5	0.0	wet			SILT, little fine sand, (5YR 4/4) reddish brown, moist no odor no staining	
36-37			dry			CLAY, little fine sand, silt, (5YR 4/3) reddish brown, low plasticity, dry no odor no staining	
40-41	5	0.0	wet			fine silty SAND, (5YR 4/4) reddish brown, wet no odor no staining	
45-46	4.5	0.0				CLAY, little fine sand, silt fine sand, (5YR 4/4) reddish brown, low plasticity, dry to moist no odor no staining	
47-48			dry			CLAY, trace silt, (5YR 4/4) reddish brown, high plasticity, dry no odor no staining	
48-49						CLAY, little fine sand, silt, (5YR 4/3) reddish brown, low plasticity, dry to moist no odor no staining	

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 1/10/18 09:56

<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611703.3
<b>Date Started Drilling:</b> 11/2/2017 9:15:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682730.4
<b>Date Finished Drilling:</b> 11/2/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 40 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Eden Wood		<b>Surface Elevation:</b> ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0 - 1	5	0.0	dry	CONCRETE		ROAD GRAVEL	
1 - 2			moist	FILL		fine to medium silty SAND, little fill debris, (7.5YR 4/2) brown, dry to moist no odor no staining	
2 - 3			wet	FILL		ASH, (5YR 2.5/1) black, moist to wet no odor no staining	
3 - 5	5	0.0	wet	SM		fine to medium silty SAND, trace fine gravel, (5YR 4/3) reddish brown, wet no odor no staining	
5 - 10							
10 - 15	5	0.0					
15 - 19			moist	OL		organic SILT, some organic fibers, (5YR 2.5/1) black, moist slight organic odor no staining	
19 - 20	5	0.0	wet	OL		organic SILT, little fine sand trace organics, (5YR 6/1) gray, wet slight organic odor no staining	
20 - 21							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:



<b>Project Name:</b> GA Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b>
<b>Date Started Drilling:</b> 11/2/2017 9:15:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b>
<b>Date Finished Drilling:</b> 11/2/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 40 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Eden Wood		<b>Surface Elevation:</b> ft NAVD88

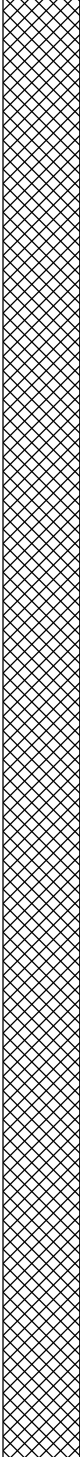
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23-24	5		wet	SM		fine to medium SAND, trace silt, (5YR 5/1) gray, wet no odor no staining	
25-29	5	0.0	wet	SM		fine to medium SAND, little silt, (5YR 4/3) reddish brown, wet no odor no staining	
30-34	5	0.0	moist	ML		clayey SILT, trace fine sand, (5YR 4/3) reddish brown, moist no odor no staining	
35-39	5	0.0	wet	SP		fine to medium SAND, (7.5YR 4/2) brown, wet no odor no staining	
39-40			moist	CH		sandy CLAY, some silt, (5YR 4/3) reddish brown, moist no odor no staining	

PPG - 2012-09 RA PPG\_LOGS\_A.GDT - 6/7/18 14:26

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDOrg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 610794.3
<b>Date Started Drilling:</b> 10/30/2017	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682807.3
<b>Date Finished Drilling:</b> 11/15/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 78 ft
<b>Logged By:</b> L. Kinsey	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1				FILL		DGA	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** Same borehole and lithology for 132-P3A-MW104D-1

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 14:08

<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 610794.3
<b>Date Started Drilling:</b> 10/30/2017	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682807.3
<b>Date Finished Drilling:</b> 11/15/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 78 ft
<b>Logged By:</b> L. Kinsey	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23			moist	PT		PEAT (degraded vegetable material), (60% organic fibers 40% organic silt), (5YR 2.5/1) black, moist, moderate organic odor, no staining SAND, trace silt, trace gravel, (7.5YR 5/1) gray, wet	
24			wet	SM			
25							
26							
27							
28			wet	SP-SM		medium to coarse SAND, (5YR 5/2) reddish gray, wet	
29			wet	SP-SM		medium to coarse SAND, (5YR 4/3) reddish brown, wet	
30							
31							
32							
33			wet	SW-SM		fine SAND, (5YR 4/3) reddish brown, wet	
34							
35							
36							
37							
38			wet	SW-SM		fine SAND, (5YR 4/3) reddish brown, wet	
39							
40							
41			saturated	SW-SM		fine SAND, (5YR 4/3) reddish brown, saturated	
42							
43							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDOrg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** Same borehole and lithology for 132-P3A-MW104D-1

<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 610794.3
<b>Date Started Drilling:</b> 10/30/2017	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682807.3
<b>Date Finished Drilling:</b> 11/15/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 78 ft
<b>Logged By:</b> L. Kinsey	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.2 ft NAVD88

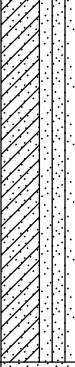
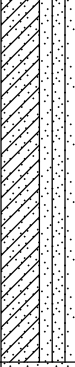
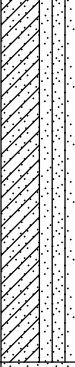
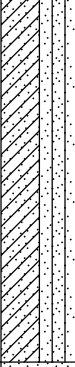
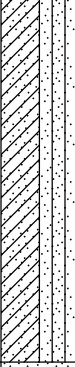







Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45							
46							
47							
48			wet	SW-SM		fine SAND, little silt, (5YR 4/3) reddish brown, medium plasticity, wet	
49							
50							
51							
52							
53							
54							
55				SC-SM		CLAY, with little sand, little silt, (5YR 5/2) reddish gray, medium plasticity	
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							

**Notes:**  
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**Comments:** Same borehole and lithology for 132-P3A-MW104D-1

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 14:08

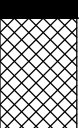
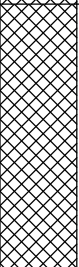
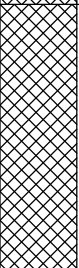
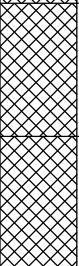
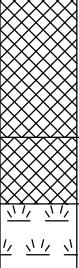



<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 610794.3
<b>Date Started Drilling:</b> 10/30/2017	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682807.3
<b>Date Finished Drilling:</b> 11/15/2017	<b>Core Size:</b>	<b>Boring Total Depth:</b> 78 ft
<b>Logged By:</b> L. Kinsey	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
67							
68							
69							
70							
71							
72				SP		medium to coarse SAND, (5YR 5/2) reddish brown	
73			wet	GW		fine to medium SAND, with gravel and angular cobbles, (5YR 4/3) reddish brown, wet	
74							
75							
76							
77							
78							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** Same borehole and lithology for 132-P3A-MW104D-1

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60507168	<b>Drilling Method:</b> Augers/Mud Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610676.8
<b>Date Started Drilling:</b> 1/11/2018 7:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682695.3
<b>Date Finished Drilling:</b> 1/15/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 50 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 7.86
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 14.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1				ASPHALT FILL		ASPHALT	
2			dry	FILL		fine to coarse SAND, some silt trace gravel, (5Y 4/1) dark gray, dry no odor no staining, (Hand Excavated)	
3						ASH, (5YR 6/1) gray, very loose, dry no odor no staining, wet @5.5'(Hand Excavated)	
4							
5							
6			wet	FILL		ASH, trace silt, (5YR 2.5/1) black, very loose, wet no odor no staining	
7	0.5	0.0					
8							
9	0.5	0.0					
10			wet	FILL		ASH, trace silt, (5YR 5/1) gray, very loose, wet no odor no staining	
11	0.5	0.0					
12			wet	FILL		ASH, trace silt, (5YR 2.5/1) black, very loose, wet no odor no staining	
13	0.5	0.0					
14							
15	0.5	0.0					
16			wet	FILL		fine to coarse SAND, trace silt trace gravel, very loose, wet no odor no staining	
17	1.67	0.0	moist	PT		PEAT (degraded vegetated material), 80% fibers 20% organic silt, (7.5YR 4/1) dark gray, moist slight organic odor. Soils consistent with MM.	
18							
19	1.67	0.0					
20				ML		SILT, trace fine sand, very soft, wet slight organic odor no staining. Soils consistent with UNDorg.	
21	0.5	0.0					

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America
<b>Project Number:</b> 60507168	<b>Drilling Method:</b> Augers/Mud Rotary
<b>Date Started Drilling:</b> 1/11/2018 7:00:00 AM	<b>Rig Type:</b>
<b>Date Finished Drilling:</b> 1/15/2018 3:00:00 PM	<b>Core Size:</b>
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian
<b>Physical Location:</b> Ten West Apparel	<b>Surface Elevation:</b> 14.4 ft NAVD88


Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23	0.5	0.0	wet	SM		fine to medium SAND, some silt, (5YR 6/1) gray, very loose, wet no odor no staining. Soils consistent with UNDno.	
24	0.83	0.0	wet	SW		fine to coarse SAND, little gravel, (5YR 4/3) reddish brown, medium dense, wet no odor no staining. Soils consistent with UNDno.	
25	0.67	0.0	wet	SP		fine to medium SAND, trace silt trace gravel, (5YR 4/3) reddish brown, loose, wet no odor no staining. Soils consistent with UNDno.	
26	1	0.0	wet	SP		fine SAND, trace silt, (5YR 4/3) reddish brown, very loose, wet no odor no staining. Soils consistent with UNDno.	
27	1	0.0					
28	0.67	0.0					
29	0.67	0.0					
30	0.67	0.0					
31	0.67	0.0					
32	0.67	0.0					
33	0.67	0.0					
34	0.67	0.0					
35	0.67	0.0					
36	0.67	0.0					
37	0.67	0.0					
38	0.83	0.0					
39	1	0.0					
40	1.5	0.0	slightly moist	CL		CLAY, trace fine sand, (5YR 4/3) reddish brown, soft, slightly moist no odor no staining. Soils consistent with	

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 15:14

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60507168	<b>Drilling Method:</b> Augers/Mud Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610676.8
<b>Date Started Drilling:</b> 1/11/2018 7:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682695.3
<b>Date Finished Drilling:</b> 1/15/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 50 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 7.86
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 14.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45	1.5	0.0				UNDno.	
46							
47	1.33	0.0					
48							
49	1.5	0.0					
50							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:



<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 610750.3
<b>Date Started Drilling:</b> 7/11/2017 7:15:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682658.8
<b>Date Finished Drilling:</b> 7/11/2017 9:45:00 AM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 30 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 13.7 ft NAVD88



Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1-2	2	0.0		ASPHALT		ASPHALT, and Subbase, (5YR 2.5/1) black	
			dry	FILL		fine to medium SAND, little silt trace fill debris, (7.5YR 4/2) brown, dry to moist no odor no staining	
			moist	FILL		fine to medium SAND, little COPR (30%), (5YR 3/3) dark reddish brown, moist no odor no staining, 30% COPR	
2-5				NR		NO RECOVERY	
5-7	0	0.0					
10-11	5	0.0	moist	FILL		GGM, Green, moist no odor green staining	
15-17	0	0.0		NR		NO RECOVERY	
20-21	2.5	0.0	wet	FILL		GGM, Green, wet no odor green staining	
			wet	FILL		fine to coarse silty SAND, (7.5YR 6/1) gray, wet no odor no staining	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 14:48

<b>Project Name:</b> Groundwater RI	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 610750.3
<b>Date Started Drilling:</b> 7/11/2017 7:15:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682658.8
<b>Date Finished Drilling:</b> 7/11/2017 9:45:00 AM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 30 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Ten West Apparel		<b>Surface Elevation:</b> 13.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23				NR		NO RECOVERY	
25			wet	SW		fine to coarse SAND, trace silt, (5YR 3/2) dark reddish brown, wet no odor no staining. Soils consistent with UNDno.	
27	5	0.0					
28							
29							
30							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> HSA	<b>Coordinates (NJSPNAD83) x:</b> 610949.4
<b>Date Started Drilling:</b> 3/29/2018 12:00:00 PM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682141.4
<b>Date Finished Drilling:</b> 3/29/2018 1:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 15 ft
<b>Logged By:</b> L. Kinsey	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Al Smith Moving and Storage		<b>Surface Elevation:</b> 10.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1				FILL		FILL	
2							
3							
4			moist	FILL		fine to medium SAND, some gravel, coal fragments gravel, (7.5YR 4/2) brown, moist	
5							
6			moist	SM		fine to medium silty SAND, some medium gravel, (5R 5/6) red, moist	
7							
8			moist	SM		fine to medium silty SAND, some construction debris, (7.5YR 4/2) brown, moist, angular	
9							
10				NR		NO RECOVERY	
11			moist	GW-GM		SILT, trace fine gravel, (2.5YR 4/3) reddish brown, moist, no staining, no odor	
12						No data	
13							
14			moist	SP		fine to medium SAND, trace fine gravel, (2.5YR 4/3) reddish brown, moist no odor no staining	
15							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** Replacement Well for 135-MW1A

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611113.1
<b>Date Started Drilling:</b> 4/3/2018 11:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682304
<b>Date Finished Drilling:</b> 4/6/2018 12:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 34 ft
<b>Logged By:</b> J. Christopher	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 135		<b>Surface Elevation:</b> 11.3 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1			dry	FILL		DGA, some gravel, (10YR 6/2) light brownish gray, dry , no odor , no staining	
2			wet	FILL		ASH, with cinders, wet , no odor , no staining	
3			wet	SM		SILT, trace fine sand and fine to coarse gravel, (5YR 4/3) reddish brown, wet , no odor , no staining	
4			wet	SM		SILT, little fine sand little fine to medium gravel, (2.5YR 4/3) reddish brown, wet , no odor , no staining	
5			wet	SM		SILT, little fine sand little fine to medium gravel, (2.5YR 4/3) reddish brown, wet , no odor , no staining	
6			moist	SW-SM		SILT, with fine gravel trace fine sand, (2.5YR 4/1) dark reddish gray, moist slight organic odor , no staining	
7			wet	SC-SM		SILT, trace clay trace fine sand, (2.5Y 5/2) grayish brown, wet slight organic odor , no staining, (some organic material [roots])	
8						No Data	
9	2	0.0	wet	SC-SM		SILT, trace clay trace fine sand, (7.5YR 5/2) brown, loose, wet no odor , no staining	
10		0.0	moist	PT		PEAT (degraded vegetated material), (7.5YR 3/2) dark brown, dense, moist , no odor , no staining	
11	1.42	0.0	wet	OH		CLAY, trace silt trace organics (roots), (7.5YR 4/1) dark gray, soft, wet , moderate organic odor , no staining	
12		0.0	wet	OH		CLAY, trace silt trace organics (roots), (7.5YR 4/1) dark gray, soft, wet , moderate organic odor , no staining	
13	2						

**Notes:**  
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 MM - meadow mat                  GGM - green grey mud                  UNDOrg - organic undisturbed native deposits      CCPW - chromate chemical production waste

**Comments:** Replacement Well for 135-MW3B


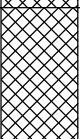
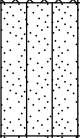
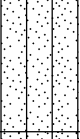
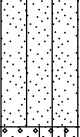
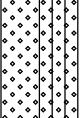
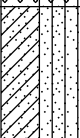
<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b>	<b>Coordinates (NJSPNAD83) x:</b> 611113.1
<b>Date Started Drilling:</b> 4/3/2018 11:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682304
<b>Date Finished Drilling:</b> 4/6/2018 12:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 34 ft
<b>Logged By:</b> J. Christopher	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 135		<b>Surface Elevation:</b> 11.3 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23	1.75	0.0	wet	OH		CLAY, trace silt trace organics (roots), (7.5YR 4/1) dark gray, soft, wet, moderate organic odor, no staining	
24		0.0	wet	SM		SILT, trace fine sand, (7.5YR 5/1) gray, loose, wet, no odor, no staining	
25	1.58						
26		0.0		NR		NO RECOVERY	
27	0						
28		0.0	moist	SM		fine silty SAND, trace coarse sand, (2.5Y 5/2) grayish brown, moist, no odor, no staining, tight	
29		0.0	moist	SM		fine silty SAND, trace coarse sand, (2.5YR 4/3) reddish brown, moist, no odor, no staining, tight	
30		0.0	wet	SM		fine SAND, little silt trace coarse sand, (2.5YR 4/3) reddish brown, loose, wet, no odor, no staining	
31	1.17						
32		0.0	wet	SM		fine SAND, little silt little coarse sand, (2.5YR 4/3) reddish brown, loose, wet, no odor, no staining	
33	0.83						
34							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDOrg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** Replacement Well for 135-MW3B

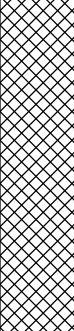
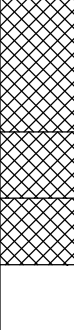


<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> HSA	<b>Coordinates (NJSPNAD83) x:</b> 611120.7
<b>Date Started Drilling:</b> 4/3/2018 9:10:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682311.9
<b>Date Finished Drilling:</b> 4/3/2018 10:05:00 AM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 15 ft
<b>Logged By:</b> J. Christopher	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 135		<b>Surface Elevation:</b> 11.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1-3	3	0.0	dry	FILL		DGA, some gravel, (10YR 6/2) light brownish gray, dry , no odor , no staining	
3-4	2	0.0	wet	FILL		ASH, with cinders, wet , no odor , no staining	
4-6	0.29	0.0	wet	SM		SILT, trace fine sand and fine to coarse gravel, (5YR 4/3) reddish brown, wet , no odor , no staining	
6-8	1.29	0.0	wet	SM		SILT, little fine sand little fine to medium gravel, (2.5YR 4/3) reddish brown, wet , no odor , no staining	
8-10	1.21	0.0	wet	SM		SILT, little fine sand little fine to medium gravel, (2.5YR 4/3) reddish brown, wet , no odor , no staining	
10-12	0.42	0.0	moist	SW-SM		SILT, with fine gravel trace fine sand, (2.5YR 4/1) dark reddish gray, moist slight organic odor , no staining	
12-14	0.58	0.0	wet	SC-SM		SILT, trace clay trace fine sand, (2.5Y 5/2) grayish brown, wet slight organic odor , no staining, (some organic material [roots])	
14-15							

**Notes:**  
 bgs - below surface grade      COPR - chromite ore processing residue      UNDno - non-organic undisturbed native deposits      MGP - manufactured gas plant  
 MM - meadow mat                  GGM - green grey mud                  UNDOrg - organic undisturbed native deposits      CCPW - chromate chemical production waste

**Comments:** Replacement Well for 135-MW3A


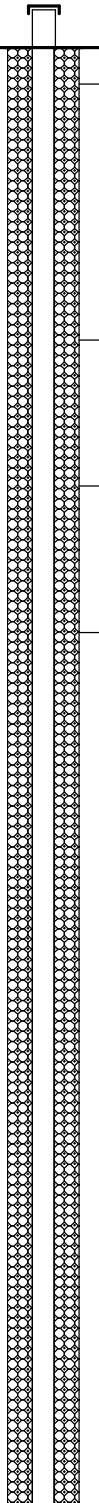


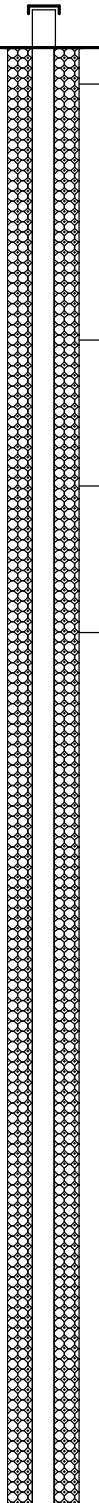



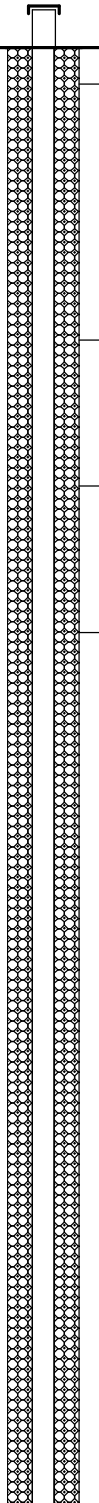


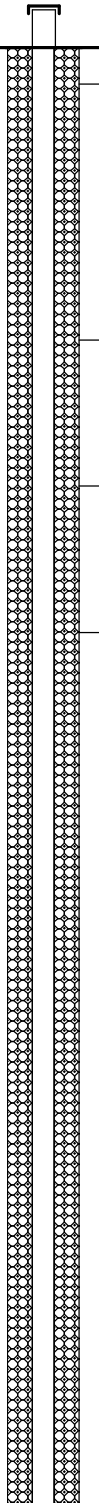

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611305
<b>Date Started Drilling:</b> 9/30/2017 7:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 684165.2
<b>Date Finished Drilling:</b> 9/30/2017 1:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 15 ft
<b>Logged By:</b> KW	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 186		<b>Surface Elevation:</b> 13.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID	
1	4.5	0	dry	FILL		DGA		
2								
3	4.5	0						
4								
5			wet	FILL				SILT, little fine to medium sand, (5YR 6/3) light reddish brown, wet no odor no staining
6			wet	FILL				fine to medium silty SAND, trace fine gravel, (5YR 4/3) reddish brown, wet no odor no staining
7	0	0		NR		NO RECOVERY		
8			wet	FILL		fine to medium silty SAND, trace fine gravel, (5YR 4/3) reddish brown, wet no odor no staining		
9	0	0		SM				
10			wet	FILL				fine to medium silty SAND, trace fine gravel, (5YR 4/3) reddish brown, wet no odor no staining
11			wet	SM				fine to coarse silty SAND, trace fine gravel, (5YR 4/4) reddish brown, wet no odor no staining. Soils consistent with UNDno.
12								
13								
14								
15								

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.64 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 611077.5
<b>Date Started Drilling:</b> 12/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683544.4
<b>Date Finished Drilling:</b> 12/11/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 105 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	0 / 5	0	DRY TO MOIST	FILL		Soft dig to 5 ft bgs. Brown-gray well graded GRAVEL, some silty sand, very dense (Dense Graded Aggregate [DGA]), dry to moist.		8-inch steel protective casing (stick up)
2			MOIST	FILL		Gray fine to coarse GRAVEL, trace to little silty sand, dense (DGA), moist.		Riser set in grout
3	3 / 5	0	WET	FILL		Gray fine to coarse GRAVEL, trace sand, well graded (DGA), wet.		Grout: 0-80 ft bgs
4			WET	FILL		Gray fine to medium SAND, trace silt, poorly sorted, medium dense, micaceous (DGA), wet.		
5			WET	FILL		Gray SILT, little coarse gravel, soft, micaceous (DGA), wet.		
6	4 / 5	0	DAMP TO WET	FILL		Gray SILT, trace fine to coarse gravel, soft, micaceous (DGA), damp to wet.		6-inch steel threaded casing: 0-80 ft bgs
7			WET	FILL		Gray SILT, trace fine to coarse gravel, soft, micaceous (DGA), wet.		
8	4.5 / 5	0	MOIST	OH		Gray organic CLAY, trace brown fibers (5%), trace silt, stiff, moist.		
9			WET	FILL		Gray SILT, trace fine to coarse gravel, soft, micaceous (DGA), wet.		

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**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
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RQD = rock quality designation

**Comments:**



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.64 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 611077.5
<b>Date Started Drilling:</b> 12/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683544.4
<b>Date Finished Drilling:</b> 12/11/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 105 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88


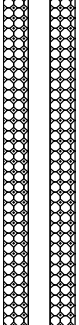





Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	2.5 / 5	0	WET	GP		Gray coarse GRAVEL, little fine to coarse sand, poorly sorted, loose, wet.		
22-24			WET	SW		Red brown fine to coarse SAND, some fine to coarse gravel, trace silt, loose, wet.		
25	2.5 / 5	0	WET	SM		Reddish brown fine SAND, some silt, poorly graded, trace gravel, loose.		
26-29			WET	ML		Reddish brown SILT, some fine to medium sand, soft, wet. Slight yellow coloration to water.		
30	4.5 / 5	0	WET	SM		Reddish brown fine SAND, some silt, poorly graded, medium dense, wet. Slight yellow coloration to water.		
31-34			DAMP TO MOIST	CL		Reddish brown to gray CLAY, trace silt, medium stiff, damp to moist. Slight yellow coloration to water.		
35	4.5 / 5	0	WET	ML		Reddish brown SILT, little fine sand, medium stiff, wet. Slight yellow coloration to water.		
36-39								

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.64 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 611077.5
<b>Date Started Drilling:</b> 12/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683544.4
<b>Date Finished Drilling:</b> 12/11/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 105 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-44	4 / 5	0	MOIST	CL		Reddish brown CLAY, trace silt, medium stiff, moist. Slight yellow coloration to water.		
45			WET	GP		Gray coarse GRAVEL, poorly sorted, dense, wet.		
46-47			WET	SW		Reddish brown fine to coarse SAND, trace to little gravel, medium dense, wet (Basal Till).		
48-49	4 / 5	0	WET	SP		Reddish brown fine to medium SAND, little fine to coarse gravel, very dense, wet (Basal Till).		
50-54	4 / 5	0	WET	SP		Reddish brown fine to medium SAND, some fine to coarse gravel, little silt, very dense, wet (Basal Till).		
55-59	4.5 / 5	0	WET	SP		Reddish brown fine to medium SAND, some fine to coarse angular gravel, little silt, very dense, wet (Basal Till).		

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 DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches  
 RQD = rock quality designation

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.64 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 611077.5
<b>Date Started Drilling:</b> 12/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683544.4
<b>Date Finished Drilling:</b> 12/11/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 105 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	3 / 5	0	WET	SW		Reddish brown fine to coarse SAND, little fine to coarse angular gravel, poorly graded, very dense, wet (Basal Till).		
62			WET	SP		Reddish brown fine to medium SAND, some fine to coarse gravel, little silt, poorly graded, very dense, wet (Basal Till).		
63	4 / 5	0	WET	SW		Reddish brown fine to coarse SAND, some fine to coarse gravel, little silt, very dense, wet (Basal Till).		
64			WET	SW		Reddish brown fine to coarse SAND, some fine to coarse gravel, little silt, very dense, wet (Basal Till).		
65	4.4 / 5	0	NA	BEDROCK		Gray mudstone. Highly weathered, rock in clay matrix, fine-grained, laminated, weak rock, crushed fracture spacing (Lockatong formation).		Top of bedrock: 68 ft bgs
66			NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, moderate fracture spacing. Vertical fracture at approximately 73 to 75 ft bgs, calcite-filled (Lockatong formation). Recovery = 83%; RQD = 75% (fair-good rock).		
67	4.8 / 5	0	NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, moderate fracture spacing. Vertical fracture at approximately 75 to 76 ft bgs, and 79.5 to 80 ft bgs. Healed calcite vein at 77 to 78 ft bgs (Lockatong formation). Recovery = 97%; RQD = 77% (good rock).		
68			NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, moderate fracture spacing. Vertical fracture at approximately 75 to 76 ft bgs, and 79.5 to 80 ft bgs. Healed calcite vein at 77 to 78 ft bgs (Lockatong formation). Recovery = 97%; RQD = 77% (good rock).		

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.64 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 611077.5
<b>Date Started Drilling:</b> 12/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683544.4
<b>Date Finished Drilling:</b> 12/11/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 105 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81-82	4.6 / 5	0	NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, wide fracture spacing. Vertical fracture throughout core. Calcite in fracture, rough joint alteration, some fractures healed. (Lockatong formation). Recovery = 93%; RQD = 90% (good - excellent rock).		5 7/8" open borehole in rock: 80-105 ft bgs
85-86	4.8 / 5	0	NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, wide fracture spacing, with few noticeable fractures, some healed (Lockatong formation). Recovery = 97%; RQD = 97% (excellent rock).		
90-91	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, wide fracture spacing (Lockatong formation). Small healed vertical fracture at 93 ft bgs. Recovery = 100%; RQD = 100% (excellent rock).		
95-96	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, wide fracture spacing (Lockatong formation). Vertical fracture from 99 to 100 ft bgs. Recovery = 100%; RQD = 100% (excellent rock).		

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.64 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 611077.5
<b>Date Started Drilling:</b> 12/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683544.4
<b>Date Finished Drilling:</b> 12/11/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 105 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
101 102 103 104 105	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite). Unweathered, fine-grained, laminated, strong rock, wide fracture spacing (Lockatong formation). Fractures at 103 ft bgs (at 5 deg) clay coated, and 103.4 ft bgs (at 15 deg) clay coated. Recovery = 100%; RQD = 100% (excellent rock). End of boring at 105 ft bgs.		

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.70 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610903.9
<b>Date Started Drilling:</b> 12/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683215.5
<b>Date Finished Drilling:</b> 1/4/2021	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 112.5 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	0 / 5	0	DRY	FILL		Soft dig to 5 ft bgs. Gray fine to coarse GRAVEL, some fine to coarse sand, trace silt, dense, dry.		8-inch steel protective casing (stick up)
2			WET	FILL		Gray COBBLES, some fine to coarse sand, dense (Dense Graded Aggregate [DGA]), wet.		
3			WET	FILL		Gray fine to coarse GRAVEL, some fine to coarse sand, trace silt, dense (DGA), wet.		
4	3 / 5	0	MOIST TO WET	FILL		Gray fine to coarse SAND, some silt, trace subangular gravel, dense (DGA), moist to wet.		Riser set in grout
5			MOIST TO WET	FILL		Gray fine to coarse SAND, some gravel, little silt, dense (DGA), moist to wet.		
6			MOIST TO WET	FILL		Gray fine to coarse SAND, some silt, little coarse gravel, dense (DGA), wet.		
7	4.5 / 5	0	MOIST TO WET	FILL		Gray fine SAND, some silt, little coarse gravel, dense (DGA), wet.		Grout: 0-85 ft bgs
8			MOIST TO WET	FILL		Gray organic CLAY, some brown fibers (40%), trace silt, stiff, moist.		
9			MOIST TO WET	FILL		Gray organic CLAY, some brown fibers (40%), trace silt, stiff, moist.		
10	5 / 5	0	MOIST	OH		Gray organic CLAY, some brown fibers (40%), trace silt, stiff, moist.		6-inch steel threaded casing: 0-85 ft bgs
11			MOIST	OH		Gray organic CLAY, some brown fibers (40%), trace silt, stiff, moist.		
12			MOIST TO WET	ML		Gray SILT, little fine sand, trace fine to medium gravel, dense, moist to wet.		

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.70 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610903.9
<b>Date Started Drilling:</b> 12/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683215.5
<b>Date Finished Drilling:</b> 1/4/2021	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 112.5 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	3 / 5	0	WET	SM		Reddish brown fine to coarse SAND, some silt, little fine to medium gravel, dense, wet.		
22			WET	SW		Reddish brown fine to coarse SAND, trace silt, trace subrounded coarse gravel, dense, wet.		
23	4 / 5	0	WET	SW		Reddish brown fine to coarse SAND, trace silt, trace coarse gravel, dense, wet.		
24			WET	SP		Reddish brown fine SAND, trace silt, medium dense, wet.		
25	4.5 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, medium dense, wet.		
26			WET	SM		Reddish brown fine SAND, some silt, trace clay, medium dense, wet.		
27			WET	SP		Reddish brown fine SAND, little silt, medium dense, wet.		
28	3.5 / 5	0	WET	SM		Reddish brown fine SAND, some silt, medium dense, wet. Slight yellow coloration to water.		
29			WET	CL		Gray CLAY, little fine sand stringers, trace silt, medium stiff, moist.		
30			MOIST	CL				

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.70 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610903.9
<b>Date Started Drilling:</b> 12/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683215.5
<b>Date Finished Drilling:</b> 1/4/2021	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 112.5 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-44	1 / 5	0	MOIST	CL		Gray CLAY, trace silt, trace fine sand stringers, medium stiff, moist.		
45-47	5 / 5	0	MOIST	CL		Gray CLAY, trace silt, trace fine sand stringers, medium stiff, moist.		
48-49			MOIST	CL		Gray CLAY, interbedded with fine to medium sand, trace silt, medium stiff, moist.		
50-51			WET	ML		Red brown SILT, some fine sand, stiff, wet.		
52-54	5 / 5	0	WET	ML/CL		Red brown SILT and CLAY, trace fine sand, stiff, wet.		
55-56			WET	CL		Gray CLAY, trace silt, stiff, wet.		
57-58			WET	SM		Reddish brown fine SAND, some silt, medium dense, wet (Basal Till).		
59-60	4 / 5	0	WET	SM		Reddish brown fine SAND, some silt, trace medium to coarse gravel, trace cobbles, very dense, wet (Basal Till).		
61-62						Reddish brown fine to medium SAND, some silt, little fine to coarse angular gravel, trace cobbles, very dense, wet (Basal Till).		


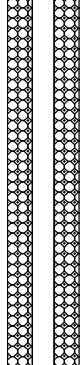

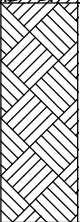
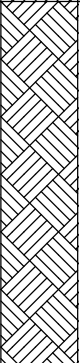
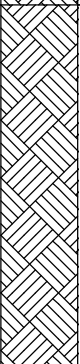
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**Comments:**



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.70 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610903.9
<b>Date Started Drilling:</b> 12/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683215.5
<b>Date Finished Drilling:</b> 1/4/2021	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 112.5 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-65	3.5 / 5	0	WET	SM		Reddish brown fine to coarse SAND, some silt, little fine to coarse gravel, trace cobbles, very dense, wet (Basal Till).		
65-67			WET	SW		Reddish brown fine to coarse SAND, trace silt, medium dense, wet (Basal Till).		
67-70	3 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, fine grained, laminated, rock broken by sonic drill, strong rock (Lockatong formation).		Top of bedrock: 67 ft bgs
70-75	4.17 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, fine grained, laminated, medium strong, broken rock with one vertical fracture at approximately 73.5 to 75 ft bgs (Lockatong formation). Recovery = 83%; RQD = 0% (very poor rock).		
75-79	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, laminated, very strong rock, very wide fracture spacing, highly fractured and broken rock at approximately 75 to 76 ft bgs, competent rock at approximately 76 to 80 ft bgs with mechanical fractures (Lockatong formation). Recovery = 100%; RQD = 77% (good rock).		

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 RQD = rock quality designation

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.70 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSNAD83) x:</b> 610903.9
<b>Date Started Drilling:</b> 12/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSNAD83) y:</b> 683215.5
<b>Date Finished Drilling:</b> 1/4/2021	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 112.5 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.7 ft NAVD88

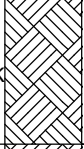
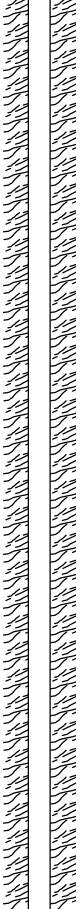
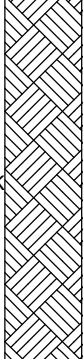
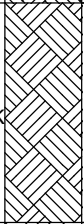
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81-85	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, laminated, very strong rock, very wide fracture spacing, 80 degree fractures at 80.2 to 82 ft bgs, calcite-filled, 60 degree fractures at approximately 80 to 80.1 ft bgs, 60 degree fractures at approximately 83 to 83.2 ft bgs, calcite-filled (Lockatong formation). Recovery = 100%; RQD = 83% (good rock).		
85-86	0 / 2	0	NA	BEDROCK		Roller bit the boring to clear broken rock pieces left behind from the sonic rig casing installation.		
86-89	4 / 4	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, laminated 20%, very strong rock, very wide fracture spacing, numerous mechanical fractures (Lockatong formation). Recovery = 100%; RQD = 100% (excellent rock).		5 7/8" open borehole in rock: 85-112.5 ft bgs
89-91			NA	BEDROCK		Gray mudstone (Argillite), unweathered, laminated 20%, very strong rock, very wide fracture spacing, numerous mechanical fractures (Lockatong formation). Recovery = 100%; RQD = 100% (excellent rock).		
91-97	5.25 / 6	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, laminated strong rock, weak rock at approximately 91.5 to 92 ft bgs and 93.8 to 95 ft bgs, numerous mechanical fractures (possible highly fractured) (Lockatong formation). Recovery = 88%; RQD = 63% (fair rock).		
97-99			NA	BEDROCK		Grey mudstone (Argillite), unweathered, laminated at 0 to 10 degrees, very strong rock, very wide fracture spacing. 0 degree fracture at approximately 97.8 to 97.9 ft bgs (Lockatong formation). Recovery = 100%; RQD = 98% (excellent rock).		

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.70 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610903.9
<b>Date Started Drilling:</b> 12/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683215.5
<b>Date Finished Drilling:</b> 1/4/2021	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 112.5 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
101	5 / 5	0	NA	BEDROCK				
102						Grey mudstone (Argillite), unweathered, laminated at 0 to 10 degrees, very strong rock, very wide fracture spacing. 10 degree fractures at approximately 103.5 to 103.6 ft bgs, 10 degree fractures at approximately 105.2 to 105.3 ft bgs (Lockatong formation). Recovery = 100%; RQD = 97% (excellent rock).		
103								
104	5 / 5	0	NA	BEDROCK				
105								
106								
107								
108	0 / 3	0	NA	BEDROCK		No recovery - core barrel lost a portion of the diamond bit down the hole and this left the core in the hole. Boring reamed to 112.5 ft bgs. End of boring at 112.5 ft bgs.		
109								
110								
111								
112								

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.59 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610873.2
<b>Date Started Drilling:</b> 12/15/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683469.8
<b>Date Finished Drilling:</b> 12/28/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 109 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.4 ft NAVD88


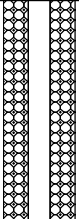
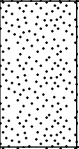
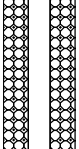
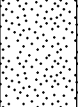
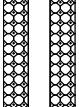
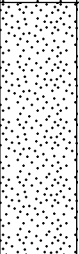
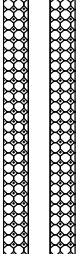
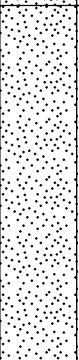
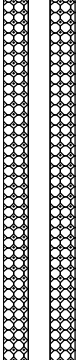



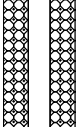

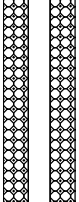
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	0 / 5	0	DRY TO MOIST	FILL		Soft dig to 5 ft bgs, brownish gray well graded GRAVEL, some silt, fine to coarse sand (DGA), very dense, dry to moist.		8-inch steel protective casing (stick up)
2			WET	FILL		Brownish gray fine to coarse GRAVEL, trace to little silty sand (DGA), dense, wet.		Riser set in grout
3	3 / 5	0	WET	FILL		Brownish gray fine to coarse GRAVEL, trace to little silty sand (DGA), dense, wet.		Grout: 0-85 ft bgs
4			WET	FILL		Gray silty fine to medium SAND, little fine to medium gravel, dense, wet.		
5			WET	FILL		Gray silty fine to medium SAND, little fine to medium gravel, dense, wet.		
6	3 / 5	0	WET	FILL		Gray silty fine to medium SAND, little fine to medium gravel, dense, wet.		6-inch steel threaded casing: 0-85 ft bgs
7			WET	FILL		Gray silty fine to medium SAND, little fine to medium gravel, dense, wet.		
8	5 / 5	0	DAMP	PT		Gray CLAY, trace silt, organic, fibrous (20% fibers), medium stiff, damp.		
9			WET	SW		Gray fine to coarse SAND, trace silt, loose, wet.		
10			WET	PT		Gray CLAY, trace silt, organic, fibrous (50%), medium stiff, wet.		
11	5 / 5	0	WET	CL		Gray CLAY, some silt, little fine sand, trace fine to coarse gravel, soft, wet.		
12			WET	CL		Gray CLAY, some silt, little fine sand, trace fine to coarse gravel, soft, wet.		

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RQD = rock quality designation

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.59 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610873.2
<b>Date Started Drilling:</b> 12/15/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683469.8
<b>Date Finished Drilling:</b> 12/28/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 109 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21-23	3 / 5	0	WET	CL		Gray CLAY, some silt, little fine sand, trace fine to coarse gravel, soft, wet.		
23-25			WET	SP		Gray to black fine SAND, trace silt, loose, odorous, poorly sorted, wet.		
25-27			WET	SP		Gray to black fine SAND, trace silt, loose, odorous, poorly sorted, wet.		
27-30	4 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, loose, well sorted, wet.		
30-35			WET	SP		Reddish brown fine SAND, trace silt, loose, well sorted, wet.		
35-36			WET	SP		Reddish brown fine SAND, trace silt, loose, well sorted, wet.		
36-37						Reddish brown CLAY, trace silt, trace fine sand, stiff, damp.		
37-39	5 / 5	0	DAMP	CL				

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<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	4.5 / 5	0	DAMP	CL		Reddish brown CLAY, trace silt, trace fine sand, stiff, damp.		
42			WET	SP		Reddish brown fine SAND, trace silt, very loose, well sorted, wet. Yellow coloration to water.		
43	5 / 5	0	WET	SP		Reddish brown fine SAND, trace silt, very loose, poorly graded, wet. Yellow coloration to water.		
44			WET	SP				
45	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to medium subrounded gravel, very dense, wet (Basal Till).		
46			WET	SM				
47	5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		
48			WET	SM				
49	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		
50			WET	SM				
51	5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		
52			WET	SM				
53	5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		
54			WET	SM				
55	5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		
56			WET	SM				
57	5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		
58			WET	SM				
59	5 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		

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<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.4 ft NAVD88

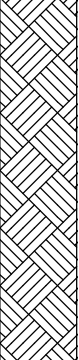
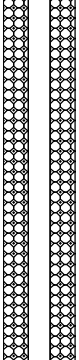
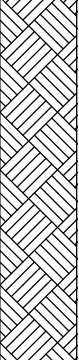
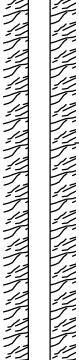
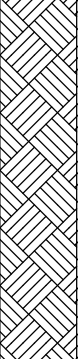
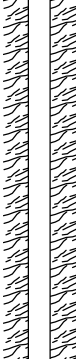
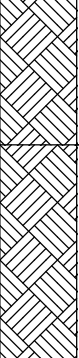
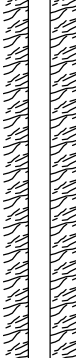
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-62	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, little fine to coarse subangular to subrounded gravel, very dense, wet (Basal Till).		Top of bedrock: 63 ft bgs
63-64			WET	BEDROCK		Gray diabase, highly weathered, friable, medium grain size, very weak rock, wet.		
65-66	5 / 5	0	WET	BEDROCK		Gray diabase, highly weathered (rock in clay matrix), friable, medium grain size, very weak rock, wet.		
67-69			NA	BEDROCK		Gray diabase, moderately weathered, medium grain size, very medium strong rock.		
70-73	4.67 / 5	0	NA	BEDROCK		Gray diabase, moderately weathered to highly weathered, medium grain size, weak rock, close fracture spacing. 50 degree fracture at approximately 71.5 to 71.7 ft bgs, calcite coated, fracture at approximately 72 to 72.5 ft bgs, broken clay disintegrated, 60 degree fracture at approximately 73.5 to 73.8 ft bgs, 60 degree fracture at approximately 73.8 to 74 ft bgs, fracture at approximately 74.5 to 74.8 ft bgs, broken clay disintegrated. Recovery = 93%; RQD = 38% (poor rock).		
74-75	4.17 / 5	0	NA	BEDROCK		Grey diabase, moderately weathered to highly weathered, medium grained, weak to very weak rock, close to very close fracture spacing, broken rock at approximately 75 to 77 ft bgs, 0 degree fracture at approximately 77.8 to 77.9 ft bgs, 70 degree fracture at approximately 74.4 to 74.8 ft bgs, numerous mechanical fractures. Recovery = 83%; RQD = 53% (fair rock)		
76-79								

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<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81-84	4.83 / 5	0	NA	BEDROCK		Gray diabase, moderately weathered, medium grained, weak to very weak rock, close to very close fracture spacing, 70 degree fracture at approximately 80.6 to 80.8 ft bgs, 70 degree fracture at approximately 81.2 to 81.3 ft bgs, 60 degree fracture at approximately 82.9 to 83.0 ft bgs, 70 degree fracture at approximately 83.5 to 84.0 ft bgs, 80 degree fracture at approximately 83.4 to 85.0 ft bgs, numerous mechanical fractures. Recovery = 97%; RQD = 80% (fair to good rock)		
85-88	0.08 / 5	0	NA	BEDROCK		Gray diabase, moderately weathered to highly weathered, medium grained, weak to very weak rock, highly fractured, washed out rock at approximately 85 to 88 ft bgs, broken rock at approximately 88 to 90 ft bgs. Recovery = 0.02%; RQD = 0% (very poor rock).		5 7/8" open borehole in rock: 85-109 ft bgs
89-96	1 / 7	0	NA	BEDROCK		Gray diabase, highly weathered, medium grained, weak to very weak rock, highly fractured, washed out at approximately 90 to 96 ft bgs, broken rock at approximately 96 to 97 ft bgs. Recovery = 14%; RQD = 0% (very poor rock).		
97-99	2 / 3	0	NA	BEDROCK		Gray diabase, moderately to highly weathered, medium grained, weak to very weak rock, highly fractured, washed out at approximately 97 to 98 ft bgs, broken rock at approximately 98 to 100 ft bgs. Recovery = 67%; RQD = 0% (very poor rock).		

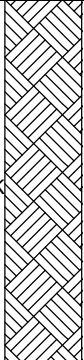
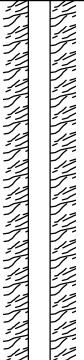
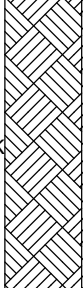
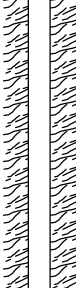
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**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
 DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches  
 RQD = rock quality designation

**Comments:**



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.59 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610873.2
<b>Date Started Drilling:</b> 12/15/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683469.8
<b>Date Finished Drilling:</b> 12/28/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 109 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
101 - 103	2 / 5	0	NA	BEDROCK		Gray diabase, moderately to highly weathered, medium grained, weak to very weak rock, highly fractured, washed out at approximately 100 to 103 ft bgs, broken rock at approximately 103 to 105 ft bgs. Recovery = 40%; RQD = 0% (very poor rock).		
105 - 109	3.5 / 5	0	NA	BEDROCK		Gray diabase, highly weathered, medium grained, highly fractured, pitted, discolored, washed out at approximately 105 to 106.5 ft bgs, broken rock at approximately 106.5 to 110 ft bgs. Recovery = 30%; RQD = 0% (very poor rock). End of boring at 109 ft bgs.		
109 - 109								

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 RQD = rock quality designation

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.20 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610941.4
<b>Date Started Drilling:</b> 12/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683423.4
<b>Date Finished Drilling:</b> 12/30/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 115 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88


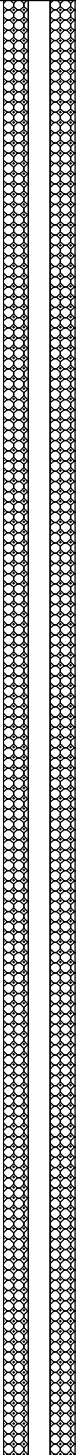

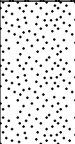
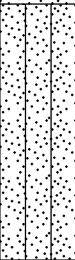

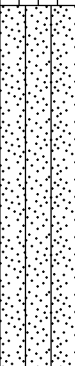

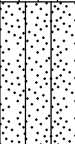

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1 - 2	0 / 5	0	DRY TO MOIST	FILL		Soft dig to 5 ft bgs, brown gray well graded GRAVEL, some silty sand, very dense (DGA), dry to moist.		8-inch steel protective casing (stick up)
3 - 4			WET	FILL		Gray fine to coarse GRAVEL, trace to little silty sand, dense (DGA), wet.		Riser set in grout
5 - 8	1 / 5	0	WET	FILL		Gray fine to coarse SAND, little silt, trace cobbles, trace fine to coarse gravel, loose (DGA), wet.		Grout: 0-90 ft bgs
9 - 10			WET	FILL		Gray fine to coarse SAND, some silt, little fine to coarse angular gravel, loose to medium dense (DGA), wet.		6-inch steel threaded casing: 0-90 ft bgs
11 - 15	3 / 5	0	WET	FILL		Gray fine to coarse SAND, some silt, little fine to medium angular gravel, loose to medium dense (DGA), wet.		
16 - 18			WET	FILL		Gray fine to coarse SAND, some silt, little fine to medium angular gravel, loose to medium dense (DGA), wet.		
19	3 / 5	0	DAMP	PT		PEAT, fibrous, organic, 50% fibers, soft to medium stiff, damp.		
20			DAMP	CL		CLAY, organic, trace silt, medium stiff, damp		

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RQD = rock quality designation

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.20 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610941.4
<b>Date Started Drilling:</b> 12/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683423.4
<b>Date Finished Drilling:</b> 12/30/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 115 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	3 / 5	0	DAMP	CL		Gray CLAY, trace silt, organic, medium stiff, damp.		
22			WET	SW		Reddish brown fine to coarse SAND, little fine to coarse, subrounded gravel, little silt, wet.		
23			WET	SP		Reddish brown fine to medium SAND, trace silt, wet.		
24	4 / 5	0	WET	SM		Reddish brown fine SAND, some silt, poorly graded, trace gravel, loose, wet. Yellow coloration to water.		
25			WET	ML		Reddish brown SILT, some fine to coarse sand, soft, wet.		
26			WET	SM		Reddish brown fine to medium SAND, some silt, poorly graded, loose, wet. Yellow coloration to water.		
27	4 / 5	0	WET	ML		Reddish brown SILT, some fine sand, soft, wet.		
28			WET	SM		Reddish brown fine to medium SAND, some silt, poorly graded, medium dense, wet. Yellow coloration to water.		
29			DAMP	CL		Reddish brown to gray CLAY, trace silt, medium stiff, damp.		

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.20 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610941.4
<b>Date Started Drilling:</b> 12/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683423.4
<b>Date Finished Drilling:</b> 12/30/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 115 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	4 / 5	0	WET	SM		Reddish brown fine to medium SAND, some silt, poorly graded, medium dense, wet.		
42			DAMP	CL		Reddish brown CLAY, trace silt, medium stiff, damp.		
43								
44			WET	ML		Reddish brown SILT, little fine sand, trace clay soft, wet.		
45	4 / 5	0	WET	ML		Reddish brown SILT, little fine sand, trace clay soft, wet.		
46			WET	CL		Reddish brown CLAY, trace silt, medium stiff, wet.		
47								
48			WET	SW		Reddish brown fine to coarse SAND, some fine to coarse angular gravel, little silt, poorly sorted (Basal Till), wet.		
49								
50	4 / 5	0	WET	SP		Reddish Brown fine to medium SAND, trace silt, loose (Basal Till), wet. Yellow coloration to water.		
51								
52			WET	SW		Reddish brown fine to coarse SAND, some fine to coarse angular gravel, little silt, poorly sorted, dense (Basal Till), wet.		
53								
54								
55	4 / 5	0				Reddish brown fine to coarse SAND, some fine to coarse subangular gravel, little silt, poorly sorted, dense (Basal Till), wet.		
56								
57			WET	SW				
58								
59								

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.20 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610941.4
<b>Date Started Drilling:</b> 12/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683423.4
<b>Date Finished Drilling:</b> 12/30/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 115 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-65	3 / 5	0	WET	SW		Reddish brown fine to coarse SAND, some fine to coarse gravel, little silt, very dense (Basal Till), wet.		
65-66	4 / 5	0	WET	SW		Reddish brown fine to coarse SAND, some fine to medium gravel, little silt, medium dense (Basal Till), wet.		
66-69			WET	SW		Reddish brown fine to coarse SAND, some fine to coarse subangular gravel, trace cobbles, trace silt, very dense (Basal Till), wet.		
69-70			WET	CL		Reddish brown CLAY, some silt, trace fine sand, medium stiff, wet.		
70-75	3 / 5	0	WET	SW		Reddish brown fine to coarse SAND, some fine to coarse subangular gravel, trace silt, trace cobbles, very dense (Basal Till) wet.		
75-76	WET	BEDROCK	Diabase boulder within Basal Till.					
76-77	4 / 5	0	WET	SM		Reddish brown fine to coarse SAND, little fine to coarse gravel, trace to little silt, very dense (Basal Till), wet.		
77-78			NA	BEDROCK		Gray mudstone (Argillite), highly weathered (rock in clay matrix), fine grained, laminated, weak rock (Lockatong formation).		
78-79			NA	BEDROCK		Gray mudstone (Argillite), highly weathered (rock in clay matrix), fine grained, laminated, strong rock (Lockatong formation).		

Top of bedrock: 77 ft bgs

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**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.20 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSNAD83) x:</b> 610941.4
<b>Date Started Drilling:</b> 12/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSNAD83) y:</b> 683423.4
<b>Date Finished Drilling:</b> 12/30/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 115 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81-84	3.33 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, fine grained, laminated, strong rock, numerous vertical healed fractures, moderate fracture spacing (Lockatong formation). 80 degree calcite coated fracture at approximately 80.5 to 80.75 ft bgs, 40 degree calcite coated fracture at approximately 80.75 to 80.80 ft bgs, 60 degree calcite coated fracture at approximately 80.3 to 80.6 ft bgs, 60 degree calcite coated fracture at approximately 83.3 to 83.6 ft bgs, 60 degree epidote coated fracture at approximately 84.5 to 84.6 ft bgs, vertical epidote coated fracture at approximately 84.5 to 85 ft bgs. Recovery = 100%; RQD = 67% (fair rock).		
85-88	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, pitted at approximately 85.6 to 87.6 ft bgs, laminated, strong rock, moderate fracture spacing, fine grained (Lockatong formation). 70 degree quartz coated fracture at approximately 85.0 to 85.6 ft bgs, 0 degree quartz coated fracture at approximately 86.6 to 86.8 ft bgs, 70 degree quartz coated fracture at approximately 87.1 to 87.3 ft bgs, 50 degree quartz coated fracture at approximately 89.6 to 89.8 ft bgs. Recovery = 100%; RQD = 72% (fair rock).		
89-92	4.42 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, laminated, strong rock, very wide fracture spacing, fine grained, broken pieces at approximately 90-90.5 ft bgs, several mechanical breaks (Lockatong formation). Recovery = 100%; RQD = 88% (good rock).		5 7/8" open borehole in rock: 90-115 ft bgs
93-96	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, laminated, strong rock, very wide fracture spacing, fine grained, mechanical breaks only (Lockatong formation). Recovery = 100%; RQD = 100% (excellent rock).		

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 RQD = rock quality designation

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.20 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic/Water Rotary	<b>Coordinates (NJSPNAD83) x:</b> 610941.4
<b>Date Started Drilling:</b> 12/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683423.4
<b>Date Finished Drilling:</b> 12/30/2020	<b>Core Size:</b> 6 in. sonic, 2 in. rock core	<b>Boring Total Depth:</b> 115 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b> NA
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
101-102	5 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, 20% laminated, strong rock, very wide fracture spacing, fine grained, 20 degree fracture at approximately 101.8 to 102 ft bgs, numerous mechanical fractures (Lockatong formation). Recovery = 100%; RQD = 95% (excellent rock).		
105-107	4.92 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, 20% laminated, strong rock, very wide fracture spacing, fine grained (Lockatong formation), 20 degree fracture at approximately 105.7 to 105.8 ft bgs, 10 degree fracture at approximately 107.2 to 107.4 ft bgs, numerous mechanical fractures. Recovery = 98%; RQD = 93% (excellent rock).		
110-112	4.17 / 5	0	NA	BEDROCK		Gray mudstone (Argillite), unweathered, 20% laminated, strong rock, very wide fracture spacing, fine grained, mechanical breaks only (Lockatong formation). Recovery = 97%; RQD = 97% (excellent rock). End of boring at 115 ft bgs.		
115								

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 RQD = rock quality designation

**Comments:**

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.22 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611411.8
<b>Date Started Drilling:</b> 10/1/2019	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683675
<b>Date Finished Drilling:</b> 10/2/2019	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 76 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1						Dark brown SAND, fine to coarse gravel, DGA, loose (FILL).		Riser set in grout Grout: 0-64 ft bgs 2-inch Schedule 40 PVC riser: 0-67 ft bgs
2								
3								
4								
5								
6								
7								
8								
9								
10								
11				FILL		Black DGA (FILL) material consisting of fine to coarse GRAVEL, loose.		
12								
13								
14				PT		Brown PEAT, highly organic, peat odor (meadow mat).		
15	8 / 10	0						
16			DAMP	SM		Gray very fine silty SAND, medium dense, damp.		
17								
18								
19			DAMP	SP		Reddish brown, very fine SAND (poorly graded), with little fine to coarse gravel, medium dense, damp.		

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.22 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611411.8
<b>Date Started Drilling:</b> 10/1/2019	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683675
<b>Date Finished Drilling:</b> 10/2/2019	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 76 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.5 ft NAVD88

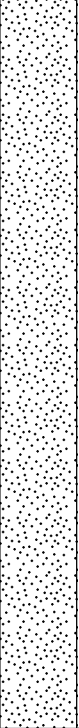
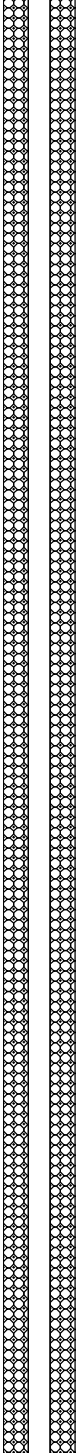

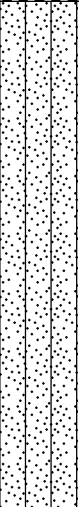
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	7 / 10	0	WET	SP		Reddish brown, very fine SAND (poorly graded), with little fine to coarse sand from 20' to 22', loose to medium dense, wet.		
22								
23								
24								
25								
26	6 / 10	0	WET	SP		Reddish brown, very fine SAND (poorly graded), medium dense, wet. Yellow water observed from soil core.		
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.22 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611411.8
<b>Date Started Drilling:</b> 10/1/2019	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683675
<b>Date Finished Drilling:</b> 10/2/2019	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 76 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	7 / 10	0	WET	SP		Reddish brown, very fine SAND (poorly graded) with trace silt, loose to medium dense, wet. Yellow water observed in soil core.		
42								
43								
44								
45								
50			DAMP	CH		Reddish brown CLAY, high plasticity, stiff, damp.		
51								
52								
53	9 / 10	0	WET TO DAMP	SM		Reddish brown, very fine SAND/silty sand (poorly graded), medium dense, wet. Trace coarse gravel and fine to medium sand (slightly denser) observed from 59.5' to 60'.		
54								
55								
56								
57								
58								
59								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.22 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611411.8
<b>Date Started Drilling:</b> 10/1/2019	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683675
<b>Date Finished Drilling:</b> 10/2/2019	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 76 ft
<b>Logged By:</b> J. Harshman	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.5 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-65	/ 10	0	WET	SP		Reddish brown to brown, fine to medium poorly graded SAND, loose, wet.		Bentonite Seal: 64-66 ft bgs
65-70			SLIGHTLY DAMP	SW-GW		Brown, fine to coarse SAND and fine to coarse gravel, medium dense to dense, well graded (Basal Till), damp.		#00 Sand: 66-66.5 ft bgs; #0 Filter Sand: 66.5-71.5 ft bgs 2-inch Schedule 40 PVC screen: 67-71 ft bgs
70-71			DAMP	SW		Gray, tightly compressed, very dense SAND and angular gravel, some subangular pieces (Basal Till), damp.		
71-76	5 / 6	0	DRY	BEDROCK		Dark gray to black siltstone and mudstone (Lockatong Formation). End of boring at 76 ft.		Bentonite Seal: 71.5-76 ft bgs

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611163.8
<b>Date Started Drilling:</b> 3/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683919.4
<b>Date Finished Drilling:</b> 3/19/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 64 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 15.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	3.6 / 10	0.0	DRY	FILL		Soft dig to 5 ft bgs; Grey GRAVEL, silty sand, little fine to coarse gravel (DGA), dry.		Riser set in grout
2								
3								
4								
5								
6	6.6 / 10		DAMP	FILL		Yellowish Brown (10YR 5/4) silty SAND, fine to medium sand, little fine gravel, damp.		Grout: 0-49 ft bgs
7								
8								
9								
10								
11								
12								
13	DAMP	FILL		Black (10 YR 2/1) silty SAND, fine to coarse sand, little gravel, damp.		2-inch Schedule 40 PVC Riser: 0-53 ft bgs		
14								
15								
16								
17	DAMP	OH-PT		Black organic soil with brown fibers (PEAT), damp.				
18								
19								
20	DAMP	ML		Gray (7.5YR 5/1) SILT with few brown fibers, grades into clayey silt, damp.				
21								
22	DAMP	ML		Gray (7.5YR 5/1) clayey SILT, grades into greenish-gray (10Y 5/1) clayey silt, fine sand, damp.				
23								
24								20ft: 20% fines (silt/clay)

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611163.8
<b>Date Started Drilling:</b> 3/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683919.4
<b>Date Finished Drilling:</b> 3/19/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 64 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 15.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	4.3 / 10		WET	ML		Dark Gray (2.5Y 4/1) clayey SILT, little fine to coarse gravel, loose, wet.		
22						Dark greyish brown (10YR 4/2) to brown (7.5YR 4/4), poorly graded SAND with silt, fine sand, little medium sand, silt, loose, wet.		
23								
24								
25			WET	SP-SM		Reddish brown (5YR 4/4) to strong brown (7.5YR 5/6), poorly graded SAND with silt, fine to medium sand, some silt, loose, wet.		25ft: 5-10% fines (silt/clay)
26								
27								
28								
29								
30			WET	SP-SM		Reddish brown (5YR 4/4) to strong brown (7.5YR 5/6), poorly graded SAND with silt, fine to medium sand, some silt, loose, wet.		
31	5 / 10		WET	GW		Widely graded GRAVEL, fine to coarse gravel, some sand, wet.		
32			WET	SM		Reddish brown silty SAND, fine sand, loose, wet.		
33								Reddish brown (7.5YR 5/6) to yellowish red (5YR 4/6), poorly graded SAND with silt, fine sand, little medium sand, trace coarse sand, little subrounded fine to coarse gravel, loose, wet.
34								
35			WET	SP-SM		Reddish brown silty SAND, fine sand, loose, wet.		35ft: 10-15% fines (silt/clay)
36								
37								
38								
39								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611163.8
<b>Date Started Drilling:</b> 3/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683919.4
<b>Date Finished Drilling:</b> 3/19/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 64 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 15.0 ft NAVD88

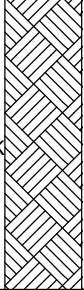
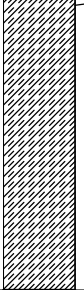
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-48	4.8 / 10		WET	SP-SM				
48-49			DAMP	SW-SC		Reddish brown (5YR 5/3) clayey SAND, fine to coarse sand, little angular fine to coarse gravelclay, dense, compacted, damp (Basal Till).		49ft: 30% fines (silt/clay)
49-58	4.4 / 10		DAMP	SW-SC		Reddish brown (5YR 5/3) clayey SAND, fine to coarse sand, little subrounded to subangular fine to coarse gravel, clay, damp (becomes dry to damp at 57.5' to 58') (Basal Till). Boulder at 52 ft bgs.		50ft: 20% fines (silt/clay) #00 Sand: 49-51 ft bgs
58-59				BEDROCK		Grey Diabase, powdered and broken pieces of rock.		#0 Filter Sand: 51-58 ft bgs 2-inch Schedule 40 PVC screen: 53-57 ft bgs

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611163.8
<b>Date Started Drilling:</b> 3/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683919.4
<b>Date Finished Drilling:</b> 3/19/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 64 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 15.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61								
62				BEDROCK		Grey Diabase (pulverized by sonic drilling). End of boring at 64 ft.		Bentonite Seal: 58-64 ft bgs
63								
64								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.52 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611378.1
<b>Date Started Drilling:</b> 3/20/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683872
<b>Date Finished Drilling:</b> 3/20/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.6 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	2.6 / 10	0.0	DRY	FILL		Soft dig to 5 ft bgs; Gray silty SAND, fine to coarse sand, fine to coarse gravel (large gravel up to 2.5 inches across), highly compacted, dry (DGA).		Riser set in grout
2								
3								
4								
5								
6	3.8 / 10	0.0	DRY	FILL		Yellowish brown (10YR 5/4) widely graded SAND with silt, few subrounded fine to coarse sand, loose, dry.		Grout: 0-60.5 ft bgs
7								
8								
9								
10								
11	3.8 / 10	0.0	WET	FILL		Black (10YR 2/1) and dark gray (2.5Y 4/1) widely graded GRAVEL, fine to coarse gravel, some fine to coarse sand, little silt, wet.		2-inch Schedule 40 PVC riser: 0-64.5 ft bgs
12								
13								
14								
15								
16	3.8 / 10	0.0	WET	FILL		Black (10YR 2/1) and dark gray (2.5Y 4/1) widely graded GRAVEL, fine to coarse gravel, some fine to coarse sand, little silt, wet.		
17								
18								
19								
20								
			WET	FILL		FILL, begins to grade into weak red (2.5YR 4/2) widely		

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.52 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611378.1
<b>Date Started Drilling:</b> 3/20/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683872
<b>Date Finished Drilling:</b> 3/20/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.6 ft NAVD88


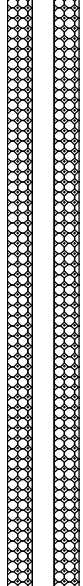

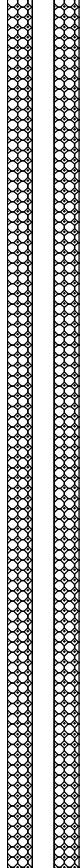

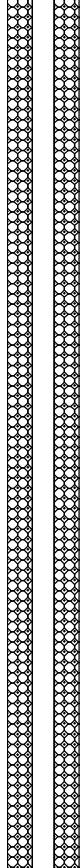

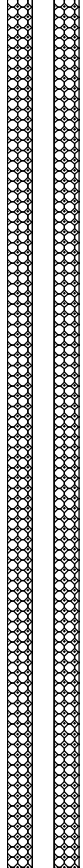
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
21	6 / 10	0.0	WET	FILL		graded GRAVEL, little fine to coarse sand, few silt, wet.			
22			WET	SW		Reddish brown (5YR 4/3) widely graded SAND, fine to medium sand, few coarse sand and trace silt, loose, wet.			
23						Red (2.5YR 4/6) silty SAND, fine sand, loose, wet.			22.5 ft: 15-20% fines (silt/clay)
24	5.3 / 10	0.0	WET	SM					
25									
26									
27									
28									
29									
30									
31			WET	SP-SM		Red (2.5YR 4/6) poorly graded SAND with silt, fine sand, few silt, loose, wet.		30 ft: 15% fines (silt/clay)	
32									
33									
34									
35			WET	SP-SM		Red (2.5YR 4/6) poorly graded SAND with silt, fine sand, silt, loose, wet.		37 ft: 5% fines (silt/clay)	
36									
37									
38			WET	SP		Red (2.5YR 4/6) poorly graded SAND, fine sand, trace silt, loose, sharp contact with underlying clay, wet.			
39			WET	CH		Reddish brown (2.5YR 4/4) and reddish gray (2.5YR 5/1) fat CLAY, laminated layers of clay and silt, compact, malleable, high plasticity, wet to moist.			

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.52 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611378.1
<b>Date Started Drilling:</b> 3/20/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683872
<b>Date Finished Drilling:</b> 3/20/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.6 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	4.4 / 10	0.0	WET	CH				
42								
43								
44								
45	6 / 10	0.0	DAMP	SW-SC		Reddish brown (2.5YR 4/3) clayey SAND, fine to coarse sand, little subangular fine to coarse gravel (up to 2.5 inch across), very hard, dense and compacted, damp (Basal Till).		
46								
47								
48	6 / 10	0.0	DAMP	SW-SC		Reddish brown (2.5YR 4/4) clayey SAND, fine sand, loose.		
49						Poorly graded SAND, fine to medium sand, loose.		
50	6 / 10	0.0	DAMP	SW-SC		Reddish brown (2.5YR 4/3) clayey SAND, fine to coarse sand, little subangular fine to coarse gravel (up to 2.5 inch across), very hard, dense and compacted, damp (Basal Till).		
51								
52								
53								
54								
55								
56								
57								
58								
59								

55 ft: 25% fines (silt/clay)

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.52 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611378.1
<b>Date Started Drilling:</b> 3/20/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683872
<b>Date Finished Drilling:</b> 3/20/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.6 ft NAVD88

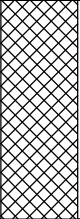
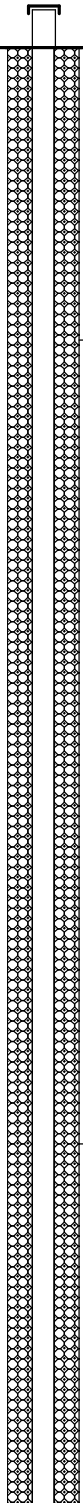
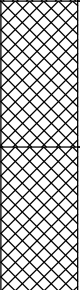
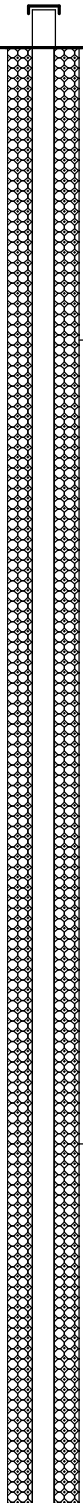

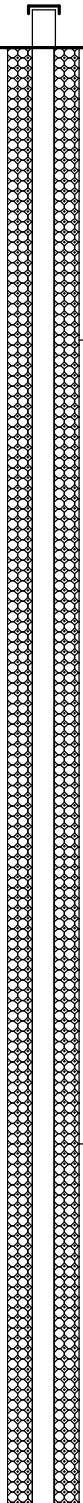

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	3 / 10	0.0	MOIST	SC		Dark reddish gray (5YR 4/2) poorly graded SAND with clay, fine to coarse angular sand with little fine to coarse gravel, varies from loose to hard, wet to moist (Basal Till).		#00 Sand Seal: 60.5-62.5 ft bgs
62								#0 Filter Sand: 62.5-70 ft bgs
63								
64								
65								
66				SP		Interbedded SAND, poorly graded sand, fine to medium sand (Basal Till). Dark reddish gray (5YR 4/2) poorly graded SAND with clay, fine to coarse angular sand with little fine to coarse gravel, varies from loose to hard, wet to moist (Basal Till).		65 ft: 10% fines (silt/clay)
67			SC	2-inch Schedule 40 PVC screen: 64.5-69.5 ft bgs				
68						Weathered mudstone and siltstone, broken rock in clay matrix, wet (Lockatong Formation).		Bentonite Seal: 70-75 ft bgs
69								
70								
71	/ 5	0.0	WET	BEDROCK		Weathered mudstone and siltstone, wet (Lockatong Formation). End of boring at 75 ft.		
72								
73								
74								
75								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.36 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611043.1
<b>Date Started Drilling:</b> 3/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683769.8
<b>Date Finished Drilling:</b> 3/31/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 70 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	5 / 5	0	DRY	FILL		Soft dig to 5 ft bgs; Dark gray (7.5YR 4/1) silty SAND, little fine to coarse GRAVEL, dry (DGA).		Riser set in grout
2			DRY TO WET	FILL		Gray to black angular fine to coarse GRAVEL, dry. (Note: Gravel collapsing into borehole) (FILL). Groundwater at 3.5 ft bgs.		
3	3 / 5	0	WET	FILL		Dark gray (7.5YR 4/1) to black silty SAND, little fine to coarse GRAVEL, loose, few 4" long sections, wet (FILL).		Riser set in grout
4			WET	FILL		Gray (7.5YR 5/1) silty SAND, little fine to coarse GRAVEL, loose (FILL).		
5	4 / 10	0	WET	FILL		Gray (7.5YR 5/1) silty SAND, little fine to coarse GRAVEL, loose (FILL).		Grout 0-53 ft bgs
6			MOIST	CH		Mottled weak red (10YR 4/2) to dark gray/light greenish gray, sandy CLAY with few to little sub-angular fine to coarse GRAVEL, very firm, wet to moist.		
7								

PPG WITH WELL CONSTRUCTION - - 2/5/21 12:22

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.36 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611043.1
<b>Date Started Drilling:</b> 3/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683769.8
<b>Date Finished Drilling:</b> 3/31/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 70 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks			
21	4.3 / 10	0	WET	SC-SM		Reddish brown (5YR 5/3) poorly graded SAND with CLAY or SILT laminae, sand is thinly bedded, wet.					
22			WET	SC/SM		Reddish brown (5YR 5/3) poorly graded SAND, wet.					
23			WET	SC/SM		Reddish brown (5YR 5/3) poorly graded SAND with CLAY or SILT laminae, wet.					
24			WET	SP		Reddish brown (5YR 5/3) poorly graded SAND, fine SAND, trace SILT, wet.			23.3 ft: 5% fines (silt/clay)		
25			WET	SC/SM		Reddish brown (5YR 4/3) poorly graded SAND (SP) with CLAY or SILT laminae, sand is thinly bedded, wet.					
26											
27			WET	SC/SM							
28											
29											
30	4.8 / 10	0	WET	CL/ML		Reddish brown (5YR 4/3) laminated SILT and CLAY, medium dense, wet.				2-inch Schedule 40 PVC riser 0-57 ft bgs	
31			WET	ML		Reddish brown (5YR 4/3) massive SILT, loose, wet.					
32			WET	CL/ML		Reddish brown (5YR 4/3) laminated SILT and CLAY, medium dense, wet. Pale yellow groundwater.	33 ft: 80% fines (silt/clay)				
33											
34											
35			MOIST	SM		Reddish brown (5YR 4/3) silty SAND with some sub-angular to angular fine to coarse GRAVEL, moist.					
36											
37											
38			MOIST	SM		Reddish brown (5YR 4/3) silty SAND with few GRAVEL, medium SAND, little fine SAND, trace coarse SAND, few sub-angular fine to coarse GRAVEL, moist.					
39											
								39 ft: 20% fines (silt/clay)			

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.36 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611043.1
<b>Date Started Drilling:</b> 3/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683769.8
<b>Date Finished Drilling:</b> 3/31/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 70 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
41	7 / 10	0	MOIST	SP		Dark reddish brown (2.5YR 3/3) poorly graded SAND, medium SAND, loose, moist.			
42			MOIST	SM		Dark reddish brown (2.5YR 3/3) silty SAND, few sub-angular fine to coarse GRAVEL, moist. Color changes to light olive gray (5Y 6/2) from 44.5' to 44.6'.		43 ft: 20% fines (silt/clay)	
43									
44									
45			MOIST	SM		Dark reddish brown (2.5YR 3/3) silty SAND, few to little sub-angular fine to coarse GRAVEL.			
46									
47									
48									
49			MOIST	SC-SM		Light brown (7.5YR 6/4) clayey SAND or silty SAND, fine to coarse SAND, SILT, few to little sub-angular to sub-rounded fine to coarse GRAVEL, coarse GRAVEL (up to 2" across), moist, firm (Basal Till).		49 ft: 20% fines (silt/clay)	
50						Dark reddish brown (2.5YR 3/3) clayey SAND or silty SAND, few to little sub-angular to sub-rounded fine to coarse GRAVEL, hard, moist (50' to 52.5') to dry (52.5' to 60') (Basal Till).			
51	5 / 10	0	DRY	SC-SM					
52								Bentonite Seal 53-55 ft bgs	
53								#0 Filter sand 55-63 ft bgs	
54								2-inch Schedule 40 Screen 57-62 ft bgs	
55									
56									
57									
58									
59									

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.36 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611043.1
<b>Date Started Drilling:</b> 3/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683769.8
<b>Date Finished Drilling:</b> 3/31/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 70 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	3.2 / 5	0	MOIST	SC		Light brown (7.5YR 6/3) sandy CLAY, little sub-angular fine to coarse GRAVEL, very firm, moist (Basal Till).		Bentonite Seal 63-70 ft bgs
62			DRY	BEDROCK		Gray diabase (pulverized by sonic drilling), dry.		
65	3 / 5	0	WET	BEDROCK		Gray diabase (pulverized by sonic drilling), wet.		
66			DRY	BEDROCK		Gray diabase (pulverized by sonic drilling), dry. End of boring at 70 ft.		
63								
64								
67								
68								
69								
70								

PPG WITH WELL CONSTRUCTION - - 2/5/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.13 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611633.3
<b>Date Started Drilling:</b> 3/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683637.4
<b>Date Finished Drilling:</b> 3/26/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 82 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1 - 5	5.5 / 10	0.0	DRY	FILL		Soft dig to 5 ft bgs; Gray angular fine to coarse GRAVEL, gray silty SAND with sub-angular fine to coarse GRAVEL, dry (DGA).		Riser set in grout
5 - 10			DRY	FILL		Olive brown (2.5Y 4/3) silty SAND, little sub-rounded fine to coarse GRAVEL, dry (FILL).		Grout: 0-68.5 ft bgs
10 - 14	4.6 / 10	0.0	WET	FILL		Black to dark gray silty SAND, little sub-rounded GRAVEL, loose, wet.		
14 - 15			MOIST	ML		Light greenish gray clayey SILT, moist.		
15 - 16			DRY	SM		Reddish yellow (7.5YR 6/6) to reddish brown (5YR 4/6) silty SAND, sub-rounded fine to coarse GRAVEL, hard, dry.		
16 - 19			MOIST	SW-SM		Reddish yellow (7.5YR 6/6) to reddish brown (5YR 4/6) widely graded SAND with SILT, few sub-rounded fine to coarse GRAVEL, hard to loose, moist.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.13 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611633.3
<b>Date Started Drilling:</b> 3/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683637.4
<b>Date Finished Drilling:</b> 3/26/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 82 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks												
21	7.5 / 10	0.0	WET	SP		Reddish brown (5YR 4/6) poorly graded SAND, fine to medium SAND, wet.														
22			WET	SM		Reddish brown (5YR 4/6) silty SAND with few to little fine to sub-rounded coarse GRAVEL, wet.														
23						ML				SILT, wet.										
24										SP/ML		Reddish brown (2.5YR 4/4) interbedded SILT, CLAY, fine to medium SAND, wet.								
25												SP-SM		Reddish brown (2.5YR 4/4) poorly graded SAND with SILT, fine SAND, little medium SAND, few SILT, loose, wet.						
26														WET	SP-SM		Reddish brown (2.5YR 4/4) poorly graded SAND with SILT, fine SAND, sheen on groundwater, loose, wet.			
27	WET	SP-SM		Reddish brown (2.5YR 4/4) poorly graded SAND with SILT, fine SAND.																
28				WET	CL/ML		Weak red (10YR 4/3) SILT, CLAY, fine SAND, laminated.													
29							WET	SM		Weak red (10YR 4/3) silty SAND, little GRAVEL, hard, MGP sheen and odor.										
30	4 / 10	0.0	WET	SP-SM				30 ft: 5-10% fines (silt/clay)												
31								WET	SP-SM					35 ft: 15% fines (silt/clay)						
32														WET	CL/ML					38 ft: 80% fines (silt/clay)
33																				WET
34																				
35																				
36																				
37																				
38																				
39																				

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.13 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611633.3
<b>Date Started Drilling:</b> 3/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683637.4
<b>Date Finished Drilling:</b> 3/26/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 82 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
41	6.7 / 10	0.0		GW		Reddish brown (2.5YR 4/4) sandy GRAVEL, fine to coarse GRAVEL, some SAND, loose, strong MGP odor, sheen.			
42						Reddish brown (2.5YR 4/4) lean CLAY, dense.			
43				CL					
44									
45									
46									
47									
48									
49									
50									
51	9 / 10	0.0				Dark reddish gray (5YR 4/2) and reddish brown (5YR 4/3) SILT and CLAY laminae, medium hard, moist.			
52									
53					MOIST	ML/CL			
54									
55									
56									
57									
58									
59									
			MOIST	SC		Dark reddish brown (5YR 4/3) clayey SAND, few			

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.13 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611633.3
<b>Date Started Drilling:</b> 3/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683637.4
<b>Date Finished Drilling:</b> 3/26/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 82 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.2 ft NAVD88

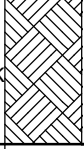
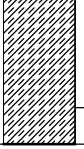
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	9 / 10	0.0	WET	SC		GRAVEL, hard, moist.		60 ft: 25% fines (silt/clay)
62						Reddish brown (2YR 4/3) clayey SAND, fine to medium SAND, trace coarse SAND, few to little sub-rounded to sub-angular fine to coarse GRAVEL, medium hardness, wet.		
63								
64								
65								
66			WET	ML		Reddish brown (2YR 4/3) SILT, wet.		
67								
68			DRY	CL		Dark reddish gray (2.5YR 4/1) sandy CLAY, angular, fine to coarse SAND, little fine to coarse GRAVEL, hard, very dense, dry (Basal Till).		68 ft: 50-60% fines (silt/clay)
69								Bentonite Seal: 68.5-70.5 ft bgs
70			DRY	CL		Dark reddish gray (2.5YR 4/1) sandy CLAY, angular, fine to coarse SAND, little fine to coarse GRAVEL, hard, very dense, dry (Basal Till).		
71	4 / 10	0.0	DRY	CL		Dark reddish gray (2.5YR 4/1) sandy CLAY, angular, fine to coarse SAND, little fine to coarse GRAVEL, hard, very dense, dry (Basal Till).		
72						Dark reddish gray (2.5YR 4/1) sandy CLAY, angular, fine to coarse SAND, little fine to coarse GRAVEL, hard, very dense, dry (Basal Till).		#0 Filter Sand: 69.5-77.5 ft bgs
73								
74								
75								2-inch Schedule 40 PVC screen: 71.5-76.5 ft bgs
76								
77			DRY	CL		Dark reddish gray (2.5YR 4/1) sandy CLAY, angular, fine to coarse SAND, little fine to coarse GRAVEL, hard, very dense, dry (Basal Till).		
78			DRY	BEDROCK		Gray bedrock, dry (Stockton Formation). End of boring at 82 ft.		
79								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.13 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611633.3
<b>Date Started Drilling:</b> 3/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683637.4
<b>Date Finished Drilling:</b> 3/26/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 82 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.2 ft NAVD88

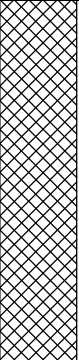
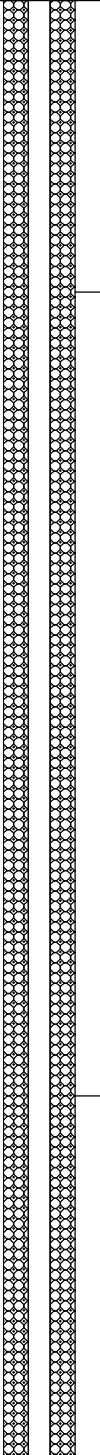
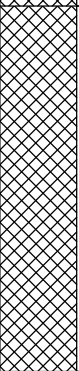
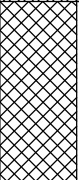
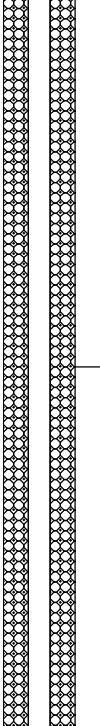
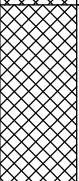
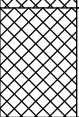

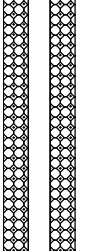

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81 - 82			DRY	BEDROCK				Bentonite Seal: 77.5-82 ft bgs

PPG WITH WELL CONSTRUCTION - - 2/5/21 12:22

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.85 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611034.7
<b>Date Started Drilling:</b> 7/7/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683527.7
<b>Date Finished Drilling:</b> 7/9/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 79 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1 - 5	5 / 5	0	DRY	FILL		Soft dig to 5 ft bgs; Light brownish grey (10YR 6/2) well graded GRAVEL, some silty sand (DGA), very dense, dry.		Riser set in grout
5 - 10	4 / 5	0	DRY TO DAMP	FILL		Grey SILT, micaceous, little DGA, fine to coarse gravel, loose, dry to damp.		
10 - 13	4 / 5	0	DRY	FILL		Grey SILT, micaceous, little DGA, fine to coarse gravel, loose, dry to damp.		Grout: 0 - 65 ft bgs
13 - 15			DRY	FILL		DGA, grey SILT, micaceous, few subrounded to subangular fine to coarse gravel, dry.		
15 - 17			WET	FILL		DGA, GRAVEL with some silt, wet.		
17 - 18.2	3 / 5	0	WET	OH		Very dark grey (7.5YR 3/1) organic CLAY with brown fibers, gravel lens from 18 ft to 18.2 ft, wet.		
18.2 - 19			WET	CL		Grey silty CLAY, loose, wet.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.85 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611034.7
<b>Date Started Drilling:</b> 7/7/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683527.7
<b>Date Finished Drilling:</b> 7/9/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 79 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
21	4.5 / 5	0	WET	CL		Grey silty CLAY with few to little brown fibers, medium dense, wet.			
			WET	CL		Grey silty CLAY, very dense, wet.			
22			WET	SM		Grey SAND with some silt, few to little subrounded fine to coarse gravel, wet.			
23			WET	SP		Reddish brown, poorly graded SAND, medium sand with little silt, little subrounded fine to coarse gravel, loose to medium dense, wet.			
24			WET	ML		Olive (5Y 4/3) to yellowish olive SILT, medium dense, wet.			
25			WET	SP		Reddish brown poorly graded SAND, medium sand, little silt, little subrounded fine to coarse gravel, medium dense, wet.			
26	3 / 5	0	WET	SM		Reddish brown poorly graded sand, fine sand, some silt, loose, wet. Yellow groundwater observed at 25 ft.			25 ft: 30% fines (silt/clay)
27									
28			WET	ML		Reddish brown SILT, loose, wet.			
29			WET	SM		Reddish brown poorly graded sand, fine sand, some silt, loose, wet. Yellow groundwater observed at 30 ft.			
30	1 / 5	0				Reddish brown poorly graded SAND, fine sand, loose. Pale yellow groundwater observed.		2-inch Schedule 40 PVC Riser: 0 - 68 ft bgs	
31									
32			WET	SP					
33									
34	3 / 5	0				Reddish brown SILT, saturated with bright yellow groundwater, loose.			
35									
36			WET	ML					
37						Reddish brown poorly graded SAND with few silt, fine sand, loose, wet.			
38			WET	SP					
39									

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
 DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.85 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611034.7
<b>Date Started Drilling:</b> 7/7/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683527.7
<b>Date Finished Drilling:</b> 7/9/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 79 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks					
41	3 / 5	0	WET	SP		Reddish brown poorly graded SAND, fine sand, little medium sand, wet.		40 ft: 10% fines (silt/clay)					
42			WET	CL		Reddish brown CLAY laminae, wet.							
43			WET	ML		Reddish brown SILT, little clay, wet.							
45			WET	GW-GC		Well graded GRAVEL, fine to coarse gravel with little clay, one cobble, wet.							
46	2.5 / 5	0	WET	SW		Reddish brown well graded SAND, with little silt, fine to coarse sand, little subrounded to subangular fine to coarse gravel, several large pieces of gravel (up to 2.5 inch in diameter), wet. Bright yellow groundwater observed at 48 ft.			48 ft: 25% fines (silt/clay)				
47													
48													
50	2.5 / 5	0	WET	SM		Reddish brown SAND with some silt, few gravel, loose, wet.				54 ft: 10% fines (silt/clay)			
51													
52													
53	WET	SM		Reddish brown SAND wth some silt, little fine to coarse gravel, large gravel (up to 3 inch in diameter), very dense, wet.									
54													
55					WET	SW-SC				Reddish brown well graded SAND with few clay, fine to coarse sand, wet.			
56	4 / 5	0	WET	SP		Reddish brown poorly graded SAND, medium sand (grades into medium sand with some fine to coarse gravel), wet.							
57										WET	SC		Reddish brown SAND with some clay, little fine to coarse gravel, medium dense, wet.
58													
59													

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.85 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611034.7
<b>Date Started Drilling:</b> 7/7/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683527.7
<b>Date Finished Drilling:</b> 7/9/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 79 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	5 / 5	0	WET	SW		Reddish brown well graded SAND, fine to coarse sand, loose, wet.		
			WET	SP		Reddish brown SAND with little clay, little gravel, wet.		
62			DAMP	SC		Reddish brown well graded SAND with some clay, little subrounded to subangular fine to coarse gravel, very dense, damp (Basal Till).		61.5 ft: 30% fines (silt/clay)
63			DAMP TO WET	SP		Reddish brown SAND with little clay, fine to coarse gravel, medium dense, damp to wet (Basal Till).		
64			DAMP TO WET	CL		Reddish brown CLAY, medium stiff, damp to wet (Basal Till).		
65	4.5 / 5	0	DRY TO DAMP	SC/GC		Reddish brown well graded SAND, fine to coarse sand, some clay, fine to coarse subangular gravel, dry to damp (Basal Till). Seam of well graded fine to coarse gravel from 65-65.2.		Bentonite Seal: 65 - 67 ft bgs
66								66 ft: 30% fines (silt/clay)
67			DRY	SC		Bands of grey and dark brown pieces of TILL, sand, with some clay, fine to coarse gravel, loose, dry (Basal Till).		
68	4.5 / 5	0						
69								
70			DAMP TO WET	SC		Brown (10YR 5/3) SAND with some clay, little fine to coarse gravel, damp to wet (Basal Till).		2-inch Schedule 40 PVC Screen: 68-73 ft bgs
71	4.5 / 5	0	DRY TO DAMP	SW-SC		Well graded SAND, fine to coarse sand with some clay, fine to coarse gravel embedded in sandy clay, very dense, dry to damp (Basal Till).		#0 Filter Sand: 67 - 73.5 ft bgs
72								72.5 ft: 40% fines (silt/clay)
73								
74	4 / 4	0				Grey mudstone and siltstone, wet (Lockatong Formation). Weathered from 73-74 ft bgs (broken rock in clay matrix), competent at 74 ft bgs. End of boring at 79 ft.		
75								Bentonite Seal: 73.5 - 79 ft bgs
76			WET	BEDROCK				
77								
78								
79								

PPG WITH WELL CONSTRUCTION - - 28/21 08:33

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.08 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611157.6
<b>Date Started Drilling:</b> 7/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683435.6
<b>Date Finished Drilling:</b> 7/14/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 55 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	3 / 5	0	DRY	FILL		Soft dig to 5 ft bgs. Grayish brown (2.5Y 5.2) well graded GRAVEL, some silty sand (DGA), micaceous, very dense, dry.		Riser set in grout
2								
3	3.8 / 5	0	WET	FILL		Gray, well graded GRAVEL, little fine to coarse sand and little silt, wet (FILL).		
4								
5								
6	4.5 / 5	0	WET	FILL		Dark yellowish brown (10YR 4/4) poorly graded SAND with some silt, little fine to coarse gravel, wet (FILL).		
7								
8								
9	4 / 5	0	DRY	FILL		Dark yellowish brown (10YR 4/4) poorly graded SAND with some silt, little fine to coarse gravel, dry (FILL).		Grout: 0 - 43.5 ft bgs
10								
11	4 / 5	0	WET	FILL		Sandy SILT with little fine to coarse gravel, DGA, medium dense, wet (FILL).		
12								
13	4 / 5	0	DAMP	FILL		Brown (10YR 5/3) micaceous SILT, few sand, few fine to coarse gravel, loose, damp (FILL).		2-inch Schedule 40 PVC Riser: 0-46 ft bgs
14								
15	4 / 5	0	DAMP	FILL		Micaceous SILT (DGA), few large gravel pieces, medium dense, damp (FILL).		
16								
17	4 / 5	0	DAMP	FILL		Gray and brown micaceous SILT, few coarse gravel, loose, damp (FILL).		
18								
19								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.08 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611157.6
<b>Date Started Drilling:</b> 7/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683435.6
<b>Date Finished Drilling:</b> 7/14/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 55 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
21	5 / 5	0	DAMP	FILL		Micaceous SILT (DGA), little subrounded fine to coarse gravel, medium dense, damp (FILL).			
22									
23	5 / 5	0	DAMP TO WET	SW		Reddish brown well graded SAND, little silt, little fine to coarse subrounded GRAVEL, medium dense, damp to wet.		22.5 ft: 25% fines (silt/clay)	
24									
25					WET	SP			Reddish brown poorly graded SAND, medium sand, loose, wet.
26	5 / 5	0	WET	SP		Reddish brown poorly graded SAND with few silt, medium sand, some subrounded fine to coarse gravel, wet.			
27			WET	SP		Reddish brown fine SAND, grades into poorly graded sand with little silt, wet.			
28			WET	SM		Reddish brown poorly graded SAND with some silt, little fine to subrounded coarse gravel, wet.		28 ft: 30% fines (silt/clay)	
29									
30	2.7 / 5	0	WET	CL		Reddish brown and gray CLAY, wet.			
31			WET	SP		Reddish brown poorly graded SAND with little silt, loose, wet.		31 ft: 25% fines (silt/clay)	
32			WET	SM		Reddish brown poorly graded SAND with some silt, fine sand, wet.			
33			WET	SP		Reddish brown poorly graded SAND with few silt, wet.			
34	4 / 5	0	WET	CL		Reddish brown sandy CLAY, loose, wet.			
35			WET	ML/CL		Reddish brown clayey SILT, little fine sand, clay laminae from 36-37 ft bgs (spaced 0.5 - 1 inch apart), wet.			
36			WET	ML		Reddish brown sandy SILT, medium dense, wet.		37 ft: 60% fines (silt/clay)	
37			WET	ML		Reddish brown sandy SILT, wet.		39 ft: 75% fines (silt/clay)	
38									
39									

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.08 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611157.6
<b>Date Started Drilling:</b> 7/9/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683435.6
<b>Date Finished Drilling:</b> 7/14/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 55 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks			
41	2.5 / 5	0	WET	SW		Reddish brown well graded SAND, few silt, fine to medium sand, few coarse sand, loose, wet.		40 ft: 10-15% fines (silt/clay)			
42			DAMP TO WET	SC		Reddish brown well graded SAND with some clay, fine to coarse sand, few to fine to coarse gravel, medium dense, damp to wet (Basal Till).		43 ft: 30% fines (silt/clay)			
43			DAMP TO WET	CL/GC		Gray sandy CLAY, fine to coarse sand, some fine to coarse gravel (up to 3 inches in diameter), very dense, damp to wet (Basal Till).		Bentonite Seal: 43.5 - 45.5 ft bgs			
44	3.5 / 5	0	DAMP TO WET	CL/GC		Gray sandy CLAY, fine to coarse sand, some fine to coarse gravel (up to 3 inches in diameter), very dense, damp to wet (Basal Till).		44 ft: 60% fines (silt/clay)			
45			WET	SP				Brown (7.5YR 4/3) poorly graded SAND, few silt, wet (Basal Till).	45 ft: 5-10% fines (silt/clay)		
46			WET	BEDROCK		Grey mudstone and siltstone, wet (Lockatong Formation). Weathered from 45.5-48 ft bgs (broken rock in clay matrix), competent at 48 ft bgs. End of boring at 55 ft.		#0 Filter sand 45.5 - 48.5 ft bgs			
47	2 / 5	0	WET	BEDROCK				2-inch Schedule 40 Screen: 46 - 47.5 ft bgs			
48											
49											
50											
51											
52								Bentonite Seal: 48.5 - 55 ft bgs			
53											
54											
55											

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.71 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611214.9
<b>Date Started Drilling:</b> 4/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683276.5
<b>Date Finished Drilling:</b> 4/2/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 84 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1 - 2	5 / 5	0.0	DRY	FILL		Soft dig to 5 ft bgs; Grayish brown silty SAND, little fine and coarse gravel, dry (DGA).		Riser set in grout
2 - 3			DRY	FILL		Black angular GRAVEL, dry (DGA).		
3 - 5	1.2 / 5	0.0	DRY	FILL		Dark yellowish brown (10YR 4/4) silty SAND, little sub-angular gravel, dry (FILL).		Grout: 0-68 ft bgs
5 - 8			WET	FILL		Gray (2.5Y 5/1) to black silty SAND, little fine to coarse sub-angular gravel, wet (FILL).		
8 - 15	1.9 / 10	0.0	WET	FILL		Gray (2.5Y 5/1) to black silty SAND, little fine to coarse sub-angular gravel, wet (FILL).		2-inch Schedule 40 PVC riser: 0-72 ft bgs
15 - 16			WET	SM		Dark gray (5YR 4/1) silty SAND, strong MGP odor, loose, wet.		
16 - 18			WET	GW		Black widely graded GRAVEL, angular and rounded fine to coarse gravel (up to 2.5 inches across), MGP sheen, loose, wet.		
18 - 19			WET	SC		Mottled reddish brown (5YR 4/4) and dark gray (5YR 4/1) clayey SAND, few gravel, hard, wet.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.71 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611214.9
<b>Date Started Drilling:</b> 4/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683276.5
<b>Date Finished Drilling:</b> 4/2/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 84 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21-22	7.8 / 10	3.7	WET	SM		Dusky red (10YR 3/2) silty SAND, some medium sand, little fine sand, trace coarse sand, little fine to sub-rounded coarse gravel, MGP sheen, wet.		20 ft: 25% fines (silt/clay)
23-27			WET	SM		Yellowish red (5YR 4/6) silty SAND, fine sand, loose, MGP sheen (up to 28'), wet.		23 ft: 20% fines (silt/clay)
30-35	8 / 10	0.0	WET	SP-SM		Weak red (10YR 4/4) poorly graded SAND with silt, loose, wet.		30 ft: 15% fines (silt/clay)
36-37			WET	SM		Weak red (10YR 4/4) silty SAND, fine sand, loose, wet.		35 ft: 30% fines (silt/clay)
38-39			WET	ML		Light reddish brown (5YR 5/4) SILT, wet.		37.5 ft: 80% fines (silt/clay)
39			MOIST	ML/CL		Light reddish brown (5YR 5/4) interbedded SILT and CLAY laminae, firm, moist.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.71 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611214.9
<b>Date Started Drilling:</b> 4/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683276.5
<b>Date Finished Drilling:</b> 4/2/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 84 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	8 / 10	0.0	MOIST	SM		Light reddish brown (5YR 5/4) silty SAND, fine to medium sand, loose, moist.		
42			MOIST	ML/CL		Reddish brown (5YR 4/4) to gray (7.5YR 5/1) laminated silt/clay, firm, moist.		
43			MOIST	SM		Weak red (10YR 5/4) silty SAND, fine sand, silt, loose, moist.		
44			MOIST	SM		Reddish brown (5YR 4/4) to gray (7.5YR 5/1) interbedded laminae of SILT, CLAY and fine SAND, moist.		
45			MOIST	ML/CL				
46								43.5 ft: 25% fines (silt/clay)
47								
48								
49								
50			WET	SP-SC		Reddish brown (5YR 4/4) poorly graded SAND with clay, fine sand with a few thin bands of clay, wet.		
51						Reddish brown (2.5YR 4/3) poorly graded SAND with silt, fine sand, SILT, loose, wet.		50 ft: 15-20% fines (silt/clay)
52			WET	SP-SM				
53								
54								
55	3.8 / 10	0.0				Reddish brown (2.5YR 4/3) silty SAND, little sub-rounded coarse gravel, firm, moist.		
56								
57								
58			MOIST	SM				
59								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.71 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611214.9
<b>Date Started Drilling:</b> 4/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683276.5
<b>Date Finished Drilling:</b> 4/2/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 84 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-63	3.9 / 5	0.0	MOIST	SM		Reddish brown (5YR 4/3) silty SAND, fine sand, moist.		60 ft: 20% fines (silt/clay)
64-65			DRY	SM		Reddish brown silty SAND, few fine to coarse gravel, very firm, dry (Basal Till).		
66-68	3.5 / 5	0.0	DRY	SC-SM		Light brownish gray (10YR 6/2) clayey SAND or silty sand, fine to sand, little fine to coarse gravel (up to 2.5" across), very firm, dry (Basal Till).		
69-70								Bentonite Seal: 68-70 ft bgs
70-71								69 ft: 30% fines (silt/clay)
71-73	4.4 / 5	0.0	DRY	SM		Dark gray (7.5YR 4/1) silty SAND, fine to coarse sand, few gravel, dry (Basal Till).		70 ft: 25% fines (silt/clay)
74-75								#0 Filter Sand: 70-77 ft bgs
76-77			MOIST	SM		Dark gray (7.5YR 4/1) silty SAND, fine to coarse sand, few gravel, dry (Basal Till).		2-inch Schedule 40 PVC screen: 72-77 ft bgs
77-78	3.4 / 5	0.0	WET	ML		Clayey SILT (Basal Till).		
78-79			WET	BEDROCK		Gray bedrock, wet (Stockton Formation).		75 ft: 25% fines (silt/clay)

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.71 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611214.9
<b>Date Started Drilling:</b> 4/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683276.5
<b>Date Finished Drilling:</b> 4/2/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 84 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81	3.8 / 4	0.0	WET	BEDROCK		Gray bedrock, wet (Stockton Formation).		Bentonite Seal: 78-84 ft bgs
82			WET	BEDROCK		Dark reddish gray conglomerate, wet (Stockton Formation). End of borehole at 84 ft.		
83								
84								

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.23 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611439.1
<b>Date Started Drilling:</b> 3/26/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683519.8
<b>Date Finished Drilling:</b> 3/27/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks			
1	5 / 10	0	DRY	FILL		Soft dig to 5 ft bgs; Gray angular fine to coarse GRAVEL, dry (FILL).		Riser set in grout			
2			DRY	FILL		Dark yellowish brown (10YR 3/4) to black silty SAND with sub-angular fine to coarse gravel, compacted, dry (FILL).					
3						Dark grayish brown (10YR 5/2) clayey SAND, little to some sub-rounded to sub-angular fine to coarse gravel, loose, wet (FILL).					
4									Dark grayish brown (10YR 5/2) clayey SAND, little to some sub-rounded to sub-angular fine to coarse gravel, compacted (FILL).		
5										Dark grayish brown (10YR 5/2) clayey SAND, little to some sub-rounded to sub-angular fine to coarse gravel, loose, dry (FILL).	
6	6.5 / 10	0	WET	FILL		Dark gray (2.5Y 4/1) to black silty SAND with sub-angular fine to coarse gravel, wet (10' to 12') to dry (12' to 15') (FILL).		2-inch Schedule 40 PVC riser: 0-68 ft bgs			
7			DRY	FILL		Brown fibers in black organic material (PEAT), dry.					
8						DRY			CH		Dark reddish brown (10YR 5/3) fat CLAY, dry.
9											DRY
10			DRY	SC		Dark reddish brown (10YR 5/3) clayey SAND, little sub-rounded to sub-angular fine to coarse gravel, dry.					
11	DRY	SC									

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DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.23 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611439.1
<b>Date Started Drilling:</b> 3/26/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683519.8
<b>Date Finished Drilling:</b> 3/27/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks		
21	5.5 / 10	0	WET	SP-SM		Reddish brown (10YR 4/4) poorly graded SAND with SILT, medium SAND, few SILT, loose, wet. Yellowish groundwater at 21.5' to 22.5'.				
22						Reddish brown (5YR 4/4) poorly graded SAND with silt, medium sand, some sub-rounded fine to coarse gravel, loose, wet.				
23				ML		Yellowish red (5YR 4/6) SILT, massive, wet.				
24						ML/CL				Yellowish red (5YR 4/6) laminated, interbedded SILT, CLAY, fine SAND, compacted, wet.
25										Reddish brown (5YR 4/4) SILT, loose, wet.
26	6 / 10	0	WET	ML		Yellowish red (5YR 4/6) sandy SILT, yellowish groundwater, loose, wet.		31 ft 55% fines (silt/clay)		
27						ML/CL				Yellowish red (5YR 4/6) interbedded fine SAND, SILT and CLAY, compact, wet.
28				ML						
29										

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.23 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611439.1
<b>Date Started Drilling:</b> 3/26/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683519.8
<b>Date Finished Drilling:</b> 3/27/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	7.3 / 10	0	WET	SM		Yellowish red (5YR 4/6) silty SAND, fine sand, loose, wet, yellowish groundwater.		41 ft: 20% fines (silt/clay)
42						Reddish brown (5YR 5/4) SILT, loose, wet.		45 ft: 90% fines (silt/clay)
43								
44	6.5 / 10	0	WET	ML		Reddish brown (5YR 5/4) laminated SILT and CLAY.		
45								
46								
47	6.5 / 10	0	N/A	ML/CL		Reddish brown (2.5YR 4/4) silty SAND, fine sand, wet, yellow groundwater.		50 ft: 15-20% fines (silt/clay)
48								
49								
50	6.5 / 10	0	WET	SM		Reddish brown (2.5YR 4/4) silty SAND, fine sand, wet, yellow groundwater.		54 ft: 20% fines (silt/clay)
51								
52								
53	6.5 / 10	0	WET	ML/CL		Reddish brown (2.5YR 4/4) sandy SILT, fine SAND and CLAY laminae, yellow groundwater.		55 ft: 70% fines (silt/clay)
54								
55								
56								
57								
58								
59								

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 13.23 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611439.1
<b>Date Started Drilling:</b> 3/26/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683519.8
<b>Date Finished Drilling:</b> 3/27/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
61	7.5 / 10	0	WET	SP-SM		Reddish brown poorly graded SAND with silt, fine to medium sand, trace coarse sand.		61 ft: 10% fines (silt/clay)	
62			MOIST	CL/ML		Yellowish red (5YR 4/6) sandy CLAY and sandy silt, silt and clay laminae.		62.5 ft: 70% fines (silt/clay)	
63								Reddish brown SILT with fine sand.	63 ft: 80% fines (silt/clay)
64									
65					MOIST	ML			
66									
67							Bentonite Seal: 65.5-67.5 ft bgs		
68			DRY	SC-GC		Reddish brown (5YR 5/4) clayey SAND, some sub-rounded to sub-angular fine to coarse gravel, dry (Basal Till).			
69						Light gray sandstone, wet (Stockton Formation). Highly weathered from 68-70 ft bgs (broken rock in clay matrix), competent from 70-75 ft bgs. End of boring at 75 ft.	2-inch Schedule 40 PVC well screen: 68-69 ft bgs #40 Filter Sand: 67.5-70 ft bgs		
70									
71	5 / 5	0	WET	BEDROCK				Bentonite Seal: 70-75 ft bgs	
72									
73									
74									
75									

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610934.8
<b>Date Started Drilling:</b> 7/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683324.4
<b>Date Finished Drilling:</b> 7/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88


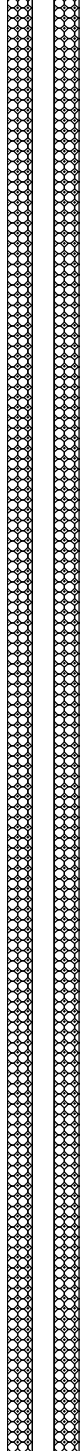


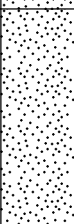
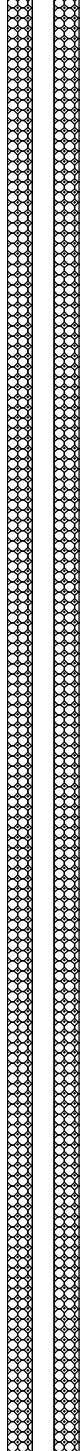
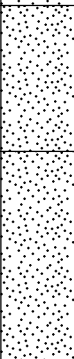

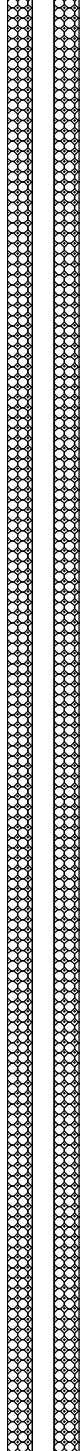

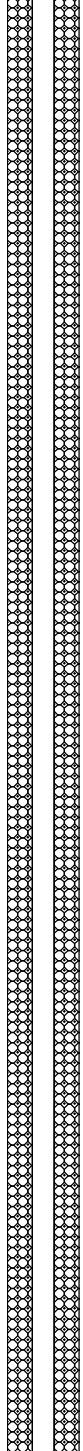
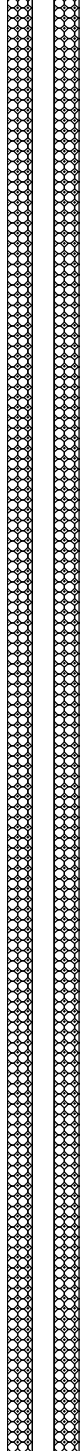
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	4 / 5	0	NA	FILL		Soft dig to 5 ft bgs. Gray poorly graded SAND with some silt, micaceous, little subangular to angular fine to coarse gravel (FILL).		Riser set in grout
2			WET	FILL		Liner at 3.0 ft bgs, cobbles to large GRAVEL (DGA), wet (FILL).		
3	4 / 5	0	WET	FILL		Dark gray (10YR 4/1) sandy SILT, micaceous with angular fine to coarse gravel, medium dense, wet (FILL).		Grout: 0-64 ft bgs
4								
5								
6	7.5 / 10	0	DAMP	FILL		Very dark gray (5YR 3/1) to brown (10YR 5/3) sandy SILT with embedded subrounded fine to coarse gravel, medium dense, damp (FILL).		2-inch Schedule 40 PVC Riser: 0-67 ft bgs
7								
8								
9								
10	DAMP	OH	OH	OH		Black organic CLAY with brown fibers, medium dense, damp.		
11								
12								
13	DAMP	CL	CL	CL		Gray silty CLAY, little subrounded to subangular fine to coarse gravel, medium dense, damp.		
14								
15								
16								
17								
18								
19								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610934.8
<b>Date Started Drilling:</b> 7/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683324.4
<b>Date Finished Drilling:</b> 7/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	6 / 10	0	DAMP TO WET	CL		Gray silty CLAY, little subrounded to subangular fine to coarse gravel, medium dense, damp to wet.		
22			DAMP TO WET	SP		Dusky red (10YR 3/3) and dark reddish gray (5YR 4/2) SAND with little silt, fine to coarse subangular gravel, some subrounded gravel measuring up to 0.2 inches, damp to wet.		
23			DAMP TO WET	SP		Reddish brown poorly graded SAND, medium sand with few silt, damp to wet.		
24								
25	6 / 10	0	DAMP TO WET	SP		Reddish brown poorly graded SAND, trace silt, fine to medium sand, damp to wet. Yellow tinged soils (strong brown, 7.5YR 5/6) observed between 29-30 ft bgs.		24 ft: 10-15% fines (silt/clay)
26			DAMP TO WET	SP		Reddish brown poorly graded SAND, few silt, medium sand, loose, wet.		
27								
28	6 / 10	0	DAMP TO WET	SP		Reddish brown (with black undertones) poorly graded fine SAND, few silt, grades into more silt at 33 ft bgs, loose, wet.		28 ft: 5% fines (silt/clay)
29			WET	SP		Reddish brown poorly graded SAND with some silt, mostly fine sand, wet. Very pale yellow water observed between 38-40 ft bgs.		
30								
31	6 / 10	0	WET	SP		Reddish brown poorly graded SAND with some silt, mostly fine sand, wet. Very pale yellow water observed between 38-40 ft bgs.		
32			WET	SP				
33								
34			WET	SM				
35	6 / 10	0	WET	SM		Reddish brown poorly graded SAND with some silt, mostly fine sand, wet. Very pale yellow water observed between 38-40 ft bgs.		39 ft: 35% fines (silt/clay)
36			WET	SM				
37								
38								
39								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610934.8
<b>Date Started Drilling:</b> 7/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683324.4
<b>Date Finished Drilling:</b> 7/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	10 / 10	0	WET	CL/SP		Gray and very dark brown varves, silty CLAY, fine SAND laminae, medium stiff, wet. Yellow groundwater observed between 40-41 ft bgs.		
42			WET	ML		Reddish brown SILT, wet.		
43			WET	CL/ML		Gray and dark reddish brown CLAY, varves, grades into SILT at 43.6 ft bgs, wet.		
44			WET	ML		Reddish brown SILT, wet.		
45			WET	CL		Reddish brown CLAY, wet.		
46			WET	CL/SP		Reddish brown CLAY, varves, fine SAND laminae, very stiff, wet.		
47			WET	SM		Poorly graded fine SAND, some silt, wet.		
48			WET	CL/SP		Reddish brown CLAY varves, fine SAND laminae, wet.		
49			WET	SP		Reddish brown poorly graded SAND, wet, pale yellow groundwater observed between 49-50 ft bgs.		
50			4 / 5	0	WET	SP		
51	WET	SC				Reddish brown SAND with little clay, few gravel, wet.		
52	NA	SC				Reddish brown and gray clayey SAND, few fine to coarse gravel, medium dense (Basal Till).		
53	NA	SP				Reddish brown SAND (Basal Till)		
54	WET	SP				Reddish brown poorly graded medium SAND, few fine to coarse gravel, loose, wet (Basal Till).		
55	5 / 5	0	DAMP	SC		Reddish brown well graded SAND with some clay, embedded with fine to coarse gravel, medium dense, damp (Basal Till). Yellow water from 57-58 ft bgs.	57 ft: 35% fines (silt/clay)	
56			DAMP	SC		Gray to reddish brown clayey SAND, little fine to coarse subangular gravel, damp (Basal Till).		
57								
58								
59								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610934.8
<b>Date Started Drilling:</b> 7/1/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683324.4
<b>Date Finished Drilling:</b> 7/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	4.75 / 5	0	WET	SP		Reddish brown poorly graded SAND, loose, wet (Basal Till).		60 ft: 1-5% fines (silt/clay)
62			DAMP	SW		Reddish brown well graded fine to coarse SAND with little silt/clay, little subrounded fine to coarse gravel, damp (Basal Till).		
63			DAMP TO WET	CL		Reddish brown sandy CLAY with embedded large gravel (up to 2 inches in diameter), very dense, damp to wet (Basal Till).		
64	5 / 5	0	DRY TO DAMP	SC		Well graded sand with some clay, fine to coarse sand, embedded fine gravel, dense, dry to damp (Basal Till).		64 ft: 30% fines (silt/clay)
65			DAMP	CL		Dark brown (10YR 3/3) sandy CLAY with little embedded fine to coarse gravel (up to 2.5 inches in diameter), very dense, damp (Basal Till).		Bentonite Seal: 64-66 ft bgs
66						#0 Filter Sand: 66-72.5 ft bgs		
67	5 / 5	0	DAMP	SP		Gray poorly graded SAND with little clay, fine sand, little fine to coarse gravel, dense, damp (Basal Till).		2-inch Schedule 40 PVC Well Screen: 67-72 ft bgs
68			DRY	GP		Gray broken up GRAVEL, loose, dry (Basal Till).		
69			DAMP	CL		Brown (10YR 5/3) and gray sandy CLAY with little fine to coarse gravel, very dense, damp (Basal Till).		
70	5 / 5	0	WET	BEDROCK		Dark grey mudstone and siltstone, wet (Lockatong Formation). End of boring at 80 ft bgs.		Bentonite Seal: 72.5-80 ft bgs
71								
72								
73	3 / 5	0						
74								
75								
76								
77								
78								
79								

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.55 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610949.9
<b>Date Started Drilling:</b> 6/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683210.4
<b>Date Finished Drilling:</b> 7/1/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
0 - 1	5 / 5	0	DRY	FILL		Soft dig to 5 ft bgs. Gray coarse angular GRAVEL, dry (FILL).			
1 - 2						Brown (10YR 4/3) SAND with little silt, little subangular to angular fine to coarse gravel, several subangular cobbles, very dense, dry (FILL).			
2 - 3	3.8 / 5	0	DRY	FILL		Light olive brown (2.5Y 5/3) well graded GRAVEL, subrounded to subangular, silty fine to coarse sand, wet (FILL).		Riser set in grout	
3 - 4									
4 - 5									
5 - 6	5 / 10	0	WET	FILL		Dark gray (2.5Y 4/1) SAND with little silt, few subrounded fine to coarse gravel, dry (FILL).		Grout: 0-66 ft bgs	
6 - 7									
7 - 8	5 / 10	0	DRY	FILL		Gray SILT, trace fine to coarse gravel, dense, dry (FILL).		2-inch Schedule 40 PVC Riser: 0-68.5 ft bgs	
8 - 9									
9 - 10									
10 - 11	5 / 10	0	DRY	FILL		Strong brown (7.5YR 4/6) fine SAND with little silt, dried plant roots, dense.		11.5 ft: 25% fines (silt/clay)	
11 - 12									
12 - 13	5 / 10	0	DAMP	SP		Black and dark brown (10YR 3/3) organic CLAY with brown fibers (top of meadow mat), damp.			
13 - 14									
14 - 15	5 / 10	0	DAMP	OH		Gray SILT, dense, damp.			
15 - 16									
16 - 17	5 / 10	0	DAMP	ML					
17 - 18									
18 - 19	5 / 10	0	DAMP	ML					
19 - 20									

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.55 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610949.9
<b>Date Started Drilling:</b> 6/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683210.4
<b>Date Finished Drilling:</b> 7/1/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	6 / 10	0.1	WET	ML		Gray SILT, loose to medium dense, wet.		
22			WET	SP		Grayish brown (10YR 5/2) poorly graded medium SAND, little fine sand, trace coarse sand and silt, loose, wet.		21 ft: 1-5% fines (silt/clay)
23			WET	SP		Reddish brown (5YR 5/4) poorly graded SAND with few silt, fine sand, loose to medium dense, wet. Yellow-tinged soils noted in the middle of the core after drying.		22.5 ft: 10% fines (silt/clay)
24			WET	ML		Reddish brown sandy SILT, wet.		23 ft: 60% fines (silt/clay)
25			WET	SP		Dark reddish brown (5YR 3/4) with gray to black mottling, poorly graded fine SAND, loose to medium dense, wet.		25.5 ft: 5% fines (silt/clay)
26	6 / 10	0	WET	SP		Black and brown (7.5YR 4/2) and dark reddish brown (5YR 3/2) poorly graded SAND with trace silt, wet.		
27			WET	SP				
28			WET	ML		Mottled black and reddish brown SILT, loose to medium dense, wet.		
29			WET	CL		Reddish brown, with layers of light reddish brown CLAY, medium dense, wet.		
30	6 / 10	0	WET	SP		Black and brown (7.5YR 4/2) and dark reddish brown (5YR 3/2) poorly graded SAND with trace silt, wet.		
31			WET	ML		Mottled black and reddish brown SILT, loose to medium dense, wet.		31 ft: 5% fines (silt/clay)
32			WET	ML				
33			WET	CL		Reddish brown, with layers of light reddish brown CLAY, medium dense, wet.		
34	6 / 10	0	WET	ML				
35			WET	ML				
36			WET	ML				
37			WET	ML				
38			WET	ML				
39	6 / 10	0	WET	ML				
40			WET	ML				

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.55 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610949.9
<b>Date Started Drilling:</b> 6/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683210.4
<b>Date Finished Drilling:</b> 7/1/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-44						Reddish brown and gray varves with interbedded layering of SILT and CLAY, wet.		
45-49	9 / 10	0	WET	CL/ML				
50-51			WET	CL		Reddish brown CLAY, possible fracturing, filled with medium sand, soft, wet.		
51-52			WET	CL		Dark reddish brown and lighter reddish brown CLAY varves, fine sand laminae, wet.		
52-58	6.5 / 10	0	WET TO DAMP	SP		Dark reddish brown with black mottling, poorly graded SAND with little silt, fine sand, trace coarse sand, wet to damp.		53 ft: 25% fines (silt/clay)
58-59			DAMP	SP		Reddish brown fine to medium SAND with little silt, little subrounded fine to coarse gravel, loose, damp.		
59-60			DAMP TO DRY	ML		Reddish brown and greenish gray sandy SILT with little embedded fine to coarse gravel, dense, damp to dry (Basal Till).		

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.55 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610949.9
<b>Date Started Drilling:</b> 6/30/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683210.4
<b>Date Finished Drilling:</b> 7/1/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.9 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	4.5 / 10	0	WET	SP		Reddish brown poorly graded SAND with little silt, few medium grained sand, loose, wet (Basal Till).		61.5 ft: 10% fines (silt/clay)
62								
63								
64	3.5 / 5	0	WET	CL		Reddish brown CLAY with little sand, little fine to coarse gravel, loose, wet (Basal Till).	Bentonite Seal: 66-68 ft bgs	
65								
66								
67	3.5 / 5	0	DAMP	CL		Gray sandy CLAY with embedded pieces of rock, very dense, damp (Basal Till).	#0 Filter sand: 68-70.5 ft bgs	
68								
69								
70	3.5 / 5	0	WET	BEDROCK		Grey mudstone and siltstone, wet (Lockatong Formation). Weathered from 68-72.5 ft bgs. Competent from 72.5-75 ft bgs. End of boring at 75 ft bgs.	2-inch Schedule 40 PVC screen: 68.5-70 ft bgs	
71								
72								
73	3.5 / 5	0	WET	BEDROCK		Grey mudstone and siltstone, wet (Lockatong Formation). Weathered from 68-72.5 ft bgs. Competent from 72.5-75 ft bgs. End of boring at 75 ft bgs.	Bentonite Seal: 70.5-75 ft bgs	
74								
75								

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.51 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611371.2
<b>Date Started Drilling:</b> 6/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683296.6
<b>Date Finished Drilling:</b> 6/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.2 ft NAVD88


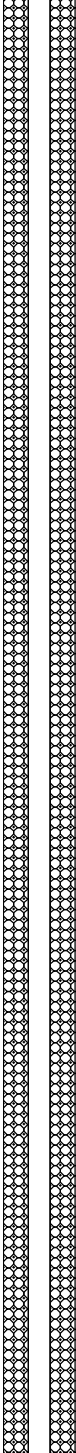
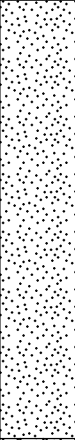
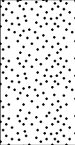
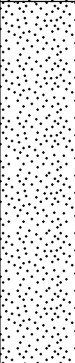
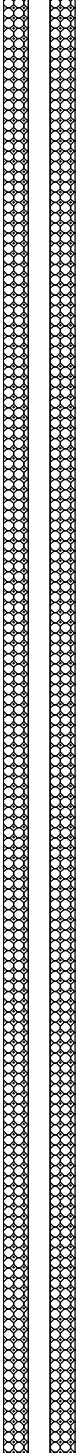

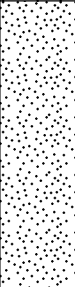
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1-5	5 / 5	0	DRY	FILL		Soft dig to 5 ft bgs; Yellowish brown (10YR 5/4) silty SAND, little subangular fine to coarse gravel, dense, dry (FILL).		Riser set in grout
5-10	1 / 5	0	WET	FILL		Dark grayish brown (2.5Y 4/2) well graded GRAVEL, fine to coarse subangular gravel with little silty sand, wet (FILL).		Grout: 0-69.5 ft bgs
10-15	6 / 10	0	WET	FILL		Very dark gray silty SAND, fine to coarse gravel (FILL), wet.		2-inch Schedule 40 PVC riser: 0-72.5 ft
15-16			WET	OH		Black (5YR 2.5/1) CLAY with brown fibers (meadow mat), black grades into brown (7.5YR 4/2), several large rounded gravel (up to 2 inches in diameter), brown fibers grade into trace to few fibers at 15 ft bgs, wet.		
16-19			WET	SC		Mottled reddish brown (2.5YR 4/2) and brown (7.5YR 4/2) with few spots of grayish green (5GY 6/1) clayey SAND with little fine to coarse gravel, medium dense to loose, wet.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.51 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611371.2
<b>Date Started Drilling:</b> 6/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683296.6
<b>Date Finished Drilling:</b> 6/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	6 / 10	5.3 (20'-5.3)	WET	SW		Reddish brown (5YR 5/3) well graded SAND with little silt, fine to coarse sand, little to some fine to coarse gravel, loose, wet. MGP sheen and odor.		20.5 ft: 25% fines (silt/clay)
22-28			WET	SP		Light reddish brown (2.5YR 3/3) poorly graded SAND with few silt, medium sand, trace coarse sand, loose, wet.		23 ft: 10% fines (silt/clay)
28-30			WET	SP		Reddish brown (5YR 4/4) poorly graded SAND with little silt, mostly medium sand, trace coarse sand, loose, wet.		28 ft: 20% fines (silt/clay)
30-36	8 / 10	0	WET	SP		Reddish brown poorly graded SAND with few silt, fine to medium sand, loose, wet.		30 ft: 10% fines (silt/clay)
36-37			WET	SP		Reddish brown poorly graded SAND with few silt, fine to medium sand, loose, wet.		
37-39			WET	SP		Reddish brown poorly graded SAND with few silt, mostly fine sand, loose, wet.		38 ft: 10% fines (silt/clay)

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 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.51 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611371.2
<b>Date Started Drilling:</b> 6/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683296.6
<b>Date Finished Drilling:</b> 6/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
41	6.8 / 10	0	WET	SP/ML		Reddish brown poorly graded SAND, grades into silt, loose, wet.			
42			WET	CL		Reddish brown (2.5YR 5/3) CLAY varves, laminae, dense, wet.			
43			WET	CL/ML		Gray and reddish brown interbedded CLAY and SILT varves, laminae, MGP odor, wet.			
44			WET	SP		Reddish brown fine SAND stringer with strong MGP odor, loose, wet.			
45			WET	SP		Reddish brown poorly graded SAND, mostly fine sand, trace silt, loose, wet.			
46			WET	CL/ML		Reddish brown and gray CLAY and SILT laminae, few fine sand laminae, dense, wet.			
47	6 / 10	0	WET	SP		Reddish brown (5YR 4/4) poorly graded SAND with little silt, mostly fine sand, wet.			45.5 ft: 5% fines (silt/clay)
48			WET	SP		Reddish brown (5YR 4/4) poorly graded SAND with some silt/clay and fine gravel embedded, dense, wet.			50 ft: 25% fines (silt/clay)
49			WET	SP		Reddish brown SAND with some silt/clay, wet.			55 ft: 30% fines (silt/clay)
50			WET	SM-SC		Reddish brown SAND with some silt/clay, dense, wet.			
51			WET	SM-SC		Reddish brown SAND with some silt/clay, dense, wet.			
52			WET TO DAMP	SM-SC		Reddish brown SAND with some silt/clay, dense, wet.			
53	WET	SP		Reddish brown (5YR 4/1) poorly graded SAND with few					

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.51 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611371.2
<b>Date Started Drilling:</b> 6/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683296.6
<b>Date Finished Drilling:</b> 6/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	6 / 10	0	WET	SP		silt, fine sand, loose, wet.		61 ft: 5-10% fines (silt/clay)
62			WET	SW		Reddish brown (5YR 4/4) well graded SAND with little silt, mostly fine sand, some subangular to subrounded coarse gravel (up to 2 inches in diameter), medium dense to loose, wet.		62.5 ft: 20% fines (silt/clay)
63			WET	SW		Reddish brown well graded SAND with some silt, fine to coarse sand, few embedded gravel, dense, damp to wet (Basal Till).		65 ft: 35% fines (silt/clay)
64			DAMP TO WET	SM		Reddish brown well graded SAND with some silt, fine to coarse sand, few embedded gravel, dense, damp to wet (Basal Till).		
65			DAMP	SC/SM		Gray clayey/silty SAND, very dense, damp (Basal Till).		
66			DAMP	SM		Reddish brown (5YR 4/4) poorly graded SAND with some silt, fine sand, loose, damp (Basal Till).		70 ft bgs: 70% fines (silt/clay)
67	5 / 10	0	DAMP	SC/SM		Reddish brown and gray clayey/silty SAND with several large pieces of gravel, damp (Basal Till).	Bentonite Seal: 69.5-71.5 ft bgs	
68			DAMP	SM		Reddish brown (5YR 4/4) poorly graded SAND with some silt, fine sand, loose, damp (Basal Till).	#0 Filter Sand: 71.5-76.5 ft bgs	
69			DAMP	SC/SM		Reddish brown and gray clayey/silty SAND with several large pieces of gravel, damp (Basal Till).	2-inch Schedule 40 PVC well screen: 72.5-76 ft bgs	
70			DAMP	SM		Reddish brown (5YR 4/4) poorly graded SAND with some silt, fine sand, loose, damp (Basal Till).		
71	5 / 10	0	DAMP	SC/SM		Reddish brown and gray clayey/silty SAND with several large pieces of gravel, damp (Basal Till).		
72			DAMP	SC/SM		Reddish brown (5YR 4/4) poorly graded SAND with some silt, fine sand, loose, damp (Basal Till).		
73			DAMP	SC/SM		Reddish brown and gray clayey/silty SAND with several large pieces of gravel, damp (Basal Till).		
74			DAMP	SM		Reddish brown (5YR 4/4) poorly graded SAND with some silt, fine sand, loose, damp (Basal Till).		
75	5 / 10	0	NA	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 74-77.5 ft bgs. Competent from 77.5-80 ft bgs. End of boring at 80 ft bgs.	Bentonite Seal: 76.5-80 ft bgs	
76			NA	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 74-77.5 ft bgs. Competent from 77.5-80 ft bgs. End of boring at 80 ft bgs.		
77			NA	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 74-77.5 ft bgs. Competent from 77.5-80 ft bgs. End of boring at 80 ft bgs.		
78			NA	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 74-77.5 ft bgs. Competent from 77.5-80 ft bgs. End of boring at 80 ft bgs.		
79	5 / 10	0	NA	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 74-77.5 ft bgs. Competent from 77.5-80 ft bgs. End of boring at 80 ft bgs.		
80			NA	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 74-77.5 ft bgs. Competent from 77.5-80 ft bgs. End of boring at 80 ft bgs.		

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.07 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611255.2
<b>Date Started Drilling:</b> 6/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683079.6
<b>Date Finished Drilling:</b> 6/22/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	5 / 5	0	DRY TO WET	FILL		Soft dig to 5 ft bgs; Olive brown (2.5Y 4/4) well graded SAND with few silt, little subangular fine to coarse gravel (DGA), dry to wet.		Riser set in grout
2								
3								
4								
5								
6	4 / 5	0	WET	FILL		Gray GRAVEL, fine to coarse, with little fine to coarse sand, few silt, loose, wet (FILL).		Grout: 0-86.5 ft bgs
7			WET	FILL		Grayish brown well graded SAND with little silt, little subangular to angular fine to coarse gravel, medium dense, wet (FILL).		
8	6.2 / 10	0	WET	FILL		Black well graded SAND with little silt, little subangular to angular fine to coarse gravel, medium dense, wet.		2-inch Schedule 40 PVC riser: 0-89.5 ft bgs
9								
10								
11								
12								
13								
14	WET	FILL		Dark gray (5Y 4/1) silty SAND with fine to coarse gravel (DGA), wet.				
15	WET	OH		Black (7.5YR 2.5/1) CLAY with brown fibers (meadow mat), wet.				
16	WET	OH	Black (7.5YR 2.5/1) CLAY with few brown fibers (meadow mat), wet.					
17	WET	SP		Dark reddish brown (5YR 3/3) poorly graded SAND with little silt, fine to medium sand, little subrounded fine to coarse gravel, loose, wet. PID = 2.8 ppm.				
18								
19								

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.07 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611255.2
<b>Date Started Drilling:</b> 6/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683079.6
<b>Date Finished Drilling:</b> 6/22/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	4.6 / 10	Varies	WET	SP		Reddish brown poorly graded SAND with little silt, little subrounded fine to coarse gravel. Strong MGP odor and sheen. PID = 6 ppm.		20 ft: 25% fines (silt/clay)
22						Dark reddish brown poorly graded SAND with few silt, mostly medium sand, little fine sand, loose, wet. Strong MGP odor and sheen.		25 ft: 5-10% fines (silt/clay)
23								
24								
25	6 / 10	Varies	WET	SP		Reddish brown poorly graded SAND with few silt, medium sand, wet. Strong MGP odor and sheen. PID = 36 ppm.		29 ft: 10% fines (silt/clay)
26						Dark reddish brown (black staining from MGP) poorly graded SAND with little silt, mostly medium sand, little fine sand, trace fine subrounded gravel, wet. Strong MGP odor and sheen. PID = 65 ppm.		30 ft: 15-20% fines (silt/clay)
27								
28								
29	6 / 10	Varies	WET	SP		Reddish brown (2.5YR 4/3) poorly graded SAND, fine to medium sand, few medium sand, wet. PID = 39 ppm.		35 ft: 10-15% fines (silt/clay)
30						Dark reddish brown (5YR 3/2) poorly graded SAND with few silt, fine sand, wet. PID = 63 ppm.		39.5 ft: 20-25% fines (silt/clay)
31								
32								
33	6 / 10	Varies	WET	SP		Poorly graded SAND with little silt, mostly fine sand, wet.		
34								
35								
36								
37								
38								
39								

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<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.07 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611255.2
<b>Date Started Drilling:</b> 6/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683079.6
<b>Date Finished Drilling:</b> 6/22/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-45	7.5 / 10	Varies	WET	SP		Reddish brown (5YR 4/3) poorly graded SAND with few silt, loose, wet. MGP odor and sheen. PID = decreases from 50 ppm to 0.8 ppm.		40 ft: 10-15% fines (silt/clay)
45-47			WET	SP		Reddish brown poorly graded SAND, trace silt, fine sand, loose, wet. PID = 0.8 ppm.		
47-50			WET	SP		Reddish brown poorly graded SAND with few silt, loose, wet. PID = 118 ppm.		
50-51			WET	SP/ML		Reddish brown poorly graded SAND, grades into silt, wet. PID varies from 74 to 181 ppm.		
51-55	5 / 10	Varies	WET	CL/ML		Gray and reddish brown CLAY and SILT varves, wet. PID = 44 ppm (at 51.5 ft bgs), reduces to 0.8 ppm by 55 ft bgs.		

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<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.07 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611255.2
<b>Date Started Drilling:</b> 6/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683079.6
<b>Date Finished Drilling:</b> 6/22/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	6 / 10	0	WET	CH		Mottled gray and reddish brown fat CLAY, wet.		
62			WET	CL		Reddish brown lean CLAY, wet.		
63			WET	CL/ML		Reddish brown and gray varves, layers of CLAY, SILT, few sand laminae, wet.		
64			WET	CL		Reddish brown CLAY, wet.		
65			WET	CL		Reddish brown CLAY laminae, wet.		
66			WET	CL				
67			WET	ML		SILT with little subrounded to subangular fine to coarse gravel, medium dense, wet.		
71	3.5 / 10	0	WET	CL		Reddish brown CLAY with little sand, soft, wet.		72.5 ft: 75% fines (silt/clay)
75			WET	SP		Reddish brown poorly graded SAND, fine sand, few coarse sand, wet.		
76			WET	CL		Reddish brown CLAY, soft, wet.		
78			WET	CL				

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.07 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611255.2
<b>Date Started Drilling:</b> 6/19/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683079.6
<b>Date Finished Drilling:</b> 6/22/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.1 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks				
81	4.5 / 10	0	MOIST TO WET	SP		Reddish brown SAND with little silt, medium stiff, moist to wet.						
82			MOIST TO WET	SC		Reddish gray (5YR 5/2) SAND with some clay embedded with little to fine coarse gravel, very dense, moist to wet.						
83									Reddish brown CLAY, trace gravel, few faint varves, medium stiff, moist to wet.			
84	4.5 / 10	0	MOIST TO WET	CL								
85												
86												
87	5 / 5	0	DAMP	CL				Bentonite Seal: 86.5-88.5 ft bgs				
88								DAMP TO MOIST	SP			#0 Filter Sand: 88.5-93 ft bgs
89												89.5 ft: 90% fines (silt/clay)
90	5 / 5	0	DAMP TO MOIST	SP				2-inch Schedule 40 PVC well screen: 89.5-92.5 ft bgs				
91												
92												
93	3 / 5	0	DRY	BEDROCK				Bentonite Seal: 93-100 ft bgs				
94												
95												
96						Dark gray to greyish-brown (10YR 3/1) bedrock (Stockton Formation), wet. End of boring at 100 ft bgs.						
97												
98												
99												

PPG WITH WELL CONSTRUCTION - - 25/21 12:22

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<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.87 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611340.1
<b>Date Started Drilling:</b> 6/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682895.5
<b>Date Finished Drilling:</b> 6/29/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 125 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
0 - 1	5 / 5	0	DRY	FILL		Soft dig to 5 ft bgs; Gray angular fine to coarse GRAVEL (DGA), dry (FILL).			
1 - 2						Light yellowish brown (10YR 6/4) poorly graded SAND with little silt, little fine to coarse gravel, dry (FILL).			
2 - 3	2.5 / 5	0.2	DRY	FILL		Olive brown (2.5Y 4/3) silty GRAVEL with sand, fine to coarse subangular gravel with sand, little silt, loose, wet (FILL).		Riser set in grout	
3 - 4									
4 - 5									
5 - 6	6 / 10	1.2	WET	FILL		Black to dark gray SAND with some silt, embedded little angular fine to coarse gravel, wet.		Grout: 0-117 ft bgs	
6 - 7									
7 - 8									
8 - 9									
9 - 10	6 / 10	1.2	WET	FILL		Black to dark gray SAND with some silt, embedded little angular fine to coarse gravel, wet.		2-inch Schedule 40 PVC riser: 0-119.5 ft bgs	
10 - 11									
11 - 12									
12 - 13									
13 - 14	6 / 10	1.2	DAMP	OH		Mostly brown fibers embedded in black organic CLAY, strong odor (meadow mat), damp.			
14 - 15									
15 - 16									Gray SILT with few brown fibers, damp.
16 - 17									
17 - 18	6 / 10	1.2	DAMP	ML		Brown (10YR 5/3) to gray (10YR 5/1) layers (varves), CLAY, SILT and fine SAND, damp.			
18 - 19									
19 - 20			DAMP	CL-ML					

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.87 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611340.1
<b>Date Started Drilling:</b> 6/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682895.5
<b>Date Finished Drilling:</b> 6/29/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 125 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks					
21	5 / 10	Varies	WET	ML		Reddish brown to gray clayey SILT, medium density, wet.							
22			WET	SP		Reddish brown poorly graded SAND, medium sand, few coarse sand, few silt, few fine to coarse subrounded to subangular gravel, 1-inch thick clay lens at 21.8 ft bgs, wet.		21.5 ft: 5-10% fines (silt/clay)					
23			WET	SP		Reddish brown poorly graded SAND, medium sand, trace coarse sand, trace silt, wet.		23 ft: 1-5% fines (silt/clay)					
24													
25													
26	5.5 / 10	Varies	WET	SP		Reddish brown poorly graded SAND with few silt, medium sand, trace coarse sand, loose to medium density, wet.			25 ft: 10% fines (silt/clay)				
27													
28									WET	SP		Reddish brown poorly graded SAND with few silt, fine sand, wet.	
29													
30	5.5 / 10	Varies	WET	SP		Reddish brown poorly graded SAND with few silt, medium sand, trace coarse sand, wet.							
31							WET		SP		Reddish brown poorly graded SAND with few silt, fine sand, few medium sand, wet. MGP odor and sheen on soils from 31.5 ft bgs, soil stained to dark brown (7.5YR 3/2).	31 ft: 10% fines (silt/clay)	
32													
33							WET		SP		Reddish brown poorly graded SAND with few silt, fine sand, little medium sand, wet.		
34													
35													
36	5.5 / 10	Varies	WET	SP		Reddish brown (5YR 4/4) SAND with little silt, wet. Yellow tinge on soil surface after drying.							
37													
38													
39									39 ft: 20% fines (silt/clay)				

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.87 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611340.1
<b>Date Started Drilling:</b> 6/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682895.5
<b>Date Finished Drilling:</b> 6/29/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 125 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks			
41	5 / 10	0	WET	SP		Reddish brown poorly graded SAND with little silt, fine sand, few medium sand, trace coarse sand, loose, wet. Yellow groundwater observed at 40 ft bgs.		41 ft: 20% fines (silt/clay)			
42						SP/ML		Reddish brown poorly graded SAND with little silt, grades into mostly silt, loose to medium dense, wet.			
43								SP	Reddish brown poorly graded SAND with few silt, fine to medium sand, wet.		
44									Reddish brown poorly graded SAND with few silt, medium sand, wet. Yellow tinge on soils in 40-50 ft run after drying.		
45								6 / 10	0	WET	SP
46	ML	Reddish brown sandy SILT, yellow groundwater, wet.									
47		CL/ML	Reddish brown and gray lean CLAY, varves consist of contorted laminae, CLAY and SILT, medium stiff, damp.								
48	DAMP		CL/ML								
49											
50	6 / 10	0	WET	SP			53.5 ft: 30% fines (silt/clay)				
51								ML	Reddish brown sandy SILT, yellow groundwater, wet.		
52									CL/ML	Reddish brown and gray lean CLAY, varves consist of contorted laminae, CLAY and SILT, medium stiff, damp.	
53										DAMP	CL/ML
54											
55	DAMP	CL/ML									
56											
57											
58											
59	6 / 10	0	DAMP	CL/ML			53.5 ft: 30% fines (silt/clay)				
60								CL/ML	Reddish brown and gray lean CLAY, varves consist of contorted laminae, CLAY and SILT, medium stiff, damp.		
61									DAMP	CL/ML	
62											
63											

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.87 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611340.1
<b>Date Started Drilling:</b> 6/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682895.5
<b>Date Finished Drilling:</b> 6/29/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 125 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks		
61	8.5 / 10	0	WET	CL		Reddish brown sandy CLAY, soft to firm, wet.				
62						Reddish brown CLAY, varves and laminae, firm, wet.				
63			WET	CL						
64			WET	CL						
65										
66										
67			WET	CL		Gray and Reddish brown CLAY and SILT, laminae, varves, firm, wet.				
68										
69										
70										
71	8 / 10	0	WET	CL		Reddish brown lean CLAY, wet.				
72										
73			WET	ML-CL		Reddish brown and gray interbedded SILT and CLAY varves (gray clay varves are generally 1/4-inch thick), with fine sand laminae, one layer up to 1 inch thick, medium soft, wet.				
74										
75			WET	ML		Reddish brown SILT with few interbedded gray clay varves, wet.				
76			WET	ML		Reddish brown SILT, wet.				
77										
78			WET	CL		Reddish brown lean CLAY with little fine sand, wet.				
79										

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.87 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611340.1
<b>Date Started Drilling:</b> 6/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682895.5
<b>Date Finished Drilling:</b> 6/29/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 125 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81	7.5 / 10	0	WET	ML		Reddish brown SILT, soft, wet.		
82			WET	ML		Reddish brown SILT, medium dense, wet.		
83			WET	ML		Sandy SILT with fine to coarse gravel (up to 3 inches in diameter), medium dense, wet.		
84								
85			WET	ML		Reddish brown SILT, medium dense, wet.		
86			WET	SP		Reddish brown SAND with little silt, fine sand, medium dense, wet.		
87			WET	SP		Reddish brown poorly graded SAND, fine to medium sand, medium dense, wet.		
88	WET	SP		Reddish brown poorly graded SAND, fine sand, medium dense, wet.				
89								
90								
91								
92	6.5 / 10	0	WET	SP		Reddish brown poorly graded SAND with few silt, fine sand, one thin layer of medium sand, wet.		
93			WET	SP		Reddish brown poorly graded SAND with few silt, fine sand, wet. Unidentifiable odor at 91 ft bgs (PID = 9 ppm).		
94			WET	SP		Reddish brown poorly graded SAND with few silt, fine sand, trace coarse sand, trace gravel, wet.		
95			DAMP TO DRY	ML/GM		Gray sandy SILT, fine sand, some fine to coarse gravel (diameter up to 1/4-inch), very dense, damp to dry (Basal Till).		
96								
97								
98								
99								

92 ft: 10% fines (silt/clay)

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.87 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611340.1
<b>Date Started Drilling:</b> 6/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682895.5
<b>Date Finished Drilling:</b> 6/29/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 125 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
101	4.5 / 5	0	DAMP	SM		Pinkish gray (7.5YR 6/1) silty SAND, fine sand, few silt, few fine to coarse gravel, very dense, damp (Basal Till).			
102			DAMP	SM/SC		Gray silty/clayey SAND, fine sand, subangular fine to coarse gravel, very dense, damp (Basal Till).			
103			DRY TO DAMP	GW		Gray powder (pulverized rock) with some subangular and subrounded fine to coarse gravel, loose, dry to damp (Basal Till).			
104			DRY TO DAMP	GM		Angular gray rock pieces with some fine sandy SILT, loose, dry to damp (Basal Till).			
105			DRY TO DAMP	ML		Gray sandy SILT, fine sand with little embedded subangular fine to coarse gravel, very dense, dry to damp (Basal Till).			
106	4 / 5	0	DAMP	GP-GM		Gray sandy SILT, interbedded with large gravel, very dense, damp. Solid core sections of till (sizes of up to 2 inch, 3 inch and 6 inch in length) (Basal Till).			
107			DAMP	GW		Gray powder (pulverized rock) with fine to coarse GRAVEL (up to 3 inches in diameter), loose, damp (Basal Till).			
108			DAMP	ML/SM		Very dark grayish brown (10YR 4/3) sandy SILT with subrounded to subangular fine to coarse gravel, very dense, damp (Basal Till).			
109	4 / 5	0	WET	GW		Black fine to coarse GRAVEL, little silt, loose, wet (Basal Till).			
111			WET	CL		Gray sandy CLAY with little fine to coarse gravel, loose, wet (Basal Till).			
112			DAMP	CL		CL			Gray sandy CLAY with few subrounded coarse gravel, very hard, dense, damp (Basal Till).
113									
114									
115	DAMP	GP		Gray subrounded coarse GRAVEL, one large gravel piece (1.5 inch in diameter), little silt, loose, damp (Basal Till).					
116	6 / 10	0	WET	SP		Gray coarse SAND, fine to coarse gravel, little silt or clay, loose, wet (Basal Till).			
117			WET	SM		Fine SAND with some silt, few medium to coarse rock pieces, loose, soft, wet (Basal Till).	116 ft: 35% fines (silt/clay)		
118			WET	SM		Reddish gray (5YR 5/2) SAND with silt, dense, wet (Basal Till).	Bentonite seal: 117-119 ft bgs		
119			WET	ML		Reddish brown (5YR 5/3) sandy SILT, trace coarse sand, trace gravel, medium stiff, wet (Basal Till).	118 ft: 75% fines (silt/clay)		
119			DAMP	CL		Gray sandy CLAY, some fine to coarse rock pieces, very dense, damp (Basal Till).	#0 Filter sand: 119-122 ft bgs		
			NA	BEDROCK		Gray bedrock (Stockton Formation), weathered with			

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<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 12.87 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611340.1
<b>Date Started Drilling:</b> 6/25/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682895.5
<b>Date Finished Drilling:</b> 6/29/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 125 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 11.0 ft NAVD88

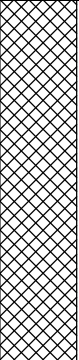
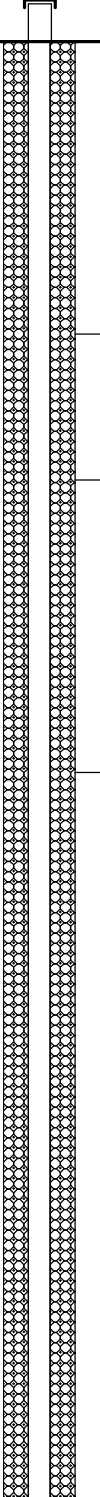
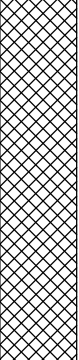
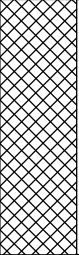
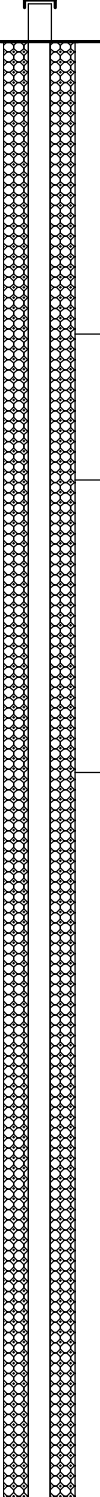


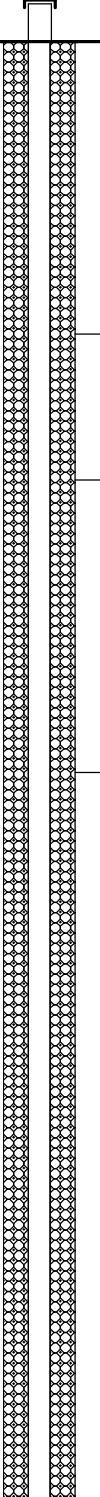
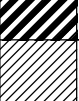
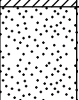

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
121	6 / 10	0	NA	BEDROCK		some segments of broken rock in clay matrix, wet. End of boring at 125 ft bgs.		2-inch Schedule 40 PVC screen: 119.5-121.5 ft bgs  Bentonite seal: 122-125 ft bgs
122								
123								
124								
125								

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<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610879.4
<b>Date Started Drilling:</b> 7/14/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683478.6
<b>Date Finished Drilling:</b> 7/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1-5	5 / 5	0	WET	FILL		Soft dig to 5 ft bgs; Grayish brown (2.5Y 5/2) fine SAND with little silt, little subangular fine to coarse gravel (DGA), very dense, wet (FILL).		Riser set in grout
5-10	3 / 5	0	WET TO DAMP	FILL		Gray (10YR 5/1) fine SAND with some micaceous silt, little subangular fine to coarse gravel (DGA), wet to damp. Very dense between 5-6 ft bgs, loose from 6-10 ft bgs (FILL).		Grout: 0-60 ft bgs
10-14	3.5 / 5	0	WET	FILL		Gray (10YR 5/1) fine SAND with some micaceous silt, little subangular fine to coarse gravel (DGA), wet. Very dense between 5-6 ft bgs, loose from 6-10 ft bgs. (FILL).		2-inch Schedule 40 PVC riser: 0-62.5 ft bgs
14-15			DAMP	CL/OL		Brown and black CLAY with few fibers, loose to medium dense, damp.		
15-16	4 / 5	0	WET	CL/OL		Brown and black organic CLAY with brown fibers, medium dense, wet.		
16-17			WET	CH		Gray silty fat CLAY with little brown fibers, medium dense, wet.		
17-18			WET	CL		Gray silty CLAY, grades into weak red (2.5YR 4/2), medium dense, wet.		
18-19			DAMP	SP		Weak red (2.5YR 4/2) to reddish brown (5YR 4/3) and olive gray (5Y 4/2) poorly graded SAND with little silt, embedded with fine gravel, very dense, damp.		

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<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610879.4
<b>Date Started Drilling:</b> 7/14/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683478.6
<b>Date Finished Drilling:</b> 7/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
21	4 / 5	0	WET	SP		Reddish brown and dark reddish brown poorly graded SAND with little silt, some black staining, medium dense, wet.			
22			WET	SP		Reddish brown poorly graded SAND with little silt, mostly fine sand, little medium sand, wet.			
23			WET	SP		Reddish brown poorly graded SAND with little silt, mostly fine sand, little medium sand, black staining from 24-25 ft bgs, loose, wet.			22.5 ft: 25% fines (silt/clay)
24			WET	SP					
25			WET	SM		Reddish brown poorly graded SAND, some silt, mostly fine sand, loose, wet. Very pale yellow groundwater at 26 ft bgs.			
26			WET	SM					
27			WET	SM					
28			WET	SM					
29			WET	SM		Reddish brown poorly graded SAND, some silt, mostly fine sand, loose, medium dense, wet.			
30	4 / 5	0	WET	SP		Dark reddish brown (5YR 3/3) poorly graded fine SAND, trace silt, wet.		30 ft: 5% fines (silt/clay)	
31			WET	ML		Dark reddish brown SILT with black mottling, wet.			
32			WET	SP		Reddish brown poorly graded SAND with little silt, mostly fine sand, wet.	32.5 ft: 25% fines (silt/clay)		
33			WET	SM		Reddish brown poorly graded SAND with some silt, mostly fine sand, wet.			
34			WET	SM					
35	5 / 5	0	WET	CL		Reddish brown CLAY with some interbedded fine sand laminae, medium stiff, wet.	35 ft: 30% fines (silt/clay)		
36			WET	ML		Reddish brown SILT with little clay, stiff, wet.			
37			WET	ML					
38			WET	ML					
39			WET	ML					

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<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610879.4
<b>Date Started Drilling:</b> 7/14/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683478.6
<b>Date Finished Drilling:</b> 7/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks			
41	3.5 / 5	0	WET	SP/CL		Reddish brown interbedded fine SAND and stiff CLAY, wet. Yellow water visible from 40-45 ft bgs.					
42			WET	SP		Reddish brown poorly graded SAND, fine to medium sand, wet.					
43			WET	SP		Reddish brown poorly graded SAND, fine to medium sand, loose, wet.		42.5 ft: 5% fines (silt/clay)			
44			WET	SP		Reddish brown poorly graded SAND with little silt, loose, wet.					
45	4 / 5	0	WET	SP		Reddish brown poorly graded SAND with trace silt, loose, wet.					
46											
47											
48									47 ft: 5% fines (silt/clay)		
49	3.5 / 5	0	DAMP	SW		Reddish brown well graded SAND with few silt or clay, fine to coarse sand, few silt, little subrounded fine to coarse gravel, damp. Yellowish stain on sand after sun drying.					
50			WET	SP		Poorly graded SAND, wet. Faint yellow staining on sand after drying.	50 ft: 10-15% fines (silt/clay)				
51	3.5 / 5	0	DAMP TO WET	SW-SC		Well graded SAND with some clay, fine to coarse sand, little fine to coarse gravel, damp to wet (Basal Till).			50.5 ft: 5% fines (silt/clay)		
52											
53											
54											54 ft: 35% fines (silt/clay)
55	5 / 5	0	WET	SP		Reddish brown poorly graded SAND, mostly fine sand, few gravel, loose, wet (Basal Till).					
56			DAMP	SW-SC		Reddish brown well graded SAND with some clay, fine to coarse sand, little subrounded to subangular gravel, medium dense to very dense, damp (Basal Till).					
57											
58										57.5 ft: 30% fines (silt/clay)	
59											

PPG WITH WELL CONSTRUCTION - - 2/5/21 12:23

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 16.67 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610879.4
<b>Date Started Drilling:</b> 7/14/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683478.6
<b>Date Finished Drilling:</b> 7/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 75 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	4 / 5	0	DAMP TO WET	SW		Reddish brown well graded SAND with few silt, loose, damp to wet (Basal Till).		60.5 ft: 10% fines (silt/clay)
62			DAMP TO WET	CL		Reddish brown and light yellowish brown (2.5Y 6/3) sandy CLAY embedded with little fine to subrounded coarse gravel, medium dense, damp to wet (Basal Till).		Bentonite Seal: 60-62 ft bgs
63	5 / 5	0	DAMP	BEDROCK		Dark olive gray to gray Diabase. Weathered from 63-74 ft bgs (broken rock in clay matrix), competent at 74 ft bgs. End of boring at 75 ft bgs.		#0 Filter sand: 62-67.5 ft bgs
64								2-inch Schedule 40 PVC well screen: 62.5-68 ft bgs
65								
66	4 / 5	0						Bentonite Seal: 68-75 ft bgs
67								
68								
69								
70								
71								
72								
73								
74								
75								

PPG WITH WELL CONSTRUCTION - - 28/21 08:33

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611139
<b>Date Started Drilling:</b> 6/15/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683749.8
<b>Date Finished Drilling:</b> 6/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1-5	5 / 5	0	DAMP TO DRY	FILL		Soft dig to 5 ft bgs. Gray fine to coarse GRAVEL, black fabric/black plastic encountered several inches below surface. Dark grayish brown (10YR 4/2) micaceous sand with little silt, fine sand, few fine to coarse subrounded gravel, loose, damp to dry (FILL).		Riser set in grout
5-10	5 / 5	0	WET	FILL		Grayish brown (10YR 5/2) silty SAND, few fine to coarse gravel, loose, with some medium dense pieces, wet (FILL).		Grout: 0-66.5 ft bgs
10-11	8.5 / 10	0	WET	FILL		Grayish brown (10YR 5/2) micaceous silty SAND, few fine to coarse gravel, loose to medium dense, wet (FILL).		2-inch Schedule 40 PVC riser: 0-69 ft bgs
11-12			WET	OH		Black organic CLAY with brown fibers, soft, wet.		
12-13			WET	OH		Black organic CLAY with brown fibers, decreasing amount of brown fibers, wet.		
13-14			WET	OH		Very dark gray (10YR 3/2) organic CLAY with increasing amount brown fibrous material, wet.		
14-15			WET	OH		Very dark gray (10YR 3/2) organic CLAY with few brown fibers, wet.		
15-16			WET	ML		Dark grayish brown (5YR 4/2) sandy SILT, wet.		
16-19			WET	SM		Dark grayish brown to dark reddish gray (5YR 4/2) silty SAND, few fine to coarse gravel, wet.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611139
<b>Date Started Drilling:</b> 6/15/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683749.8
<b>Date Finished Drilling:</b> 6/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
21	6 / 10	0	WET	SP		Dark reddish brown (2.5YR 3/3) poorly graded SAND with little silt, subangular medium sand, trace coarse sand, loose, wet. Pale yellow groundwater observed.		20 ft: 15% fines (silt/clay)	
22			WET	SP		Reddish brown (2.5YR 4/3) poorly graded SAND with little silt, fine sand, wet.		21 ft: 20% fines (silt/clay)	
23			WET	SP		Dark reddish brown (2.5YR 3/3) poorly graded SAND with little silt, wet. Pale yellow groundwater observed at 22.0 ft.		22 ft: 15% fines (silt/clay) 22.5 ft: 40% fines (silt/clay)	
24			WET	SP		Dark reddish brown (5YR 3/3) poorly graded SAND with some silt, fine sand, loose, wet.		Dark brown (7.5YR 3/3) and gray SILT and CLAY, laminated silt and clay layers, fine sand layers, easily breaks apart along horizontal laminae, soft to medium stiff, damp.	24.5 ft: 60% fines (silt/clay)
25			WET	ML		Reddish brown (5YR 4/4) sandy SILT, fine sand, wet.			
26					DAMP	ML/CL			
31	6 / 10	0	WET	ML		Reddish brown (5YR 4/4) SILT with sand, fine sand, loose, wet.		31 ft: 55% fines (silt/clay)	
32			WET	ML		Reddish brown (5YR 4/4) SILT with sand, fine sand, loose, wet.			
33			WET	ML		Reddish brown (2.5YR 5/3) SILT with trace fine sand, wet.		33 ft: 55% fines (silt/clay)	
35								35 ft: 95% fines (silt/clay)	
36			WET	ML		Reddish brown (2.5YR 5/3) SILT with faint varves, medium stiff, wet.			
37									
38			WET	ML					
39									

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611139
<b>Date Started Drilling:</b> 6/15/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683749.8
<b>Date Finished Drilling:</b> 6/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.0 ft NAVD88

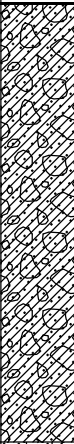
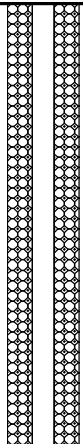

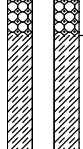
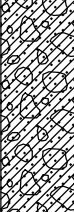
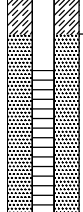

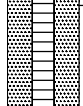

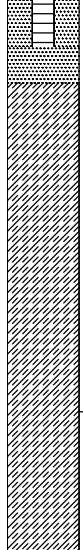
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	5.2 / 10	0	WET	SP		Reddish brown (5YR 4/3) poorly graded SAND, fine sand, loose, wet.		41 ft: 10% fines (silt/clay)
			WET	SP		Reddish brown (5YR 4/3) poorly graded SAND with few silt, wet.		
42	5.2 / 10	0	WET	SW		Reddish brown (5YR 4/3) well graded SAND with few silt, medium sand, few fine sand, few coarse sand, little fine to coarse gravel (up to 2" across), grades into sand with little silt at 45 ft bgs, wet.		
43								
44								
45	5.2 / 10	0	WET	SP		Reddish brown (5YR 4/3) poorly graded SAND with little silt, medium sand, few coarse sand, loose, wet.		45 ft: 20% fines (silt/clay)
46								
47	5.7 / 10	0	DRY TO DAMP	SM		Reddish brown (2.5YR 4/4) widely graded SAND with some silt, fine to angular coarse sand, few embedded fine to coarse gravel, very dense, dry to damp (Basal Till).		46.5 ft: 30% fines (silt/clay)
48								
49								
50	5.7 / 10	0	DAMP	SM		Reddish brown (5YR 4/4) SAND with some silt, trace coarse sand, few fine to coarse subrounded to subangular gravel embedded in matrix, compact (at 50 ft), dense to very dense, damp (Basal Till).		50 ft: 30% fines (silt/clay)
51								
52	5.7 / 10	0	DAMP	SM				
53								
54								
55								
56	5.7 / 10	0	DAMP	SM				
57								
58								
59								

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.04 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611139
<b>Date Started Drilling:</b> 6/15/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683749.8
<b>Date Finished Drilling:</b> 6/16/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 13.0 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61-66	7.5 / 10	0	DAMP TO DRY	SW		Reddish brown (5YR 4/4) well graded SAND with little silt, fine to coarse sand, little subangular to subrounded fine to coarse gravel, very dense, damp to dry (Basal Till).		60 ft: 25% fines (silt/clay)
66-68			DAMP	SM		Reddish brown (5YR 4/4) poorly graded SAND with little silt, fine to medium sand, trace gravel, loose, damp (Basal Till).		Bentonite Seal: 66.5-68.5 ft bgs
68-70			DAMP	SM		Reddish brown (5YR 4/3) widely graded SAND with some silt, fine to coarse sand, few fine to coarse gravel embedded, very dense, damp (Basal Till).		#0 Filter sand: 68.5-73.5 ft bgs
70-73						Grey mudstone and siltstone, wet (Lockatong Formation). Weathered from 71-73 ft bgs (broken rock in clay matrix), competent at 73 ft bgs. End of boring at 80 ft.		2-inch Schedule 40 PVC well screen: 69-73 ft bgs
73-79	4 / 10	0		BEDROCK				Bentonite Seal: 73.5-80 ft bgs

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> Not Available ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611436.6
<b>Date Started Drilling:</b> 8/6/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683762.5
<b>Date Finished Drilling:</b> 8/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks						
1	5.4 / 10	0	DRY	FILL		Soft dig to 5 ft bgs; Grayish brown silty SAND, little fine to coarse gravel, dry (DGA).		Riser set in grout						
2														
3														
4														
5														
6	5.6 / 10	0	WET	FILL		Olive gray (5Y 4/2) silty SAND, fine to coarse sand, few fine to coarse gravel with loose and firm sections. Wet (5' to 9') to dry (9' to 10') (FILL).		Grout: 0-60.75 ft bgs						
7														
8														
9														
10														
11			MOIST	FILL					Olive gray (5Y 4/2) silty SAND, fine to coarse sand, few fine to coarse gravel, firm to loose, moist (FILL).		2-inch Schedule 40 PVC riser: 0-63.75 ft bgs			
12														
13									MOIST			FILL		Black silty SAND, few fine to coarse sand, loose, moist (FILL).
14														
15									PT				Black (10YR 2/1) to very dark gray (10YR 3/2) organic soil with brown fibers (PEAT).	
16	ML	Dark brown (7.5YR 3/3) SILT, few organic fibers.												
17	CL/ML				Brown (7.5YR 4/3) CLAY and SILT.									
18	SC				Brown clayey SAND, fine sand, fine to coarse gravel.									
19	SP-SM		Dark reddish brown (5YR 3/4) poorly graded SAND with silt, medium sand, few fine sand, trace coarse sand, little gravel.											
20														

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> Not Available ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611436.6
<b>Date Started Drilling:</b> 8/6/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683762.5
<b>Date Finished Drilling:</b> 8/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21-22	7.5 / 10	0	WET	SP		Reddish brown poorly graded SAND, trace silt, fine to medium sand, trace coarse sand, little sub-angular fine to coarse gravel.		
23-24			WET	SP		Reddish brown, poorly graded SAND, trace silt, fine to medium sand, little sub-angular fine to coarse gravel, wet.		23 ft: 1-5% fines (silt/clay)
25-26			WET	SP		Reddish brown, poorly graded SAND, trace silt, fine to medium sand, little sub-angular fine to coarse gravel, wet.		
27-28	4.5 / 10	0	WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		
29-30			WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		
31-32			WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		
33-34	4.5 / 10	0	WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		
35-36			WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		
37-38			WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		
39-40	4.5 / 10	0	WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		
41-42			WET	SP-SM		Reddish brown, poorly graded SAND with silt, fine sand, few silt, loose, wet. Yellowish groundwater observed.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> Not Available ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611436.6
<b>Date Started Drilling:</b> 8/6/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683762.5
<b>Date Finished Drilling:</b> 8/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	5.1 / 10	0	WET	ML		Reddish brown (2.5YR 4/3) sandy SILT with fine sand, wet.		40 ft: 70% fines (silt/clay)
42								
43								
44								
45								
46	6.5 / 10	0	WET	ML		Reddish brown SILT with fine SAND, wet, yellowish groundwater at 50 ft bgs.		50 ft: 90-95% fines (silt/clay)
47								
48			CL-ML	WET		Reddish brown clayey SILT, wet.		
49								
50								
51								
52								
53								
54								
55								
56								
57								
58								
59								

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> Not Available ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611436.6
<b>Date Started Drilling:</b> 8/6/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683762.5
<b>Date Finished Drilling:</b> 8/7/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 14.7 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	7.5 / 10	0	WET	SP		Reddish brown poorly graded SAND, fine sand, wet.		61 ft: 4% fines (silt/clay)
62			WET	SC		Reddish brown clayey SAND, little fine to coarse sand, little fine to coarse gravel, firm, (Basal Till).		Bentonite Seal: 60.75-62.75 ft bgs
63								63 ft: 25% fines (silt/clay)
64								
65			MOIST	SC		Reddish brown clayey SAND, little fine to coarse sand, little fine to coarse gravel, firm (Basal Till).		2-inch Schedule 40 PVC well screen: 63.75-65.75 ft bgs
66						Dark gray mudstone and siltstone, dry to wet (Lockatong Formation). End of boring at 72 ft.		#00 Filter Sand: 66.5-68.5 ft bgs
67								Sump: 65.75-67.75 ft bgs
68								
69				BEDROCK				
70								Bentonite Seal: 67.75-72 ft bgs
71								
72								

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS	<b>Top of PVC Elevation:</b> 12.3 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611381.9
<b>Date Started Drilling:</b> 6/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683046
<b>Date Finished Drilling:</b> 6/24/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1 - 5	5 / 5	0	DRY	FILL		Soft dig to 5 ft bgs, Gray poorly graded fine SAND with little silt, little fine to coarse gravel (DGA), dry (FILL).		Riser set in grout
5 - 10	2.5 / 5	0	WET	FILL		Black to dark gray DGA, poorly graded SAND with little silt, some fine to coarse subangular gravel, loose (except for one 4-inch medium dense section), wet (FILL).		Grout: 0-90.5 ft bgs
10 - 16	9 / 10		MOIST	FILL		Black (10YR 2/1) silty SAND, few to little subangular to subrounded gravel, loose to medium dense, moist (FILL).		2-inch Schedule 40 PVC riser: 0-93 ft bgs
16 - 17			MOIST	OH		Black (10YR 2/1) silty CLAY with some brown fibers, medium stiff, moist.		
17 - 18			MOIST	CL		Dark gray (10YR 4/1) silty CLAY with few brown fibers, few embedded fine subrounded gravel, medium stiff, moist.		
18 - 19			DAMP	CL		Dark gray (10YR 4/1) silty CLAY with few brown fibers, few embedded fine subrounded gravel, medium stiff, damp. MGP sheen observed on soils.		
19 - 20			WET TO MOIST	SP		Brown (7.5YR 5/2) poorly graded SAND, fine sand, wet to moist. MGP sheen observed on soils.		

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS	<b>Top of PVC Elevation:</b> 12.3 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611381.9
<b>Date Started Drilling:</b> 6/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683046
<b>Date Finished Drilling:</b> 6/24/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
21	6.5 / 10	65	WET	SP		Brown (7.5YR 5/2) poorly graded SAND with few silt, loose between 22.5-24.2 ft bgs, medium dense between 24.2-25.2 ft bgs, wet. MGP sheen on soils between 20-22.5 ft bgs.			
22									
23			MOIST	SP		Brown (7.5YR 5/2) poorly graded SAND with little silt, fine sand, loose to medium dense, moist.			
24									23.5 ft: 10-15% fines (silt/clay)
25									24.5 ft: 25% fines (silt/clay)
26	5 / 10	0	WET	SP		Reddish brown (5YR 4/4) poorly graded SAND with little silt, wet. Pale yellow groundwater observed in core.		30 ft: 25% fines (silt/clay)	
27									
28			WET	SP		Reddish brown (5YR 4/4) poorly graded SAND, fine to medium sand, wet.			
29									35 ft: 10% fines (silt/clay)
30									
31	5 / 10	0	WET	SP		Reddish brown (5YR 4/4) poorly graded SAND, fine to medium sand, wet.			
32									
33			WET	SP					
34									
35									
36	5 / 10	0	WET	SP					
37									
38			WET	SP					
39									
40									

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS	<b>Top of PVC Elevation:</b> 12.3 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611381.9
<b>Date Started Drilling:</b> 6/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683046
<b>Date Finished Drilling:</b> 6/24/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88


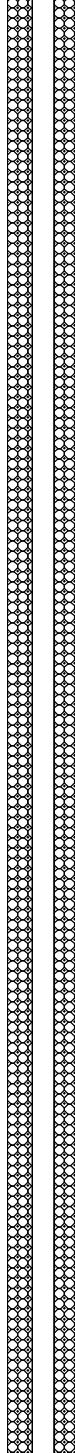

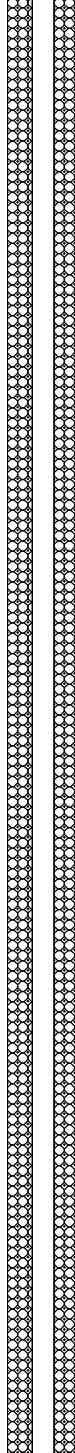

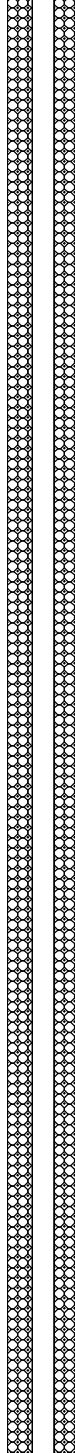

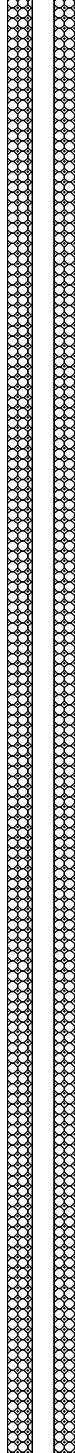
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	7.5 / 10	0	WET	SP		Reddish brown (5YR 4/4) poorly graded SAND with few silt, medium sand, trace coarse sand, trace subrounded fine to coarse gravel, wet. MGP sheen observed on soils.		41 ft: 10% fines (silt/clay)
42								
43								
44	7.5 / 10	0	WET	SP		Black stained poorly graded SAND with few silt, fine sand, wet.		
45								
46								
47	7.5 / 10	0	WET	SP		Reddish brown poorly graded SAND with few silt, medium sand, little fine sand, loose, wet. MGP sheen observed on soils.		51 ft: 10% fines (silt/clay)
48								
49								
50	8.8 / 10	7.1	MOIST	CL/ML		Dark reddish brown, gray and reddish brown (5YR 4/3) CLAY, SILT contorted laminae and varves, medium stiff, moist.		
51								
52								
53								
54	8.8 / 10	7.1	MOIST	CL/ML		Dark reddish brown, gray and reddish brown (5YR 4/3) CLAY, SILT contorted laminae and varves, medium stiff, moist.		
55								
56								
57								
58	8.8 / 10	7.1	MOIST	CL/ML		Dark reddish brown, gray and reddish brown (5YR 4/3) CLAY, SILT contorted laminae and varves, medium stiff, moist.		
59								

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS	<b>Top of PVC Elevation:</b> 12.3 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611381.9
<b>Date Started Drilling:</b> 6/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683046
<b>Date Finished Drilling:</b> 6/24/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	7 / 10	0	WET	CL/ML/SP		Reddish brown and gray CLAY, SILT and fine SAND layers (up to 0.1' layers of fine sand), varves, medium stiff, wet.		
62								
63								
64								
65								
66	6.8 / 10	0	WET	ML		Reddish brown SILT, wet.		
67								
68								
69								
70								
71	6.8 / 10	0	WET	CL/ML		Reddish brown and gray CLAY and SILT varves, wet.		
72								
73								
74								
75								
76	6.8 / 10	0	WET	ML		Reddish brown clayey SILT, wet.		
77								
78								
79								
80								

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> SGS	<b>Top of PVC Elevation:</b> 12.3 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611381.9
<b>Date Started Drilling:</b> 6/23/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683046
<b>Date Finished Drilling:</b> 6/24/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks					
81	6 / 10	0	WET	SP		Reddish brown poorly graded SAND, few silt, mostly fine sand, wet.		81 ft: 10% fines (silt/clay)					
82			WET	SC		Reddish brown clayey SAND with little fine to coarse gravel, medium dense, wet.		83 ft: 40% fines (silt/clay)					
83			DAMP	SC		Gray clayey SAND with little embedded coarse subrounded gravel, very dense, damp (Basal Till).							
84	6 / 10	0	DAMP	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 93-96 ft bgs (broken rock in clay matrix), competent at 96 ft bgs. End of boring at 100 ft bgs.		2-inch Schedule 40 PVC well screen: 93-96 ft bgs					
85									NA	SP		Reddish brown poorly graded SAND with few silt, fine sand (Basal Till).	90.5 ft: 10% fines (silt/clay)
86									WET TO DAMP	GC/SC		Gray fine to coarse GRAVEL, with some clayey sand, very dense, wet from 92-92.5 ft bgs, damp from 92.5-93 ft bgs (Basal Till).	Bentonite Seal: 90.5-92.5 ft bgs #0 Filter sand: 92.5-96.5 ft bgs
87	6 / 10	0	DAMP	BEDROCK		Gray bedrock (Stockton Formation), wet. Weathered from 93-96 ft bgs (broken rock in clay matrix), competent at 96 ft bgs. End of boring at 100 ft bgs.		Bentonite Seal: 96.5-100 ft bgs					
88													
89													

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611291.7
<b>Date Started Drilling:</b> 3/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683583
<b>Date Finished Drilling:</b> 3/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	5.3 / 10	0	DRY	FILL		Soft dig to 5 ft bgs; Grayish brown silty SAND, little fine to coarse gravel, dry (DGA) (FILL).		Riser set in grout
2								
3								
4								
5								
6	2.4 / 10	0	MOIST	FILL		Dark yellowish brown, poorly graded SAND with clay, fine to coarse sand, little sub-angular gravel, moist (FILL).		Grout 0-56 ft bgs
7								
8								
9	MOIST	FILL	FILL		Black and gray well graded GRAVEL, angular, fine to coarse gravel, moist (FILL).		Grout 0-56 ft bgs	
10								
11	MOIST	FILL	FILL		Black and gray well graded SAND with gravel, little fine to coarse subangular gravel, loose, moist (FILL).		Grout 0-56 ft bgs	
12								
13	MOIST	FILL	FILL		Black and gray well graded SAND with gravel, little fine to coarse subangular gravel, loose, moist (FILL).		Grout 0-56 ft bgs	
14								
15	MOIST	FILL	FILL		Black and gray well graded SAND with gravel, little fine to coarse subangular gravel, loose, moist (FILL).		Grout 0-56 ft bgs	
16								
17	MOIST	FILL	FILL		Black and gray well graded SAND with gravel, little fine to coarse subangular gravel, loose, moist (FILL).		Grout 0-56 ft bgs	
18								
19	MOIST	FILL	FILL		Black and gray well graded SAND with gravel, little fine to coarse subangular gravel, loose, moist (FILL).		Grout 0-56 ft bgs	
20								
			MOIST	SW-SC		Weak red (10YR 4/4), reddish gray and dark grayish		

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611291.7
<b>Date Started Drilling:</b> 3/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683583
<b>Date Finished Drilling:</b> 3/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	6 / 10	0	MOIST	SW-SC		brown (10YR 4/2) widely graded SAND with clay, fine to coarse sand, few sub-rounded to sub-angular fine gravel, hard.		
22			WET	SM		Reddish brown (2.5YR 5/4) silty SAND, fine to coarse sand, some fine to coarse sub-rounded gravel to cobbles, loose, wet.		
23	6 / 10	0	WET	SP-SM		Weak red (2.5YR 4/2) poorly graded SAND with silt, fine sand, loose.		
24								
25								
26								
27	8 / 10	0	WET	CH/ML		Weak red (2.5YR 4/2) fat CLAY with interbedded silt laminae, medium hard, wet.		26 ft: 5-10% fines (silt/clay)
28								
29								
30	8 / 10	0	WET	SM		Strong brown (7.5YR 4/6) silty SAND, fine sand, loose, wet. Yellowish groundwater at 33' to 37'.		29.5 ft: 20% fines (silt/clay)
31								
32	8 / 10	0	WET	SM				2-inch Schedule 40 PVC riser 0-60 ft bgs
33								
34								
35								
36								
37								
38								
39								

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611291.7
<b>Date Started Drilling:</b> 3/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683583
<b>Date Finished Drilling:</b> 3/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.4 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-42			WET	CH		Strong brown (7.5YR 4/6) fat CLAY with silt laminae, wet, yellowish groundwater.		
43-49	6 / 10	0	WET	CH/MH		Strong brown (7.5YR 4/6) fat CLAY with silt, laminae of silt and clay layers, medium hard, wet.		
50-52			WET	SP-SM		Reddish brown (2.5YR 4/3) poorly graded SAND silt, fine sand, few silt, wet.		
53-54				SP-SM		Reddish brown (2.5YR 4/3) poorly graded SAND with silt, fine sand, little medium sand.		52 ft: 15% fines (silt/clay)
55-59	7.2 / 10	0	MOIST	SM		Reddish brown (5YR 5/4) silty SAND, little sub-angular fine to sub-rounded coarse gravel, hard, moist (Basal Till).		53 ft: 30% fines (silt/clay)
56-58								Bentonite Seal 56-58 ft bgs
58-59								#0 Filter sand 58-66 ft bgs

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**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.



<b>Project Name:</b> Garfield Avenue Groundwater RI	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.2 ft NAVD88
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611291.7
<b>Date Started Drilling:</b> 3/17/2020	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 683583
<b>Date Finished Drilling:</b> 3/18/2020	<b>Core Size:</b> 3 in	<b>Boring Total Depth:</b> 72 ft
<b>Logged By:</b> V. Thayer	<b>Project Manager:</b> Shannon Gleason	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 114		<b>Surface Elevation:</b> 12.4 ft NAVD88


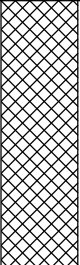

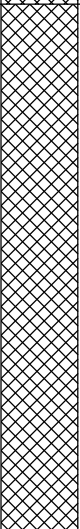
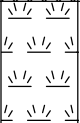
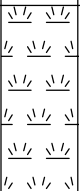

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	5 / 10	0	MOIST	SM				2-inch Schedule 40 Screen 60-65 ft bgs
62			MOIST	SW-SC		Reddish brown (5YR 4/3) widely graded SAND with silt or clay, fine to coarse sand, little fine to coarse gravel, few large gravel (2" to 3" wide), hard, moist (Basal Till).		64 ft: 15% fines (silt/clay)
63			MOIST	SM		Reddish brown (5YR 4/3) silty SAND, fine to coarse sand, few fine gravel, few coarse sub-rounded gravel (Basal Till).		65.5 ft: 20% fines (silt/clay)
64			DRY	BEDROCK		Gray mudstone and siltstone, wet (Lockatong Formation).		
65	2 / 2					Gray mudstone and siltstone, wet (Lockatong Formation). End of boring at 72 ft.		Bentonite Seal 66-72 ft bgs
66			WET	BEDROCK				
67								
68								
69								
70								
71								
72								

PPG WITH WELL CONSTRUCTION - - 25/21 12:23

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Percentage of fines (silt/clay) shown are an estimated value based on a field-testing method.

<b>Project Name:</b> Groundwater I - DNAPL Investigation	<b>Drilling Company:</b> SGS North America
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic
<b>Date Started Drilling:</b> 11/16/2017 9:00:00 AM	<b>Rig Type:</b>
<b>Date Finished Drilling:</b> 11/16/2017 10:40:00 AM	<b>Core Size:</b>
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian
<b>Physical Location:</b> Site 137	<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1		0	DRY	FILL		DGA, (7.5YR 4/2) brown, medium dense, dry, no odor, no staining	
2							
3		0	DRY	FILL		DGA, (5Y 6/1) gray, medium dense, dry, no odor, no staining	
4							
5							
6							
7		0	DRY	FILL		fine to medium SAND, little silt and gravel, (5YR 4/1) dark gray, medium dense, dry, no odor, no staining	
8		0	WET	FILL		DGA, (5YR 2.5/1) black, medium dense, wet no odor, no staining	
9							
10							
11							
12							
13							
14							
15							
16		0	MOIST	PT		PEAT (degraded vegetated material), (30% fibers, 70% organic silt), (5YR 2.5/1) black, moist, strong organic odor. Soils consistent with MM.	
17							
18		0	MOIST	PT		PEAT (degraded vegetated material), 30% fibers, 70% organic silt, (5YR 5/1) gray, moist strong organic odor. Soils consistent with MM.	
19							
20							
21		0	WET	ML		SILT, little fine to medium sand little gravel, (5YR 5/1) gray, soft, wet, no odor, no staining. Soils consistent with	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater I - DNAPL Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611097.7
<b>Date Started Drilling:</b> 11/16/2017 9:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682918.1
<b>Date Finished Drilling:</b> 11/16/2017 10:40:00 AM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 137		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23						UNDno.	
24	0		WET	SP		SAND, little silt, (5YR 5/1) gray, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	
25							
26	28.0		WET	SP-SM		fine to medium SAND, little gravel some silt, (5YR 4/3) reddish brown, wet. Soils consistent with UNDno.	
27	67.0		MOIST	SP		fine SAND, some silt, (5YR 4/3) reddish brown, medium dense, moist to wet. Soils consistent with UNDno.	
28	148.0		WET	SP		fine SAND, some silt, (5YR 4/3) reddish brown, medium dense, wet hydrocarbon staining. Soils consistent with UNDno.	
29							
30							
31							
32							
33							137-S1-32.5-33.0
34							
35							
36							
37							
38	122.0		WET	SP		fine SAND, some silt, (5YR 4/3) reddish brown, medium dense, wet. Soils consistent with UNDno.	
39							
40							
41							
42							
43							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater I - DNAPL Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611097.7
<b>Date Started Drilling:</b> 11/16/2017 9:00:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682918.1
<b>Date Finished Drilling:</b> 11/16/2017 10:40:00 AM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 137		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45						fine SAND, some silt, (5YR 4/3) reddish brown, medium dense, wet. Soils consistent with UNDno.	
46		67.0	WET	SP			
47							
48							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Groundwater I - DNAPL Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611066
<b>Date Started Drilling:</b> 11/16/2017 12:00:00 PM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682952.4
<b>Date Finished Drilling:</b> 11/16/2017 1:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 137		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1		0.0	DRY	FILL		DGA, (7.5YR 4/2) brown, medium dense, dry	
2							
3			DRY	FILL		DGA, (5YR 4/1) dark gray (7.5YR 4/2) brown, medium dense, dry	
4							
5							
6							
7			DRY	FILL		DGA, (5YR 2.5/1) black, medium dense, dry	
8			DRY	FILL		DGA, (5YR 2.5/1) black, medium dense, dry	
9							
10							
11							
12							
13							
14							
15							
16			MOIST	PT		PEAT (degraded vegetated material), (5YR 5/1) gray, moist strong organic odor. Soils consistent with MM.	
17							
18		20.0	WET	SP-SM		SILT, fine to medium sand some gravel, (5YR 5/1) gray, wet. Soils consistent with UNDno.	
19							
20				NR		No Recovery	
21							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 14:17

<b>Project Name:</b> Groundwater I - DNAPL Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611066
<b>Date Started Drilling:</b> 11/16/2017 12:00:00 PM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682952.4
<b>Date Finished Drilling:</b> 11/16/2017 1:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 137		<b>Surface Elevation:</b> 10.8 ft NAVD88

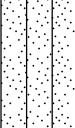

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23	230.0	230.0	WET	SP-SM		fine to medium SAND, some silt, (5YR 4/3) reddish brown, medium dense, wet. Soils consistent with UNDno.	
24							
25							
26							
27							
28			WET	SM		fine to medium SAND, some silt, (5YR 4/3) reddish brown, medium dense, petroleum staining, free product from 31.5' to 33.5', petroleum sheen from 28' to 31.5', wet. Soils consistent with UNDno.	
29							
30							
31							
32							
33							137-W1-32.5-33.0
34							
35							
36							
37							
38	40.0		WET	SM		fine to medium SAND, some silt, (5YR 4/3) reddish brown, medium dense, wet. Soils consistent with UNDno.	
39							
40							
41							
42							
43							

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 14:17

<b>Project Name:</b> Groundwater I - DNAPL Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611066
<b>Date Started Drilling:</b> 11/16/2017 12:00:00 PM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 682952.4
<b>Date Finished Drilling:</b> 11/16/2017 1:30:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 137		<b>Surface Elevation:</b> 10.8 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45							
46		10.0	WET	SW-SM		fine SAND, some silt, (5YR 4/3) reddish brown. Soils consistent with UNDno.	
47							137-W1-47.5-48.0
48							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611057.994
<b>Date Started Drilling:</b> 2/12/2017 10:50:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683942.359
<b>Date Finished Drilling:</b> 2/12/2017 11:50:00 AM	<b>Core Size:</b> 3.0 in	<b>Boring Total Depth:</b> 21 ft
<b>Logged By:</b> TI	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.0
<b>Physical Location:</b> Actual - GA PDI		<b>Surface Elevation:</b> 11.982 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID	
		0.0		CONCRETE		Concrete sidewalk		
1	4.5		dry	FILL		fine to coarse SAND, little fine to coarse gravel, (7.5YR 4/1) dark gray, loose, dry to moist, no odor, no staining.	GAR-PDI-A11B-0.5-1.0	
2			moist	FILL			fine to medium SAND, little silt, trace coarse gravel, (7.5YR 3/2) dark brown, medium dense, moist, no odor, no staining.	
3			moist	FILL		fine silty SAND, little coarse gravel, (7.5YR 2.5/2) very dark brown, medium dense, moist, no odor, no staining.	GAR-PDI-A11B-2.0-2.5	
4								GAR-PDI-A11B-4.0-4.5
5				NR		NO RECOVERY		
6	3.5	0.0	wet	FILL		fine to coarse SAND, some fine to coarse gravel, (7.5YR 4/2) brown, medium dense, wet, no odor, no staining, water at 5.0 feet.	GAR-PDI-A11B-5.5-6.0	
7			wet	OL			fine sandy SILT, little coarse gravel, (7.5YR 3/2) dark brown, medium stiff, wet, no odor, no staining.	GAR-PDI-A11B-6.0-6.5
8							SILT, trace fine sand and organics, (7.5YR 4/2) brown, medium stiff, wet, no odor, no staining. Soils consistent with UNDorg.	
9						NR		NO RECOVERY
10	4.5	0.0	wet	OL		SILT, trace fine sand and organics, (7.5YR 4/2) brown, medium stiff, wet, no odor, no staining. Soils consistent with UNDorg.	GAR-PDI-A11B-10.0-10.5	
11			wet	ML			SILT, little coarse gravel, trace fine sand, (7.5YR 6/1) gray, medium stiff, wet, no odor, no staining. Soils consistent with UNDno.	
12			wet	SP		fine to medium SAND, some fine to coarse gravel, (7.5YR 5/1) gray, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-A11B-12.0-12.5	
13								
14			wet	SP		fine to coarse SAND, some fine to coarse gravel, (7.5YR 2.5/2) very dark brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-A11B-14.0-14.5	
15				NR		NO RECOVERY		
16	5	0.0	wet	SM		SILT, some fine to coarse gravel, (7.5YR 4/1) dark gray, soft, wet, no odor, no staining. Soils consistent with UNDno.		
17			wet	SP		fine to coarse SAND, some fine to coarse gravel, (5YR 3/2) dark reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-A11B-16.0-16.5	
18								GAR-PDI-A11B-18.0-18.5
19								
20	1	0.0					GAR-PDI-A11B-20.0-20.5	
21								


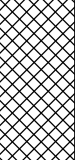
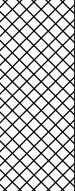
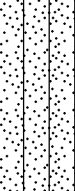
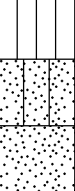

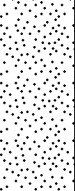
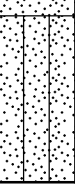

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** 1) 3 attempts were made to obtain best recovery 2) No CCPW (COPR or GGM) present in any interval of this boring 3) MM/UND confirmed to be 1 ft thick.

PPG - 2012-08 RA PPG LOGS - A.GDT - 4/19/17 12:05



<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> direct push	<b>Coordinates (NJSPNAD83) x:</b> 610825.372
<b>Date Started Drilling:</b> 12/11/2016 11:35:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683625.87
<b>Date Finished Drilling:</b> 12/11/2016 12:35:00 PM	<b>Core Size:</b> 3.0 in	<b>Boring Total Depth:</b> 20 ft
<b>Logged By:</b> Eric Stone	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.0
<b>Physical Location:</b> Actual - GA PDI		<b>Surface Elevation:</b> 10.319 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1-5	5	0.0	slightly moist	CONCRETE FILL		Concrete sidewalk	
			moist	FILL		fine to medium SAND, little ash and fine to medium gravel, (5YR 4/4) reddish brown, medium dense, slightly moist, no odor, no staining.	
			moist	FILL		fine silty SAND, little brick, trace ash and coal, (7.5YR 4/3) brown, medium dense, moist, no odor, no staining.	
5-10	5	0.0	moist	FILL		SILT, little concrete debris, trace fine gravel, ash and coal, (7.5YR 4/3) brown, soft, moist to wet, no odor, no staining, water at 5.0 feet.	
			wet	SM		fine to medium silty SAND, some fine to medium gravel, (5YR 4/4) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-B`2A-6.0-6.5 GAR-PDI-B`2A-6.5-7.0 GAR-PDI-B`2A-7.0-7.5 GAR-PDI-B`2A-8.0-8.5
			wet	ML		SILT, (7.5YR 4/3) brown, soft, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-B`2A-10.0-10.5
10-15	5	0.0	wet	SM		fine to medium silty SAND, little fine gravel, (5YR 4/4) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDorg.	
			wet	SP		fine to coarse SAND, some fine to medium gravel, trace silt, (5YR 4/4) reddish brown, dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-B`2A-13.0-13.5
			wet	SM		fine silty SAND, (5YR 4/4) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-B`2A-15.0-15.5 GAR-PDI-B`2A-18.0-18.5
15-20	5	0.0					

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** 1) 3 attempts were made to obtain best recovery 2) MM/UND confirmed to be 1 ft thick 3) No CCPW (COPR or GGM) present in any interval of this boring.  
 4) Monitoring well 114-MW42A was installed in this location.

PPG - 2012-09 RA PPG\_LOGS\_A.GDT - 4/7/17 12:03

<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> direct push	<b>Coordinates (NJSPNAD83) x:</b> 610814.856
<b>Date Started Drilling:</b> 12/11/2016 1:15:00 PM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683606.098
<b>Date Finished Drilling:</b> 12/11/2016 2:30:00 PM	<b>Core Size:</b> 3.0 in	<b>Boring Total Depth:</b> 21 ft
<b>Logged By:</b> Eric Stone	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.0
<b>Physical Location:</b> Actual - GA PDI		<b>Surface Elevation:</b> 10.352 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID	
		0.0		CONCRETE		Concrete sidewalk		
1	5	0.0	dry	FILL		fine to medium SAND, some ash, little fine gravel, (2.5Y 4/2) dark grayish brown, medium dense, dry, no odor, no staining.	GAR-PDI-B`3A-0.5-1.0	
2			dry	FILL			GAR-PDI-B`3A-2.0-2.5	
3								
4			moist	FILL			SILT, little brick, trace coal, (7.5YR 4/3) brown, soft, moist to wet, no odor, no staining, water at 5.0 ft bgs.	
5	5	0.0				fine to coarse SAND, some fine to medium gravel, (5YR 4/3) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.		
6							GAR-PDI-B`3A-6.5-7.0	
7			wet	SP			GAR-PDI-B`3A-7.0-7.5	
8	5	0.0				fine to coarse GRAVEL, some fine to medium sand, (5YR 4/4) reddish brown, dense, wet, no odor, no staining. Soils consistent with UNDno.		
9								
10								GAR-PDI-B`3A-10.0-10.5
11			wet	GW			GAR-PDI-B`3A-12.0-12.5	
12	5	0.0				fine to coarse SAND, some fine to medium gravel, (5YR 4/4) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.		
13								
14								GAR-PDI-B`3A-14.0-14.5
15	5	0.0				fine to coarse SAND, some fine to medium gravel, (5YR 4/4) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.		
16			wet	SP			GAR-PDI-B`3A-16.0-16.5	
17								
18	1	0.0				fine to coarse SAND, some fine to medium gravel, (5YR 4/4) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.		
19								
20								GAR-PDI-B`3A-18.0-18.5
21							GAR-PDI-B`3A-20.0-20.5	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** 1) 3 attempts were made to obtain best recovery 2) MM/UND confirmed to be 1 ft thick 3) No CCPW (COPR or GGM) present in any interval of this boring.

PPG - 2012-08 RA PPG LOGS - A.GDT - 4/7/17 12:03




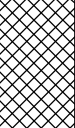
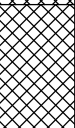

<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> Direct Push	<b>Coordinates (NJSPNAD83) x:</b> 611144.3
<b>Date Started Drilling:</b> 12/18/2016 9:20:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683957.33
<b>Date Finished Drilling:</b> 12/18/2016	<b>Core Size:</b> 3.0 in	<b>Boring Total Depth:</b> 25 ft
<b>Logged By:</b> Kyle Willis	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 3.5
<b>Physical Location:</b> Actual - GA PDI		<b>Surface Elevation:</b> 12.05 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0		ASPHALT		ASPHALT	
0-1				CONCRETE		Concrete slab	
1-2	5		moist	FILL		CINDERS, little ash, (5YR 2.5/1) black, loose, moist, no odor, no staining.	GAR-PDI-C13B-2.0-2.5
2-3			wet	FILL		fine to coarse GRAVEL, little cobbles, (5YR 2.5/1) black, dense, wet, no odor, no staining, water at 3.5 feet.	
3-4			wet	FILL		SILT, trace wood and fill debris, (5YR 2.5/1) black, soft, wet, no odor, no staining.	GAR-PDI-C13B-4.0-4.5
4-5			wet	FILL		SILT, little ash, trace fill debris, (5YR 2.5/1) black, soft, wet, no odor, no staining.	
5-6		0.0	wet	FILL			GAR-PDI-C13B-6.0-6.5
6-7	4		wet	FILL		fine to medium SAND, little fill debris, trace ash, (5YR 2.5/2) dark reddish brown, medium dense, wet, no odor, no staining.	
7-8							GAR-PDI-C13B-8.0-8.5
8-9			wet	SW NR		fine to coarse SAND, little fine to coarse gravel, (5YR 4/3) reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-C13B-8.5-9.0
9-10						NO RECOVERY	
10-11		0.0	wet	SM		fine to coarse silty SAND, little fine to coarse gravel, (5YR 3/2) dark reddish brown, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-C13B-10.0-10.5
11-12			wet	OL		Organic SILT, 90% organic silt, 10% organic fibers, (7.5YR 3/2) dark brown, firm, wet, slight organic odor, no staining. Soils consistent with UNDorg.	
12-13	4.5		wet	SM		fine silty SAND, (10G 7/1) light greenish gray, medium dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-C13B-12.0-12.5
13-14							GAR-PDI-C13B-14.0-14.5
14-15				NR		NO RECOVERY	
15-16		0.0	wet	SM		fine to coarse silty SAND, little fine to coarse gravel, (5YR 4/3) reddish brown, dense, wet, no odor, no staining. Soils consistent with UNDno.	GAR-PDI-C13B-16.0-16.5
16-17	5						
17-18							GAR-PDI-C13B-18.0-18.5
18-19							
19-20							
20-21	5	0.0					GAR-PDI-C13B-20.0-20.5
21-22							
22-23							
23-24							
24-25							

**Notes:**  
 bgs - below surface grade COPR - chromite ore processing residue UNDno - non-organic undisturbed native deposits MGP - manufactured gas plant  
 MM - meadow mat GGM - green grey mud UNDorg - organic undisturbed native deposits CCPW - chromate chemical production waste

**Comments:** 1) 3 attempts were made to obtain best recovery 2) No CCPW (COPR or GGM) present in any interval of this boring 3) MM/UND confirmed to be 1 ft thick.

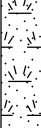


<b>Project Name:</b> PPG Garfield Ave	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60240739	<b>Drilling Method:</b> direct push	<b>Coordinates (NJSPNAD83) x:</b> 611173.388
<b>Date Started Drilling:</b> 12/11/2016 9:45:00 AM	<b>Rig Type:</b>	<b>Coordinates (NJSPNAD83) y:</b> 683976.164
<b>Date Finished Drilling:</b> 12/11/2016 11:20:00 AM	<b>Core Size:</b> 3.0 in	<b>Boring Total Depth:</b> 9.5 ft
<b>Logged By:</b> Eric Stone	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.0
<b>Physical Location:</b> Actual - GA PDI		<b>Surface Elevation:</b> 12.891 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1-2	5	0.0		CONCRETE		Concrete sidewalk	
			dry	FILL		DGA, fine to coarse SAND, little asphalt, (2.5Y 5/2) grayish brown, loose, dry, no odor, no staining.	
			dry	FILL		DGA, fine to coarse SAND, some fine to medium gravel, (7.5YR 6/4) light brown, medium dense, dry, no odor, no staining.	
5-6	4.5	0.0	wet	FILL		fine to coarse SAND, some fine to coarse gravel, (7.5YR 4/3) brown, medium dense, wet, no odor, no staining, water at 5.0 feet.	GAR-PDI-D14B-5.0-5.5
7-8			wet	FILL		ASH, some fine to coarse sand, little fill debris, (2.5Y 5/2) grayish brown, medium dense, wet, no odor, no staining.	GAR-PDI-D14B-7.0-7.5
9			wet	GW		fine to coarse GRAVEL, some fine to medium sand, (5YR 4/4) reddish brown, medium dense, wet, no odor, no staining, refusal at 9.5 feet. Soils consistent with UNdno.	GAR-PDI-D14B-8.5-9.0 GAR-PDI-D14B-9.0-9.5

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNdno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

**Comments:** 1) 3 attempts were made to obtain best recovery 2) No CCPW (COPR or GGM) present in any interval of this boring.

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 611443.5
<b>Date Started Drilling:</b> 1/29/2018 7:00:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683987.8
<b>Date Finished Drilling:</b> 2/2/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.94
<b>Physical Location:</b> Berry Lane Park		<b>Surface Elevation:</b> 15.2 ft NAVD88



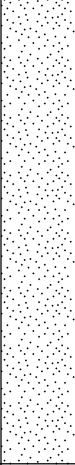

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1				FILL		Organic Topsoil	
2		0		FILL		DGA, (5Y 7/1) light gray, fine to coarse sand, little fine to coarse gravel, dry to wet, medium dense to very dense, no odor or staining, wet at 8'	
3							
4							
5							
6	3	0					
7							
8							
9							
10							
11							
12	8	0					
13							
14							
15							
16							
17	2	0					
18							
19	2	0					
20							
21			wet	GW		fine to medium GRAVEL, trace fine sand, (5YR 4/1) dark gray, medium dense, wet no odor no staining. Soils	

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 15:28

<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 611443.5
<b>Date Started Drilling:</b> 1/29/2018 7:00:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683987.8
<b>Date Finished Drilling:</b> 2/2/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.94
<b>Physical Location:</b> Berry Lane Park		<b>Surface Elevation:</b> 15.2 ft NAVD88


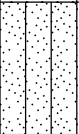
Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
23	8	0	wet	SW		consistent with UNDno.	
24						fine to coarse SAND, some fine to coarse gravel, (5YR 4/3) reddish brown, medium dense, wet no odor no staining. Soils consistent with UNDno.	
25	10	0					
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37		wet	SP		fine SAND, trace silt, (5YR 4/3) reddish brown, medium dense, wet no odor no staining. Soils consistent with UNDno.		
38							
39							
40							
41							
42							
43		wet	SW		fine to coarse SAND, little fine to coarse gravel, (5YR 4/3) reddish brown, medium dense, wet no odor no		

**Notes:**  
 bgs - below surface grade    COPR - chromite ore processing residue    UNDno - non-organic undisturbed native deposits    MGP - manufactured gas plant  
 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

PPG - 2012-09 RA PPG LOGS - A.GDT - 6/7/18 15:28

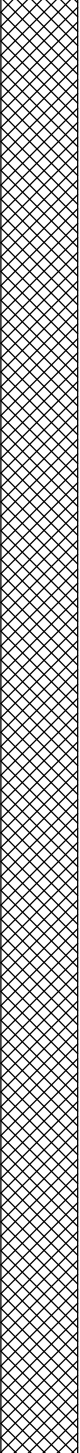
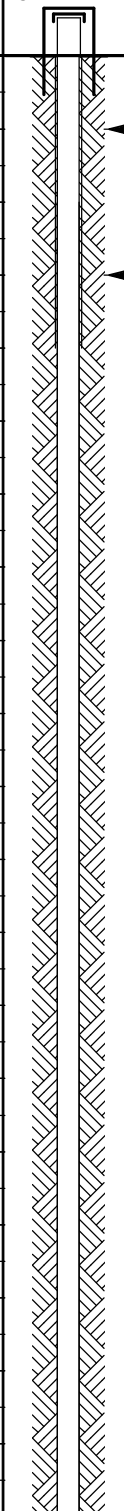
<b>Project Name:</b> Groundwater Remedial Investigation	<b>Drilling Company:</b> SGS North America	
<b>Project Number:</b> 60550261	<b>Drilling Method:</b> Sonic Vibration	<b>Coordinates (NJSPNAD83) x:</b> 611443.5
<b>Date Started Drilling:</b> 1/29/2018 7:00:00 AM	<b>Rig Type:</b> Sonic	<b>Coordinates (NJSPNAD83) y:</b> 683987.8
<b>Date Finished Drilling:</b> 2/2/2018 3:00:00 PM	<b>Core Size:</b>	<b>Boring Total Depth:</b> 48 ft
<b>Logged By:</b> E. Acs	<b>Project Manager:</b> Scott Mikaelian	<b>Depth to Water:</b> 5.94
<b>Physical Location:</b> Berry Lane Park		<b>Surface Elevation:</b> 15.2 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
45						staining. Soils consistent with UNDno.	
46			moist	SM		fine silty SAND, trace gravel, (5YR 4/3) reddish brown, dense, moist no odor no staining, (glacial till). Soils consistent with UNDno.	
47							
48							

**Notes:**  
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 MM - meadow mat    GGM - green grey mud    UNDorg - organic undisturbed native deposits    CCPW - chromate chemical production waste

Comments:

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 18.30 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610786.4
<b>Date Started Drilling:</b> 2021-06-03	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682809.4
<b>Date Finished Drilling:</b> 2021-06-03	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> J. Patel	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.04 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1	4 / 10	0	moist	FILL		DGA [FILL] - 10YR 4/2 (dark grayish brown / dark yellowish brown), moist - no odor, no staining		annular seal (bent-cement grout) (0-74 ft bgs)  Riser (Schedule 40 PVC) (0-78 ft bgs)
2								
3								
4								
5								
6								
7								
8								
9								
10								
11	3 / 10							
12								
13								
14								
15								
16								
17								
18								
19								

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Well is to be repurposed for groundwater RI to delineate impacts within the basal till south of Carteret Avenue.



<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 18.30 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610786.4
<b>Date Started Drilling:</b> 2021-06-03	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682809.4
<b>Date Finished Drilling:</b> 2021-06-03	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> J. Patel	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.04 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21			moist	PT		Peat [MEADOW MAT] - 10BG 3/1 (very dark greenish gray), moist - peaty odor, no staining		
22			moist	CL		Lean clay (CL), <10% subangular, fine sand, 10-20% silt [NATIVE] - 10R 7/1 (light gray), moist - no odor, no staining		
23								
24								
25	4 / 10							
26								
27								
28								
29								
30			wet	SM		Silty sand (SM), fine to medium, well-graded, 20-30% silt [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), wet - no odor, no staining		
31								
32								
33								
34								
35	5 / 10							
36								
37								
38			wet	MH		Elastic silt (MH) [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), wet - no odor, no staining		
39								

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

**Notes:** bgs = below surface grade      NAD83 = North American Horizontal Datum of 1983      NJSP = New Jersey State Plane      ppm = parts per million      ft = feet  
DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Well is to be repurposed for groundwater RI to delineate impacts within the basal till south of Carteret Avenue.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 18.30 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610786.4
<b>Date Started Drilling:</b> 2021-06-03	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682809.4
<b>Date Finished Drilling:</b> 2021-06-03	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> J. Patel	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.04 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
41	10 / 10								
42									
43									
44									
45									
46									
47									
48				wet	MH				
49									
50									
51	10 / 10								
52									
53									
54									
55									
56							Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10YR 5/2 (grayish brown), moist - no odor, no staining		
57									
58				moist	CL-ML-SP				
59									

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Well is to be repurposed for groundwater RI to delineate impacts within the basal till south of Carteret Avenue.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 18.30 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610786.4
<b>Date Started Drilling:</b> 2021-06-03	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682809.4
<b>Date Finished Drilling:</b> 2021-06-03	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> J. Patel	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.04 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	10 / 10							
62								
63								
64								
65								
66				moist	CL-ML-SP			
67								
68								
69								
70								
71								
72								
73			moist	SW-SM		Well-graded sand with silt (SW-SM), subrounded, 5-15% silt, 15-25% cobbles [NATIVE] - 10R 2.5/2 (very dusky red), moist - no odor, no staining		
74								Annular seal (bentonite slurry) (74-76 ft bgs)
75	10 / 10					Fine to coarse SAND and fine to coarse gravel with silt and clay, medium dense to dense [Basal Till] - 10R 2.5/2 (very dusky red), moist - no odor, no staining		
76								Sand Pack (#0 Sand Pack) (76-88 ft bgs)
77			moist	SW-GW				
78								Screen (Schedule 40 PVC) (78-88 ft bgs)
79								

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

**Notes:** bgs = below surface grade    NAD83 = North American Horizontal Datum of 1983    NJSP = New Jersey State Plane    ppm = parts per million    ft = feet  
DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

**Comments:** Well is to be repurposed for groundwater RI to delineate impacts within the basal till south of Carteret Avenue.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 18.30 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 610786.4
<b>Date Started Drilling:</b> 2021-06-03	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682809.4
<b>Date Finished Drilling:</b> 2021-06-03	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 100 ft
<b>Logged By:</b> J. Patel	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Site 132		<b>Surface Elevation:</b> 15.04 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81-84	3 / 10		moist	SW-GW				
85-88								
88-89			dry	BEDROCK		Bedrock, Diabase [NATIVE] - 10YR 3/1 (very dark gray), dry - no odor, no staining		Sand Pack (#00 Sand Pack) (88-89 ft bgs) annular seal (bent-cement grout) (89-100 ft bgs)
89-90								
90-95	4 / 10		dry	BEDROCK		Bedrock, Metamorphosed shale (Banded Hornfels) [Lockatong Formation] - 10YR 3/1 (very dark gray), dry - no odor, no staining		
95-99								

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

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**Comments:** Well is to be repurposed for groundwater RI to delineate impacts within the basal till south of Carteret Avenue.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.76 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611406.3
<b>Date Started Drilling:</b> 2021-05-19	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682918.3
<b>Date Finished Drilling:</b> 2021-05-19	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.91 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1-10	5 / 10	0	dry	FILL		DGA, <10% subrounded, medium gravel [FILL] - 7.5YR 4/2 (brown), dry - no odor, no staining		annular seal (bent-cement grout) (0-56 ft bgs) Riser (Schedule 40 PVC) (0-60 ft bgs)
12-14			moist	PT		Peat [MEADOW MAT] - 7.5YR 2.5/2 (very dark brown), moist - peaty odor, no staining - cohesive, soft		
14-18	4.2 / 10	2.9	wet	ML		Sandy silt (ML), 25-35% subrounded, fine sand, 5-15% subangular, fine to medium gravel [NATIVE] - 10YR 7/1 (light gray), wet - organics odor, no staining - cohesive, medium stiff		
18-19			wet	SW		Well-graded sand (SW), fine to medium, subrounded, <10% subrounded, medium gravel [NATIVE] - 10R 5/1 (reddish gray), wet - no odor, no staining		

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

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**Comments:** Lithology taken from boring log for HAL-P3-IRM-003D.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.76 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611406.3
<b>Date Started Drilling:</b> 2021-05-19	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682918.3
<b>Date Finished Drilling:</b> 2021-05-19	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.91 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	8.5 / 10	21.8	wet	SW				
22						Well-graded sand (SW), fine to medium, subrounded [NATIVE]		
23			wet	SW		- 10YR 5/1 (gray), wet - no odor, no staining		
24								
25						Well-graded sand (SW), fine to medium, subrounded [NATIVE]		
26						- 10R 4/8 (red), dry - no odor, no staining		
27								
28			dry	SW				
29								
30						Well-graded sand (SW), fine to medium, subrounded [NATIVE]		
31						- 10BG 4/1 (dark greenish gray), moist - solvent odor, some DNAPL staining - cohesive, soft		
32								
33			moist	SW				
34								
35	10 / 10	82.8				Well-graded sand (SW), fine to medium, subrounded [NATIVE]		
36						- 10R 3/3 (dusky red), dry - solvent odor, no staining		
37								
38			dry	SW				
39								

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

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**Comments:** Lithology taken from boring log for HAL-P3-IRM-003D.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.76 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611406.3
<b>Date Started Drilling:</b> 2021-05-19	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682918.3
<b>Date Finished Drilling:</b> 2021-05-19	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.91 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41-44	10 / 10	322.4	dry	SW		Well-graded sand (SW), fine to medium, subrounded, <10% subrounded, fine to medium gravel [NATIVE] - 10R 3/6 (dark red), dry - solvent odor, heavy DNAPL staining - cohesive, soft		
45-48			dry	SW		Well-graded sand (SW), fine to medium, subrounded [NATIVE] - 10R 3/3 (dusky red), dry - solvent odor, no staining		
49-52	9 / 10	0.5	wet	SW		Well-graded sand (SW), fine to medium, subrounded, <10% silt [NATIVE] - 10R 3/3 (dusky red), wet - no odor, no staining		
53-55			moist	SW		Well-graded sand (SW), fine to medium, subrounded, <10% silt [NATIVE] - 10R 3/3 (dusky red), moist - no odor, no staining		
56-59			moist	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), moist - no odor, no staining		Annular seal (bentonite slurry) (56-58 ft bgs)  Sand Pack (#0 Sand Pack) (58-80 ft bgs)

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**Comments:** Lithology taken from boring log for HAL-P3-IRM-003D.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.76 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611406.3
<b>Date Started Drilling:</b> 2021-05-19	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682918.3
<b>Date Finished Drilling:</b> 2021-05-19	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 80 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.91 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks		
61	10 / 10	8.4	moist	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/1 (dark reddish gray), moist - no odor, no staining		Screen (Stainless Steel) (60-80 ft bgs)		
62										
63										
64										
65										
66	8.5 / 10	0	wet	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/3 (dusky red), wet - no odor, no staining				
67										
68										
69										
70										
71			moist	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/3 (dusky red), moist, no odor, no staining at 75 ft.				
72										
73										
74										
75										
76										
77										
78										
79										
80										

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**Comments:** Lithology taken from boring log for HAL-P3-IRM-003D.



<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.17 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611455.5
<b>Date Started Drilling:</b> 2021-05-20	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682962.6
<b>Date Finished Drilling:</b> 2021-05-20	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 91 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 11.10 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
0 - 10	5 / 10	0	dry	FILL		DGA, 10-20% subrounded, fine to medium gravel [FILL] - 10YR 5/1 (gray), dry - no odor, no staining		annular seal (bent-cement grout) (0-56 ft bgs) Riser (Schedule 40 PVC) (0-60 ft bgs)
10 - 15	7 / 10	0	dry	PT		Peat [MEADOW MAT] - 10YR 4/3 (brown), dry - peaty odor, no staining		
15 - 19			moist	ML		Silt (ML), 5-15% roots [NATIVE] - 10YR 3/3 (dark brown), moist - no odor, no staining		

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DGA = dense graded aggregate    NAVD88 = North American Vertical Datum of 1988    PID = photoionization detector    USCS = Unified Soil Classification System    in = inches

Comments:

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.17 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611455.5
<b>Date Started Drilling:</b> 2021-05-20	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682962.6
<b>Date Finished Drilling:</b> 2021-05-20	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 91 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 11.10 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21	5 / 10	0	wet	ML		Silt (ML), 5-15% subrounded, fine to medium sand [NATIVE] - 10YR 5/1 (gray), wet, no odor, no staining at 20 ft		
22-23			wet	SW		Well-graded sand, fine to medium, subrounded, <10% silt [NATIVE] - 10YR 5/1 (gray), wet, no odor, no staining at 22 ft		
24-27			moist	SW		Well-graded sand (SW), fine to medium, subrounded [NATIVE] - 10R 3/3 (dusky red), moist - no odor, no staining		
28-29								
30-37	7 / 10	96.1	moist	SW		Well-graded sand, fine to medium, subrounded [NATIVE] - 10R 3/3 (dusky red), moist, solvent odor, some DNAPL staining at 30 ft		
38-39			moist	ML		Silt (ML) [NATIVE] - 10R 3/3 (dusky red), moist - solvent odor, some DNAPL staining		

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Comments:

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.17 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611455.5
<b>Date Started Drilling:</b> 2021-05-20	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682962.6
<b>Date Finished Drilling:</b> 2021-05-20	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 91 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 11.10 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks	
41	8 / 10	379.1	wet	SW		Well-graded sand (SW), fine to medium, subrounded [NATIVE] - 10R 3/3 (dusky red), wet - solvent odor, trace DNAPL staining			
42			moist	SW		Well-graded sand, fine to medium, subrounded [NATIVE] - 10R 3/3 (dusky red), moist, solvent odor, heavy DNAPL staining at 42 ft			
43									
44									
45									
46			moist	ML		Silt (ML), 5-15% clay [NATIVE] - 10R 3/3 (dusky red), moist - solvent odor, no staining			
47						Silt (ML), <10% subrounded, fine to medium sand [NATIVE] - 10R 3/3 (dusky red), dry - solvent odor, no staining			
48			dry	ML					
49									
50	10 / 10	94.9	moist	SW		Well-graded sand (SW), fine to medium, subrounded [NATIVE] - 10R 2/2 (very dusky red), moist - solvent odor, trace DNAPL staining			
51									
52						Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), moist - no odor, no staining			
53									
54									
55									
56			moist	CL-ML-SP				Annular seal (bentonite slurry) (56-58 ft bgs)	
57									
58								Sand Pack (#0 Sand Pack) (58-80 ft bgs)	
59									

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Comments:

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.17 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611455.5
<b>Date Started Drilling:</b> 2021-05-20	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682962.6
<b>Date Finished Drilling:</b> 2021-05-20	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 91 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 11.10 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	10 / 10	0	moist	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/3 (dusky red), moist, no odor, no staining at 60 ft		Screen (Stainless Steel) (60-80 ft bgs)
62						Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), moist, no odor, no staining at 61 ft		
63								
64								
65								
66			moist	CL-ML-SP				
67								
68								
69								
70	8 / 10	0				Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10r 3/4 (dusky red / dark reddish brown), wet, no odor, no staining, cohesive, medium stiff at 70 ft		
71								
72								
73								
74								
75			wet	CL-ML-SP				
76								
77								
78								
79								

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Comments:

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 15.17 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611455.5
<b>Date Started Drilling:</b> 2021-05-20	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682962.6
<b>Date Finished Drilling:</b> 2021-05-20	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 91 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 11.10 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81	7 / 10	0	wet	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10r 3/4 (dusky red / dark reddish brown), wet, no odor, no staining, cohesive, medium stiff at 70 ft		Sand Pack (#0 Sand Pack) (80-83 ft bgs)  Annular seal (bentonite slurry) (83-91 ft bgs)
82			wet	SM		Silty sand, fine to medium, well-graded, subrounded, 10-20% silt [NATIVE] - 10R 3/3 (dusky red), wet, no odor, no staining at 82 ft		
83			moist	SM		Silty sand (SM), fine to medium, well-graded, subrounded, 20-30% silt, 5-15% subangular, fine to medium gravel [NATIVE] - 10R 3/3 (dusky red), moist - no odor, no staining		
84								
85								
86								
87								
88								
89								
90	/	0	dry	SW-GW		Gravelly silt with sand, 20-30% subrounded, fine to medium sand, 20-30% subangular, fine to medium gravel [Basal Till] - 10YR 5/1 (gray), dry - no odor, no staining		
91								

PPG WITH WELL CONSTRUCTION - - 21-8-17 08:38

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**Comments:**

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.83 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611460.5
<b>Date Started Drilling:</b> 2021-05-25	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682906.5
<b>Date Finished Drilling:</b> 2021-05-25	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 90 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.70 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
1						DGA, 25-35% subrounded, fine to medium sand, 5-15% subangular, fine to medium gravel [FILL] - 10YR 5/3 (brown), dry - no odor, no staining		annular seal (bent-cement grout) (0-56 ft bgs)  Riser (Schedule 40 PVC) (0-60 ft bgs)
2								
3								
4								
5	6 / 10	0						
6			dry	FILL				
7								
8								
9								
10								
11					Silt (ML), <10% subangular, fine to medium gravel [NATIVE] - 10R 4/1 (dark reddish gray), dry - no odor, no staining			
12								
13								
14								
15	5 / 10	0						
16			dry	ML				
17								
18								
19								

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 DGA = dense graded aggregate      NAVD88 = North American Vertical Datum of 1988      PID = photoionization detector      USCS = Unified Soil Classification System      in = inches

**Comments:** Well was originally installed on 5/21/2021; re-drilled due to damaged threading in PVC riser.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.83 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611460.5
<b>Date Started Drilling:</b> 2021-05-25	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682906.5
<b>Date Finished Drilling:</b> 2021-05-25	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 90 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.70 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
21-22	8 / 10	0	moist	ML		Silt (ML), <10% subangular, fine to medium gravel [NATIVE] - 10YR 5/1 (gray), moist - no odor, no staining		
23-24			moist	SW		Well graded sand, fine to medium, subrounded [NATIVE] - 10YR 5/1 (gray), moist, no odor, no staining at 23 ft		
25-26			moist	SW		Well graded sand (SW), fine to medium, subrounded, <10% subangular, fine to medium gravel [NATIVE] - 10R 3/3 (dusky red), moist - no odor, no staining		
27-28			moist	SW		Well graded sand (SW), fine to medium, subrounded, <10% subangular, fine to medium gravel [NATIVE] - 10R 3/3 (dusky red), wet - no odor, no staining		
29-30	8 / 10	6.1						
31-32			wet	SW		Well graded sand (SW), fine to medium, subrounded, <10% subangular, fine to medium gravel [NATIVE] - 10R 3/3 (dusky red), dry, no odor, no staining at 33 ft		
33-34			dry	SW		Silt (ML) [NATIVE] - 10R 3/3 (dusky red), dry - no odor, no staining		
35-36								
37-38								
39			dry	ML		Silt (ML) [NATIVE] - 10R 3/3 (dusky red), dry - no odor, no staining		

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**Comments:** Well was originally installed on 5/21/2021; re-drilled due to damaged threading in PVC riser.

<b>Project Name:</b> Phase III Groundwater IRM	<b>Drilling Company:</b> ADT	<b>Top of PVC Elevation:</b> 14.83 ft NAVD88
<b>Project Number:</b> 60658620	<b>Drilling Method:</b> Sonic	<b>Coordinates (NJSPNAD83) x:</b> 611460.5
<b>Date Started Drilling:</b> 2021-05-25	<b>Rig Type:</b> Fraste XL Max 170	<b>Coordinates (NJSPNAD83) y:</b> 682906.5
<b>Date Finished Drilling:</b> 2021-05-25	<b>Core Size:</b> 3 inch	<b>Boring Total Depth:</b> 90 ft
<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.70 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
41	8.5 / 10	507	wet	SW		Well-graded sand, fine to medium, subrounded [NATIVE] - 10R 3/3 (dusky red), wet, solvent odor, no staining at 40 ft		
42			dry	ML		Silt with sand (ML), 10-20% subrounded, fine to medium sand [NATIVE] - 10R 3/3 (dusky red), dry - solvent odor, no staining		
43								
44						Silty sand (SM), fine to medium, well-graded, subrounded, 15-25% silt [NATIVE] - 10R 3/3 (dusky red), dry - solvent odor, trace DNAPL staining		
45								
46								
47			dry	SM				
48								
49								
50								
51	10 / 10	635.1	moist	SW		Well-graded sand, fine to medium, subrounded [NATIVE] - 10R 3/3 (dusky red), moist, solvent odor, heavy dnapl staining at 50 ft		
52								
53								
54			wet	ML		Silt (ML), 5-15% subrounded, fine to medium sand, 5-15% clay [NATIVE] - 10R 3/3 (dusky red), wet - solvent odor, trace DNAPL staining		
55								
56								Annular seal (bentonite slurry) (56-58 ft bgs)
57								
58								Sand Pack (#0 Sand Pack) (58-80 ft bgs)
59			moist	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/3 (dusky red), moist - no odor, no staining		

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<b>Logged By:</b> J. Hlavaty	<b>Project Manager:</b> Carey Letts	<b>Depth to Water:</b>
<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.70 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
61	10 / 10	1.5	moist	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), moist, no odor, no staining at 60 ft		Screen (Stainless Steel) (60-80 ft bgs)
62								
63								
64								
65								
66	10 / 10	1.1						
67								
68								
69								
70								
71								
72								
73								
74								
75								
76								
77								
78								
79								

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<b>Physical Location:</b> Halladay Street		<b>Surface Elevation:</b> 10.70 ft NAVD88

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	USCS	Graphic Log	Material Description	Well Construction	Remarks
81	8.5 / 10	0	moist	CL-ML-SP		Varved sands, silts, and clays [Transition Zone] [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), moist, no odor, no staining		Sand Seal (#00 Sand) (80-82 ft bgs)
82								
83			wet	SW		Well-graded sand (SW), fine to medium, subrounded, 5-15% subangular, fine to medium gravel, <10% silt [NATIVE] - 10R 3/4 (dusky red / dark reddish brown), wet - no odor, no staining		
84								
85	moist	SW-GW		Silty sand with gravel, fine to medium, well-graded, subrounded, 10-20% silt, 25-35% subangular, fine to medium gravel [Basal Till] - 10R 4/1 (dark reddish gray), moist - no odor, no staining				
86								
87								
88								
89								
90								

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