

Appendix C

Boring Logs and Construction Diagrams

Soil Boring Logs



BORING LOG

BOREHOLE NO. **SB-1**

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Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **6-feet**
BOREHOLE DIA.: **3-inch**

Logged By: **Alyssa Fetterman**

Drilling Method: **Direct Push**

Dates Drilled: **2/3/2025**

Sampling Method: **Geoprobe acetate sleeve**

Drilling Company: **Odyssey Environmental Services**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **GeoProbe 7822DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-0.5') Asphalt	ASPHALT		Borehole backfilled with bentonite and completed with asphalt cold patch
	0.0			ML: (0.5'-6') Brown silt with gravel	ML		
1	0.0						
	0.0						
2	0.0						
	0.0						
3	0.0						
	0.0						
4	0.0						
	0.0						
5	0.0						
	0.0						
6	0.0					Geoprobe refusal at 6' bgs	

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location



SB-1

p. 1 of 1



BORING LOG

BOREHOLE NO. **SB-2**

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Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **4-feet**
BOREHOLE DIA.: **3-inch**

Logged By: **Alyssa Fetterman**

Drilling Method: **Direct Push**

Dates Drilled: **2/3/2025**

Sampling Method: **Geoprobe acetate sleeve**

Drilling Company: **Odyssey Environmental Services**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **GeoProbe 7822DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-1') Asphalt	ASPHALT		Borehole backfilled with bentonite and completed with asphalt cold patch
1		0.0		ML: (1'-4') Brown silt with gravel	ML		
2		0.0					
3		0.0					
4		0.0				Geoprobe refusal at 4' bgs	

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location



SB-2

p. 1 of 1



BORING LOG

BOREHOLE NO. **SB-3**

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Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **7.5-feet**
BOREHOLE DIA.: **3-inch**

Logged By:	Alyssa Fetterman	Drilling Method:	Direct Push
Dates Drilled:	2/3/2025	Sampling Method:	Geoprobe acetate sleeve
Drilling Company:	Odyssey Environmental Services	Soil Class. System:	Unified Soil Classification System (USCS)
Drill Rig Type:	GeoProbe 7822DT	Field Screening:	Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)

Depth (feet)	Sample Interval	Field Screen (ppm)	Rec-covery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-1') Asphalt	ASPHALT		Borehole backfilled with bentonite and completed with asphalt cold patch
1	0.0			ML: (1'-6.5') Brown silt with gravel	ML		
2	0.0						
3	0.0						
4	0.0						
5	0.0						
6	0.0						
7	0.0			SM: (6.5'-7.5') Tan to light-brown medium to coarse-grained sand with gravel	SM	Geoprobe refusal at 7.5' bgs	

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SB-3

p. 1 of 1



BORING LOG

BOREHOLE NO. **SB-4**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **4-feet**
BOREHOLE DIA.: **3-inch**

Logged By: **Alyssa Fetterman**

Drilling Method: **Direct Push**

Dates Drilled: **2/3/2025**

Sampling Method: **Geoprobe acetate sleeve**

Drilling Company: **Odyssey Environmental Services**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **GeoProbe 7822DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-1') Asphalt	ASPHALT		Borehole backfilled with bentonite and completed with asphalt cold patch
1		0.0		SM: (1'-4') Brown sandy silt with gravel	SM		
2		0.0					
3		0.0					
4		0.0				Geoprobe refusal at 4' bgs	

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SB-4

p. 1 of 1



BORING LOG

BOREHOLE NO. **SB-5**

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Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **4.5-feet**
BOREHOLE DIA.: **3-inch**

Logged By: **Alyssa Fetterman**

Drilling Method: **Direct Push**

Dates Drilled: **2/3/2025**

Sampling Method: **Geoprobe acetate sleeve**

Drilling Company: **Odyssey Environmental Services**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **GeoProbe 7822DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-1') Asphalt	ASPHALT		Borehole backfilled with bentonite and completed with asphalt cold patch
1	0.0			ML: (1'-4.5') Brown silt with gravel	ML		
	0.0						
2	0.0						
	0.0						
3	0.0						
	0.0						
4	0.0					Geoprobe refusal at 4.5' bgs	
	0.0						

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location



SB-5

p. 1 of 1



BORING LOG

BOREHOLE NO. **SB-6**

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Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **6-feet**
BOREHOLE DIA.: **3-inch**

Logged By: **Alyssa Fetterman**
Dates Drilled: **2/3/2025**
Drilling Company: **Odyssey Environmental Services**
Drill Rig Type: **GeoProbe 7822DT**

Drilling Method: **Direct Push**
Sampling Method: **Geoprobe acetate sleeve**
Soil Class. System: **Unified Soil Classification System (USCS)**
Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-0.5') Asphalt	ASPHALT		
1	0.0			ML: (0.5'-5') Brown silt with gravel	ML		Borehole backfilled with bentonite and completed with asphalt cold patch
2	0.0						
3	0.0						
4	0.0						
5	0.0			GW: (5'-6') Well graded gravel with sand	GW		
6	0.0					Geoprobe refusal at 6' bgs	

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SB-6

p. 1 of 1



BORING LOG

BOREHOLE NO. **SB-7**

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Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **9-feet**
BOREHOLE DIA.: **3-inch**

Logged By: **Alyssa Fetterman** Drilling Method: **Direct Push**
Dates Drilled: **2/3/2025** Sampling Method: **Geoprobe acetate sleeve**
Drilling Company: **Odyssey Environmental Services** Soil Class. System: **Unified Soil Classification System (USCS)**
Drill Rig Type: **GeoProbe 7822DT** Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Rec-covery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-1') Asphalt	ASPHALT		Borehole backfilled with bentonite and completed with asphalt cold patch
1	0.0			ML: (1'-7') Brown silt with gravel	ML		
2	0.0						
3	0.0						
4	0.0						Geoprobe refusal at 9' bgs
5	0.0						
6	0.0						
7	0.0			SM: (7'-9') Tan to light-brown medium to coarse-grained sand with gravel	SM		
8	0.0						
9	0.0						


General Comments:


bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level 

Lab Sample Location 

SB-7

p. 1 of 1



BORING LOG

BOREHOLE NO. **SB-8**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **SPL - Washington Crossing**
ADDRESS: **Glenwood Drive**

TOTAL DEPTH: **7-feet**
BOREHOLE DIA.: **3-inch**

Logged By: **Alyssa Fetterman**
Dates Drilled: **2/3/2025**
Drilling Company: **Odyssey Environmental Services**
Drill Rig Type: **GeoProbe 7822DT**

Drilling Method: **Direct Push**
Sampling Method: **Geoprobe acetate sleeve**
Soil Class. System: **Unified Soil Classification System (USCS)**
Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0-1') Asphalt	ASPHALT		Borehole backfilled with bentonite and completed with asphalt cold patch
1		0.0		ML: (1'-3.5') Brown silt with gravel, moist	ML		
2		0.0					
3		0.0					
4				NO RECOVERY: (3.5'-5') No Recovery	NO RECOVERY		
5		0.0		ML: (5'-7') Brown silt with gravel, saturated	ML		Geoprobe refusal at 7' bgs
6		22					
7		51					
		19.5					

General Comments:
bgs - below ground surface
ppm - parts per million
NA - not applicable

Symbol Key:
Apparent Water Level
Lab Sample Location

SB-8

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-1**

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Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-1.5') Dark olive brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0					
		0.0		CH: (1.5'-2.0') Yellowish brown moist fat clay	CH		
2				CL: (2.0'-3.5') Yellowish brown moist lean clay with sand	CL		
		0.0					
3							
		0.0		No Recovery: (3.5'-4.0') No Recovery	NR		
4				CL: (4.0'-6.0') Olive brown dry lean clay and gravel saprolite	CL		
		0.0					
5							
		0.0					
6				CL: (6.0'-8.0') Dark grayish brown dry lean clay with sand			
		0.0					
7						Geoprobe refusal at 8.0'	
	SS-01 (7.0-8.0)	0.0					
8							

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-1

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-2**

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Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-1.5') Dark olive brown topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CL: (1.1'-1.5') Olive brown moist lean clay with sand	CH		
2		0.0					
3		2.7					
4		14.2		CH: (3.5'-4.5') Olive yellow dry fat clay with sapprolite gravels	CL		
5		0.0		CL: (4.5'-8.0') Dark yellowish brown dry lean clay with sand	CL		
6		19.3					
7		32.7				Geoprobe refusal at 8.0'	
8	SS-02 (5.0-6.0)	1.4					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-2

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-3**

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Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **6'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-0.3') Topsoil	Topsoil		Borehole backfilled with bentonite
		0.0		CL: (0.3'-2.0') Grayish brown moist lean clay with sand	CL		
1							
		0.0					
2				ML: (2.0'-3.5') Yellowish dry brown silt	ML		
		0.0					
3							
		0.0		CL: (3.5'-6.0') Olive yellow dry lean clay with sand little gravel	CL		
4							
		0.0					
5							
	SS-03 (5.0-6.0)	2.0				Geoprobe refusal at 6.0'	
6							

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-3

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-4**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-2.0') Dark olive brown topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0					
2		0.0		CH: (2.0'-4.0') Medium olive brown moist fat clay	CH		
3		0.0					
4		0.0		FILL: (4.0'-5.0') Pale yellow well graded sand and gravel - fill material	FILL		
5	SS-04 (4.0-5.0)	24.8		ML: (3.5'-6.0') Olive yellow dry lean clay with sand little gravel	ML		
6		0.6		SAPROLITE: (6.0'-8.0') Light olive brown dry saprolitic argillite	SAPROLITE		
7		0.0				Geoprobe refusal at 8.0'	
8		0.0					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-4

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-5**

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Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **7.5'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.6'-3.0') Dark olive brown topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (2.0'-4.0') Olive brown moist fat clay	CH		
2		0.0					
3		0.0		No Recovery: (3.0'-4.0') No Recovery	NR		
4		0.0		ML: (4.0'-6.0') Grayish brown dry silt	ML		Geoprobe refusal at 7.5'
5	SS-04 (4.0-5.0)	0.1					
6		0.0		CL: (6.0'-7.5') Yellowish brown dry lean clay with sapprolite gravel	CL		
7		0.0					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-5

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-6**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-1.2') Dark olive brown topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (1.2'-3.0') Dark olive brown moist fat clay	CH		
2		0.0					
3		0.0		CL: (3.0'-3.5') Olive brown lean clay with sand	CL		
4		0.0		No Recovery: (3.5'-4.0') No Recovery	No Recovery		
5		0.0		CL: (4.0'-5.0') Light yellowish brown lean clay with sand and gravel	CL		
6	SS-06 (6.0-6.5)	0.0		CL: (5.0'-6.5') Olive brown lean clay with sand trace saporlite gravel			
7		85.7		No Recovery: (6.5'-8.0') No Recovery	No Recovery	Geoprobe refusal at 8.0'	
8		0.0					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-6

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-7**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-0.6') Dark olive brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (0.6'-3.0') Dark grayish brown moist fat clay	CH		
2		0.0					
3		0.0		CL: (3.0'-3.5') Dark grayish brown lean clay with sand	CL		
4		0.0		No Recovery: (3.5'-4.0') No Recovery	No Recovery		
5		0.0		CH: (4.0'-5.0') Olive brown fat clay with sand	CH		Geoprobe refusal at 8.0'
6		0.0		CL: (5.0'-8.0') Grayish brown lean clay with sand trace sapolite seamlets	CL		
7	SS-07 (7.0-8.0)	4.3					
8		109.7					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-7

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-8**

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Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-0.7') Dark olive brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (0.7'-2.6') Olive brown moist fat clay with sand and gravel	CH		
2		0.0					
3		0.0		CL: (2.6'-3.4') Dark grayish brown dry lean clay with sand	CL		
4		0.0		No Recovery: (3.4'-4.0') No Recovery	No Recovery		
5		0.0		CH: (4.0'-5.5') Olive brown dry fat clay with gravel	CH		
6		0.0		GP: (5.5'-8.0') Yellowish brown dry poorly graded gravel with sand	GP		Geoprobe refusal at 8.0'
7	SS-08 (7.0-8.0)	0.0					
8		0.0					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-8

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-9**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **6'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-1.2') Dark brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0					
				CH: (1.2'-3.0') Yellowish brown moist fat clay with sand	CH		
2		0.0					
3		0.0		CL: (3.0'-3.5') Olive brown dry lean clay with sand	CL		
				No Recovery: (3.5'-4.0') No Recovery	No Recovery		
4		0.0		CL: (4.0'-6.0') Medium brown dry lean clay with poorly graded gravel saprolite	CL		
5		0.0				Geoprobe refusal at 6.0'	
	SS-09 (5.0-6.0)						
6							

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-9

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-10**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0.0'-0.8') Dark brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		GP: (0.8'-2.0') Greenish black dry poorly graded argillite gravel	GP		
2		0.0		No Recovery: (2.0'-4.0') No Recovery	No Recovery		
3		0.7					
4		1.8		CL: (4.0'-6.4') Medium brown dry lean clay with gravel saprolite	CL		
5		0.0					Geoprobe refusal at 8.0'
6		0.0					
7		31.3		SM: (6.4'-8.0') Light yellowish brown silty sand	SM		
8	SS-10 (7.0-8.0)	349.2					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-10

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-11**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **5'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0		0.0		Topsoil: (0.0'-0.6') Very dark olive brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (0.6'-2.8') Greenish black dry poorly graded argillite gravel	CH		
2		0.0					
3		0.0		CL: (2.8'-4.0') Yellowish brown dry lean clay with sand and gravel	CL		Geoprobe refusal at 5.0'
4		0.0		No Recovery: (4.0'-5.0') No Recovery	No Recovery		
5							

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-11

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-12**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **7'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0		0.0		Topsoil: (0.0'-0.5') Dark brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (0.5'-3.6') Brown moist fat clay with gravel	CH		
2		0.0					
3		0.0					
4		0.0		CL: (3.6'-4.6') Olive yellow dry lean clay with sand	CL		
5		0.0		SM: (4.6'-5.3') Medium brown dry silty sand	SM		Geoprobe refusal at 7.0'
6		0.0		SP: (5.3'-6.0') Olive brown dry poorly graded fine sand	SP		
7	SS-12 (6.0-7.0)	0.9		CL: (6.0'-7.0') Olive brown dry lean clay with gravel saprolite	CL		

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-12

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-12 SS-13**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0		0.0		Topsoil: (0.0'-1.0') Dark olive brown wet topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (1.0'-3.5') Light olive brown moist fat clay	CH		
2		0.0					
3		0.0					
4		1.9		No Recovery: (3.5'-4.0') No Recovery	No Recovery		
5		0.0		CL: (4.0'-5.5') Light yellowish brown dry lean clay with sand	CL		
6		0.0		SM: (5.5'-6.0') Yellowish brown dry silty sand	SM		
7		13.1		CL: (6.0'-8.0') Yellowish brown dry lean clay with gravel sapolite	CL	Geoprobe refusal at 8.0'	
8	SS-13 (7.0-8.0)	38.4					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-12

p. 1 of 1



BORING LOG

BOREHOLE NO. **SS-14**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: **Washington Crossing, PA**

TOTAL DEPTH: **8'**

ADDRESS: **Glennwood Drive, Washington Crossing, PA**

BOREHOLE DIA.: **1-inch**

Logged By: **Michael Haezebrouck**

Drilling Method: **Direct Push**

Dates Drilled: **6/17/2025**

Sampling Method: **Grab**

Drilling Company: **Parratt-Wolff**

Soil Class. System: **Unified Soil Classification System (USCS)**

Drill Rig Type: **Geoprobe 6620 DT**

Field Screening: **Mini-RAE 3000+ 10.6 eV Photoionization Detector (PID)**

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0		0.0		Topsoil: (0.0'-0.8') Dark olive brown moist topsoil	Topsoil		Borehole backfilled with bentonite
1		0.0		CH: (0.8'-3.0') Light olive brown moist fat clay with gravel	CH		
2		0.0					
3		0.0		No Recovery: (3.0'-4.0') No Recovery	No Recovery		
4		0.0		CL: (4.0'-6.0') Olive brown dry lean clay with sand	CL		
5		0.0					
6		0.0		SM: (6.0'-6.5') Olive yellow dry silty sand	SM		Geoprobe refusal at 8.0'
7		0.0		GM: (6.5'-8.0') Light yellowish brown dry well graded gravel with silt	GM		
8	SS-14 (7.0-8.0)	33.1					

General Comments:

bgs - below ground surface

ppm - parts per million

NA - not applicable

Symbol Key:

Apparent Water Level

Lab Sample Location

SS-14

p. 1 of 1

Recovery Well Boring Logs and Construction Diagrams



RECOVERY WELL

RW-1

Page 1 of 2

Groundwater and Environmental Services, Inc.

PROJECT: Washington Crossing, PA WELL DIAMETER: 4" Open Rock TOTAL DEPTH: 71.5'
 ADDRESS: 108 Spencer Road, Washington Crossing, PA CASING ELEVATION: NM WATER DEPTH: 51.50'
 BOREHOLE DIAMETER: 5" (0-25'); 4" (25'-71.5')

Logged By: Daniel Sivco, P.G. Drilling Method: Sonic to 25'; Air-Rotary 25'-71.5'
 Dates Drilled: 3/18-21/2025 Sampling Method: Grab
 Drilling Company: Parratt-Wolff Soil Class. System: Unified Soil Classification System (USCS)
 Drill Rig Type: Boart Longyear LS-250 Mini Sonic; CME 55 HT Truck-Mounted Air-Rotary Drill Rig Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0-0.25') Grass and topsoil	Topsoil		
		0.0		ML: (0.25'-1') Orange-brown silt with clay, trace fine-grained sand, slightly moist	ML	Hand-cleared via hand-auger to 5' bgs	Flush-mounted well vault with locking cap
	Lab sample collected at 1'-2'	0.0		ML: (2'-3') Orange-brown silt, little clay, trace fine-grained sand, slightly moist			
5		0.0		ML: (3'-4') Orange-brown silt with sand, trace clay, slightly moist		Began sonic drilling at 5' bgs	(0'-0.5') Concrete
	Lab sample collected at 4'-5'	0.0		ML: (4'-5') Brown silt with clay, trace angular argillite gravel			
		0.0		ML: (5'-8') Brown to purple-brown silt with sand, some sub-angular argillite gravel, few argillite cobbles		(5'-8') 4" to 6" diameter cobbles	
10		0.0		ML: (8'-10') Brown to maroon silty-sand, some angular argillite gravel, few argillite cobbles	ARGILLITE	(10'-11') 4" to 8" diameter cobbles	(0.5-25') Grout
	Lab sample collected at 10'-11'	0.0		ML: (10'-11') Brown to light-brown sandy silt, few argillite cobbles		(11'-12') 4" to 8" diameter cobbles	
15				ARGILLITE: (11'-12') Red-brown argillite			
				ARGILLITE: (12'-23') Red-brown argillite, moderately fractured, 40% recovery			
20		0.0				Began air rotary at 25' bgs	(0-25') 5" casing installed to 25' bgs
		0.0		SM: (23'-24') Brown coarse-grained sand with silt and clay, some coarse gravel	SM		
25		0.0		ARGILLITE: (24'-25') Red-brown argillite, moderately fractured	ARGILLITE		
		0.0		ARGILLITE: (25'-34.5') Reddish-brown argillite, slightly moist			
30		4.6					
		3.8					
35				ARGILLITE: (34.5'-54.5') Red-brown to gray argillite		Water at 30' with petroleum odor	



RECOVERY WELL

RW-1

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: Washington Crossing, PA
ADDRESS: 108 Spencer Road, Washington Crossing, PA
WELL DIAMETER: 4" Open Rock
CASING ELEVATION: NM
BOREHOLE DIAMETER: 5" (0-25'); 4" (25'-71.5')
TOTAL DEPTH: 71.5'
WATER DEPTH: 51.50'

Logged By: Daniel Sivco, P.G.
Dates Drilled: 3/18-21/2025
Drilling Company: Parratt-Wolff
Drill Rig Type: Boart Longyear LS-250 Mini Sonic; CME 55 HT Truck-Mounted Air-Rotary Drill Rig
Drilling Method: Sonic to 25'; Air-Rotary 25'-71.5'
Sampling Method: Grab
Soil Class. System: Unified Soil Classification System (USCS)
Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
40		0.0					
45							
50		0.0					
55		0.0		ARGILLITE: (54.5'-59.5') Gray argillite			
60				ARGILLITE: (59.5'-71.5') Red-brown to gray argillite			
65						Recovery well installed to 71.5' bgs	
70		0.0 0.0					

General Comments:

ags = Above ground surface
bgs = Below ground surface
ppm = Parts per million

Symbol Key:

Apparent Water Level
Soil Sample Location

RW-1

p. 2 of 2



MONITORING WELL LOG

RW-2

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: Washington Crossing, PA WELL DIAMETER: 6" Open Rock TOTAL DEPTH: 63.0'
ADDRESS: 108 Spencer Road, Washington Crossing, PA CASING ELEVATION: NM WATER DEPTH: 22.04'
BOREHOLE DIAMETER: 8" (0-10'); 6" (10'-63.0')

Logged By: Michael Haezebrouck Drilling Method: Air-Rotary 0'-63.0'
Dates Drilled: 5/21/2025 Augered: 5/19/2025 Sampling Method: Grab
Drilling Company: Parratt-Wolff Soil Class. System: Unified Soil Classification System (USCS)
Drill Rig Type: CME 55 HT Air Rotary Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0	0.0		Asphalt: (0.0-0.5') Asphalt and subbase	Asphalt	Hand-cleared via hand-auger to 5' bgs	Flush-mounted well vault with locking cap
	0.0		CL: (0.5'-5.0') Orange-brown lean clay with sand and gravel, dry	CL		
5	0.0		ARGILLITE: (5.0'-7.0') Dark gray and orange-brown argillite, interbedded sapolite partings	ARGILLITE		
	0.0		CH: (7.0'-8.0') Orange-brown fat clay with angular argillite gravels	CH		
10	0.0	414	ARGILLITE: (8.0'-25.0') Dark and light gray to orange-brown fractured argillite with interbedded sapolite partings and impure limestone (water bearing fracture)	ARGILLITE	Water at 22'	(0'-0.5') Concrete (0.5-10') Grout (0-10') 5" casing installed to 10' bgs
	0.0		LIMESTONE: (25'-26') Dark gray to light gray impure limestone interbed	LIMESTONE		
15	0.0		ARGILLITE: (26'-55') Red brown-brown argillite with fissle interbeds	ARGILLITE		
20	0.0					
25	0.0				Recovery well installed to 63' bgs	(10'-63') Open rock well
30	0.0					
35	0.0					
40	0.0					
45	0.0					
50	0.0					
55	0.0					
60	0.0					

General Comments:

ags = Above ground surface
bgs = Below ground surface
ppm = Parts per million

Symbol Key:

Apparent Water Level
Soil Sample Location



MONITORING WELL LOG

RW-3

Page 1 of 1

PROJECT: Washington Crossing, PA WELL DIAMETER: 6" Open Rock TOTAL DEPTH: 65.0'
ADDRESS: 108 Spencer Road, Washington Crossing, PA CASING ELEVATION: NM WATER DEPTH: 20.26'
BOREHOLE DIAMETER: 8" (0-10'); 6" (10'-65.0')

Logged By: Michael Haezebrouck Drilling Method: Air-Rotary 0'-65.0'
Dates Drilled: 5/22/2025 Augered: 5/19/2025 Sampling Method: Grab
Drilling Company: Parratt-Wolff Soil Class. System: Unified Soil Classification System (USCS)
Drill Rig Type: CME 55 HT Air Rotary Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0		0.0	Asphalt: (0.0-1.0') Asphalt and subbase	Asphalt	Hand-cleared via hand-auger to 3' bgs	Flush-mounted well vault with locking cap (0'-0.5') Concrete
		0.0	CL: (1.0'-3.0') Orange-brown lean clay with gravel and cobbles	CL		
5	Lab sample collected at 2'-3'	0.0	LIMESTONE: (3.0'-6.0') Gray to light gray impure limestone	LIMESTONE		
		0.0	ARGILLITE: (6.0'-10') Dark gray and orange-brown fractured argillite with interbedded saprolite partings	ARGILLITE	Water at 20'	(0.5-10') Grout (0-10') 5" casing installed to 10' bgs
10		0.0	ARGILLITE: (10'-38') Dark to medium gray to reddish brown fractured argillite with impure limestone interbeds (water bearing fractures at 20')			
15		0.0				
20	LNAPL sample collected	0.0			Recovery well installed to 65' bgs	(10'-65') Open rock well
25		0.0				
30		0.0				
35		0.0				
40		0.0	ARGILLITE: (38'-63') Dark gray to light gray argillite with impure limestone interbeds			
45		0.0				
50		0.0				
55		0.0				
60		0.0				
65		0.0	SHALE: (63'-65') Dark gray to black organic shale	SHALE		

General Comments:

ags = Above ground surface
bgs = Below ground surface
ppm = Parts per million

Symbol Key:

Apparent Water Level
Soil Sample Location

RW-3

p. 1 of 1



MONITORING WELL LOG

RW-4

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: Washington Crossing, PA WELL DIAMETER: 6" Open Rock TOTAL DEPTH: 60.0'
ADDRESS: 108 Spencer Road, Washington Crossing, PA CASING ELEVATION: NM WATER DEPTH: 12.00'
BOREHOLE DIAMETER: 8" (0-10'); 6" (10'-65.0')

Logged By: Michael Haezebrouck Drilling Method: Air-Rotary 0'-65.0'
Dates Drilled: 5/22/2025 Augered: 5/19/2025 Sampling Method: Grab
Drilling Company: Parratt-Wolff Soil Class. System: Unified Soil Classification System (USCS)
Drill Rig Type: CME 55 HT Air Rotary Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0		0.0	ASPHALT: (0.0-5.0') Asphalt with secondary asphalt layer and subbase (angular cobbles)	ASPHALT	Hand-cleared via hand-auger to 4' bgs	Flush-mounted well vault with locking cap
5	Lab sample collected at 4'-5'	0.0	ARGILLITE: (5.0'-7.0') Saprolitic argillite with clay interbeds, dry	ARGILLITE		(0'-0.5') Concrete
10		0.0	ARGILLITE: (7.0'-10') Dark gray and orange-brown argillite with interbedded shale partings		Water at 12'	(0.5'-10') Grout
15		0.0	ARGILLITE: (10'-15') Dark gray and orange-brown fractured argillite (water bearing fracture)			(0-10') 5" casing installed to 10' bgs
20		0.0	ARGILLITE: (15'-38') Reddish-brown to light gray interbedded argillite			
25		0.0				
30		0.0				
35		0.0				
40		0.0	SHALE: (38'-39.5') Dark gray to black organic shale	SHALE		
45		0.0	ARGILLITE: (39.5'-57') Dark gray to reddish-brown fractured argillite with shale interbeds	ARGILLITE		(10'-60') Open rock well
50		0.0				
55		0.0			Recovery well installed to 60' bgs	
60		0.0				

General Comments:

ags = Above ground surface
bgs = Below ground surface
ppm = Parts per million

Symbol Key:

Apparent Water Level
Soil Sample Location

RW-4

p. 1 of 1

Monitoring Well Boring Logs and Construction Diagrams



MONITORING WELL LOG

MW-1S

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 40'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 24.26'

BOREHOLE DIAMETER: 6"

Logged By: Michael Haezebrouck

Drilling Method: Air-Rotary

Dates Drilled: 7/31/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS	
0	0.0			TOPSOIL: (0-2.6') Topsoil, dry	TOPSOIL	Hand-cleared to 5' bgs via hand auger	Flush-mounted well vault with locking cap (0'-0.5') Concrete (0.5'-17') Grout (0-20') 2-inch-diameter schedule 40 PVC riser (17'-18') Hydrated bentonite (18'-40') No. 2 Sand (20'-40') 2-inch-diameter schedule 40 PVC 0.020" slotted screen	
5				CL: (2.6'-5') Yellow-brown lean clay with sand and gravel	CL			
				CL: (5'-13') Light olive brown lean clay with saprolitic gravel				
10								ARGILLITE
15				ARGILLITE: (13'-15') Very dark greenish-gray saprolitic argillite				
	ARGILLITE: (15'-35') Argillite fractured with weathered partings and brown argillite with interbeds of organic shale							
20								
25								
30								
35								
40				ARGILLITE: (35'-40') Transitional brown to black to red argillite with calcareous seamlets/interbeds				

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Water Depth obtained from the 8/4/25 gauging event

Symbol Key:

Apparent Water Level



MW-1S

p. 1 of 1



MONITORING WELL LOG

MW-1D

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 75'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 27.84'

BOREHOLE DIAMETER: 6"

Logged By: Mike Haezebrouck

Drilling Method: Air-Rotary

Dates Drilled: 7/30/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				TOPSOIL: (0-0.33') Topsoil	TOPSOIL	Hand-cleared to 5' bgs	Flush-mounted well vault with locking cap
5				CL: (0.33'-5') Yellowish brown lean clay with sand and gravel	CL		
10				SAPROLITE: (5'-10') Very pale brown saprolitic argillite	SAPROLITE		
15				ARGILLITE: (10'-25') Dark gray to dark yellowish brown argillite interbedded with brown weathered argillite	ARGILLITE		(0'-0.5') Concrete
20							(0.5'-47') Grout
25				ARGILLITE: (25'-40') Dark gray to greenish gray fractured argillite			(0-50') 2-inch-diameter schedule 40 PVC riser
30							
35				ARGILLITE: (40'-45') Dark gray to dark brown to red-brown argillite with organic shale interbeds			
40				ARGILLITE: (45'-60') Dark brown to strong brown to greenish gray argillite			
45							
50							(47'-48') Hydrated bentonite
55							(48'-75') No. 2 Sand
60				ARGILLITE: (60'-70') Grayish brown fractured argillite			
65							
70				ARGILLITE: (70'-75') Greenish black argillite with organic shale interbeds			(50'-75') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
75							

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Water Depth obtained from the 8/4/25 gauging event

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-2S

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 40'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 26.50'

BOREHOLE DIAMETER: 6"

Logged By: Mike Haezebrouck

Drilling Method: Air-Rotary

Dates Drilled: 8/1/2025


Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)		Stratigraphy	Comments	COMPLETION DETAILS	
0	3.3			Topsoil: (0-1') Topsoil	Topsoil	Hand-cleared to 5' bgs	Flush-mounted well vault with locking cap		
				CL: (1'-5') Dark grayish brown lean clay with sand and gravel	CL				
5				ARGILLITE: (5'-15') Dark yellowish brown to very dark greenish gray argillite with saprolite gravels	ARGILLITE				(0'-0.5') Concrete
10									(0.5'-17') Grout
15				ARGILLITE: (15'-25') Reddish brown to dark grayish brown fractured argillite			(17'-18') Hydrated bentonite		
20							(18'-40') No. 2 Sand		
25				ARGILLITE: (25'-40') Red brown to very dark grayish brown argillite with few calcareous interbeds/seamlets, organic interbeds			(0-20') 2-inch-diameter schedule 40 PVC riser		
30							(20'-40') 2-inch-diameter schedule 40 PVC 0.020" slotted screen		
35									
40									

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Water Depth obtained from the 8/4/25 gauging event

Symbol Key:

Apparent Water Level

MW-2S

p. 1 of 1



MONITORING WELL LOG

MW-2D

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 75'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 28.30'

BOREHOLE DIAMETER: 6"

Logged By: Mike Haezebrouck

Drilling Method: Air-Rotary

Dates Drilled: 7/31/2025








Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)		Stratigraphy	Comments	COMPLETION DETAILS			
0	0.8				TOPSOIL: (0-3.17') Dark brown topsoil	TOPSOIL	Hand-cleared to 2.25' bgs via air knife and vacuum excavation	Flush-mounted well vault with locking cap			
5					ML: (3.17'-5') Brownish yellow lean clay with sand and gravel	ML					
10					SAPROLITE: (5'-10') Light yellowish brown saprolite	SAPROLITE					
15					ARGILLITE: (10'-35') Dark reddish brown to dark grayish brown fractured argillite	ARGILLITE	(18' bgs) Competent Bedrock Begins	(0'-0.5') Concrete			
20								(0.5'-47') Grout			
25								(0-50') 2-inch-diameter schedule 40 PVC riser			
30											
35						ARGILLITE: (35'-50') Dark reddish brown argillite with interbedded organic shale, few calcareous interbed/seamlets				(47'-48') Hydrated bentonite	
40											(48'-75') No. 2 Sand
45											
50			ARGILLITE: (50'-60') Very dark gray to black argillite							(50'-75') 2-inch-diameter schedule 40 PVC 0.020" slotted screen	
55											
60											
65											
70											
75			ARGILLITE: (60'-75') Very dark black to black argillite with organic thin shale partings								

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Water Depth obtained from the 8/4/25 gauging event

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-3S

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 40'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 36'

BOREHOLE DIAMETER: 6"

Logged By: Mike Haezebrouck

Drilling Method: Air-Rotary

Dates Drilled: 7/30/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0'-0.16') Topsoil	Topsoil	Hand-cleared to 5' bgs	Flush-mounted well vault with locking cap
				OH: (0.16'-3.17') Lean clay with sand and gravel, dry	OH		
				CL: (3.17'-5') Yellowish brown lean clay with sand and gravel	CL		(0'-0.5') Concrete
5				SAPROLITE: (5'-13') Saprolitic argillite gravel	SAPROLITE		(0.5'-17') Grout
10							
15				ARGILLITE: (13'-30') Very dark gray weathered argillite with calcareous interbeds	ARGILLITE	(13' bgs) Competent rock begins	(17'-18') Hydrated bentonite
20							(0'-20') 2-inch-diameter schedule 40 PVC riser
25							(18'-40') No. 2 Sand
30				ARGILLITE: (30'-40') Very dark gray to black argillite, little pyrite			(20'-40') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
35							
40						(36' bgs) Little water	

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level

Soil Sample Location



MONITORING WELL LOG

MW-3D

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: SPLP - Washington Crossing WELL DIAMETER: 2" TOTAL DEPTH: 75'
ADDRESS: Washington Crossing, PA CASING ELEVATION: NM WATER DEPTH: 25'
BOREHOLE DIAMETER: 6"

Logged By: Mike Haezebrouck Drilling Method: Air-Rotary
Dates Drilled: 7/29/2025 Sampling Method: Grab
Drilling Company: Summit Drilling Soil Class. System: Unified Soil Classification System (USCS)
Drill Rig Type: Reichdrill T-650 W-II Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0	2.0			TOPSOIL: (0'-0.25') Grass and topsoil	Topsoil	Hand-cleared to 2.25' bgs via air knife and vacuum excavation	Flush-mounted well vault with locking cap
5				TOPSOIL: (0.25'-2.25') Overburden	CL		
10				ARGILLITE: (2.25'-10') Light olive brown interbedded argillite with very dark greenish grain	ARGILLITE		
15				ARGILLITE: (10'-30') Very dark gray weathered argillite with calcareous interbeds			
20							
25							
30				ARGILLITE: (30'-35') Organic interbedded shales	(10'-12' bgs) Intermittent Hard Zones		
35				(30'-45') Very dark gray to black argillite with pyrite			
40							
45				ARGILLITE: (45'-50') Dark gray argillite with calcareous interbeds, some pyrite	(25' bgs) Hard Zone		
50							
55	ARGILLITE: (50'-65') Very dark gray argillite with calcareous interbeds and pyrite	(42'-45' bgs) Sulfur odor (Iron sulfide)					
60	(55'-65') Interbedded shales						
65							
70	ARGILLITE: (65'-75') Very dark greenish gray argillite with calcareous interbeds and pyrite		(65'-70' bgs) Bio film observed				
75							
						(46'-48') Hydrated bentonite	
						(48'-75') No. 2 Sand	
						(50'-75') 2-inch-diameter schedule 40 PVC 0.020" slotted screen	

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-4S

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 40'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 25'

BOREHOLE DIAMETER: 6"

Logged By: Peter Reichardt

Drilling Method: Air-Rotary

Dates Drilled: 7/24/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0'-0.5') Asphalt and sub-base	ASPHALT	Hand-cleared to 5' bgs via hand auger	Flush-mounted well vault with locking cap
	0.3			ML: (0.5'-5') Brown silt, moist	ML		
5	0.0			ARGILLITE: (5'-10') Brown Argillite, some silt and gravel	ARGILLITE		(0'-0.5') Concrete
	0.0						(0.5'-11') Grout
10	0.2			ARGILLITE: (10'-15') Dark gray argillite, some to trace silt			(11'-13') Hydrated bentonite
15	0.1			ARGILLITE: (15'-20') Dark gray argillite, trace silt			(13'-40') No. 2 Sand
20	0.1			ARGILLITE: (20'-25') Olive brown argillite, trace silt			(0'-15') 2-inch-diameter schedule 40 PVC riser
25	0.3			ARGILLITE: (25'-30') Dark greenish gray argillite		(25' bgs) Little water	(15'-40') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
30	0.3			ARGILLITE: (30'-35') Dark gray argillite			
35	0.2			ARGILLITE: (35'-40') Gray argillite			
40	0.2						

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-4D

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 75'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 65'

BOREHOLE DIAMETER: 6"

Logged By: Peter Reichardt

Drilling Method: Air-Rotary

Dates Drilled: 7/24/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0'-0.5') Asphalt and sub-base	ASPHALT	Hand-cleared to 5' bgs via hand auger	Flush-mounted well vault with locking cap
5	0.2			ML: (0.5'-2') Dark yellowish brown silt, trace sand, moist	ML		(0'-0.5') Concrete
	0.1			ML: (2'-4') Brown silt, trace sand, moist	ARGILLITE		(0.5'-47') Grout
10	0.1			ML: (4'-5') Brown silt, trace argillite fragments			
15	0.1			ARGILLITE: (5'-10') Brown argillite, some silt		(18' bgs) Competent rock begins	
20	0.1			ARGILLITE: (10'-20') Gray argillite, trace silt			
25	0.2			ARGILLITE: (20'-25') Brown gray argillite			(0'-51') 2-inch-diameter schedule 40 PVC riser
30	0.2			ARGILLITE: (25'-35') Gray argillite		(33' bgs) Soft Zone	
35	0.2			ARGILLITE: (35'-60') Greenish gray argillite		(35'-40' bgs) Driller introduced water	
40	0.1					(46' bgs) Soft Zone	
45	0.2					(52' bgs) Soft Zone	(47'-49') Hydrated bentonite
50	0.1					(62' bgs) Soft Zone	(49'-75') No. 2 Sand
55	0.2						(51'-75') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
60	0.1			ARGILLITE: (60'-75') Argillite with organic shale, very wet		(68' bgs) Soft Zone	
65	0.1						
70	0.1						
75	0.1						

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-5S

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 35'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 20'

BOREHOLE DIAMETER: 6"

Logged By: Peter Reichardt

Drilling Method: Air-Rotary

Dates Drilled: 7/23/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0'-0.25') Grass and topsoil	Topsoil		
				CL: (0.25'-1.75') Reddish brown silt to lean clay, trace sand	CL		
				ARGILLITE: (1.75'-5') Yellowish red argillite with silt, saturated	ARGILLITE	Hand-cleared to 1.75' bgs via air knife and vacuum excavation	Flush-mounted well vault with locking cap
5	0.1			ARGILLITE: (5'-15') Argillite, trace silt, dry to moist			(0'-0.5') Concrete
							(0.5'-6') Grout
							(6'-8') Hydrated bentonite
10	0.1						(8'-35') No. 2 Sand
							(0'-10') 2-inch-diameter schedule 40 PVC riser
15	0.1			ARGILLITE: (15'-20') Gray argillite, some silt			(10'-35') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
20	0.1			ARGILLITE: (20'-25') Gray argillite, saturated			
25	0.2			ARGILLITE: (25'-30') Gray argillite, some silt, black organic shale sheen, saturated			
30	0.3			ARGILLITE: (30'-35') Light gray argillite			
35	0.2						

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-5D

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 75'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 45'

BOREHOLE DIAMETER: 6"

Logged By: Peter Reichardt / Mike Haezebrouck

Drilling Method: Air-Rotary

Dates Drilled: 7/22/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				Topsoil: (0'-0.25') Grass and topsoil	Topsoil		
5	0.5			CL: (0.25'-5') Reddish brown silt to lean clay, trace sand	CL		
10	1.1			ARGILLITE: (5'-10') Reddish brown argillite, trace silt	ARGILLITE		
15	0.0			ARGILLITE: (10'-25.5') Gray to dark gray argillite, with organic black shale			
20	0.0						
25	0.1			ARGILLITE: (25.5'-27.5') Black to dark gray argillite with coal-shale-organic shale seams			
30	0.0			ARGILLITE: (27.5'-35') Very dark gray to dark gray argillite			
35	0.1			ARGILLITE: (35'-42') Dark gray to very dark gray argillite		(35' bgs) Soft Zone	
40	0.1						
45	0.1			ARGILLITE: (42'-55') Dark grayish brown argillite		(45' bgs) Water bearing zone	
50	0.1					(47' bgs) Soft Zone	
55	0.1			ARGILLITE: (55'-60') Dark greenish argillite		(51' bgs) Soft Zone	
60	0.1			ARGILLITE: (60'-65') Very dark gray argillite			
65	0.0			ARGILLITE: (65'-70') Very dark greenish gray argillite to marl shale		(65' bgs) Soft Zone	
70	0.0			ARGILLITE: (70'-75') Dark gray argillite		(69' bgs) Soft Zone	
75	0.0						

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-6S

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 39.2'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 35'

BOREHOLE DIAMETER: 6"

Logged By: Brian Hale P.G.

Drilling Method: Air-Rotary

Dates Drilled: 8/5-6/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0	0.0			ASPHALT: (0'-0.5') Asphalt and sub-base gravel with silt	ASPHALT	Hand-cleared to refusal at 1.08' bgs	Flush-mounted well vault with locking cap
	0.3			ML: (0.5'-1.08') Brown silt and sand with coarse angular gravel	ML		
5	0.0			ML: (1.08'-5') Brown silt, trace fine angular gravel, slightly moist			(0'-2') Concrete
				ML: (5'-10') Brown silt and clay, trace fine angular gravel, low-plasticity, slightly moist			(2'-15') Grout
10	0.0			ML: (10'-15') Brown silt and fine angular gravel, slightly moist			(0'-20') 2-inch-diameter schedule 40 PVC riser
15	0.0			ML: (15'-20') Orange-brown silt with fine sand, slightly moist			(15'-18') Hydrated bentonite
20	0.0			GM: (20'-25') Brown silt and rounded gravel with some clay, low plasticity, slightly moist to moist	GM		(18'-39') No. 2 Sand
25	0.3			GM: (25'-32') Brown rounded medium gravel with silt, moist to saturated		(25' bgs) Fractured Rock	(20'-39') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
30	0.1					(25'-30' bgs) Driller introduced water	
35	0.0			ARGILLITE: (32'-39.2') Dark-brown to tan weathered argillite, saturated	ARGILLITE	(35' bgs) Water observed	

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-6D

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 75'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 60'

BOREHOLE DIAMETER: 6"

Logged By: Brian Hale P.G.

Drilling Method: Air-Rotary

Dates Drilled: 8/5/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0	0.0			ASPHALT: (0'-0.5') Asphalt and sub-base with gravel and silt	ASPHALT	Hand-cleared to refusal at 1.17' bgs	Flush-mounted well vault with locking cap
5	0.0			ML: (0.5'-1.17') Brown silt and sand with coarse angular gravel	ML		(0'-2') Concrete
10	0.0			ML: (1.17'-5') Brown silt, slightly moist			
15	0.0			ML: (5'-10') Brown to dark-brown clay, low-plasticity, moist			
20	0.0			ML: (10'-15') Brown silt, trace gray-brown clay, moist			(2'-46') Grout
25	0.0			ML: (15'-25') Brown silt, fine angular weathered gravel, slightly moist			
30	0.2			ML: (25'-30') Brown clay with angular bedrock gravel, medium-plasticity, moist			(0'-50') 2-inch-diameter schedule 40 PVC riser
35	0.2			ML: (30'-36') Brown silt and fine angular gravel, slightly moist			
40	0.1			ARGILLITE: (36'-44') Brown weathered argillite, slightly moist	ARGILLITE		
45	0.1			ARGILLITE: (44'-60') Red-brown argillite, slightly moist		(44' bgs) Competent bedrock begins	(46'-48') Hydrated bentonite
50	0.0						
55	0.1						
60	0.0			ARGILLITE: (60'-65') Brown argillite and organic shale streaking, saturated		(66' bgs) Fractured Zone	(48'-75') No. 2 Sand
65	0.0			ARGILLITE: (65'-70') Brown argillite, less organic shale streaking than observed at 60'-65', saturated		(71' bgs) Fractured Zone	(50'-75') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
70	0.0			ARGILLITE: (70'-75') Black argillite, saturated		(73' bgs) Fractured Zone	
75							

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-7S

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 40'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH:

BOREHOLE DIAMETER: 6"

Logged By: Brian Hale P.G.

Drilling Method: Air-Rotary

Dates Drilled: 8/5, 8/7/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0'-0.5') Asphalt and fill material	ASPHALT	Hand-cleared to refusal at 0.75' bgs	Flush-mounted well vault with locking cap
				FILL: (0.5'-0.75') Gray to dark-brown silty sand with angular gravel fill	FILL		
5	0.3			FILL: (0.75'-5') Brown silt with trace fine angular gravel, dry			(0'-2') Concrete
				ML: (5'-20') Red-brown silt and trace clay, dry	ML	(5'-10' bgs) Driller introduced water	(2'-11') Grout
10	1.2						(0'-15') 2-inch-diameter schedule 40 PVC riser
15	1.3						(11'-13') Hydrated bentonite
20	1.5			ML: (20'-30') Brown silt with some fine angular gravel		(20'-25' bgs) Driller introduced water	(13'-40') No. 2 Sand
25	0.6						(15'-40') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
30	0.8			ML: (30'-34') SAA with increased fine angular gravel			
35	0.8			ARGILLITE: (34'-40') Weathered argillite	ARGILLITE	(35'-40' bgs) Driller introduced water	
40						(34'-40' bgs) Weathered Bedrock	

General Comments:

bgs = Below ground surface, SAA = Same as above

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-7D

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 75'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH:

BOREHOLE DIAMETER: 6"

Logged By: Brian Hale P.G.

Drilling Method: Air-Rotary

Dates Drilled: 8/5-6/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0'-0.5') Asphalt and fill material	ASPHALT		
5	0.0			FILL: (0.5'-0.8') Gray to dark-brown silty sand with angular gravel fill	FILL	Hand-cleared to refusal at 0.8' bgs	Flush-mounted well vault with locking cap
10	0.0			FILL: (0.8'-5') Brown silt and fine sand trace fine angular gravel, dry	ML		(0'-2') Concrete
15	0.0			ML: (5'-10') Red-brown silt, trace fine sand, dry			
20	0.0			ML: (10'-15') SAA, no sand			(2'-45') Grout
25	0.0			ML: (15'-25') Red-brown silt and clay with trace coarse sand, low-plasticity, moist			
30	0.0			CL: (25'-30') Red-brown clay and silt with trace fine angular gravel, low-plasticity, moist	CL		(0'-50') 2-inch-diameter schedule 40 PVC riser
35	0.0			GM: (30'-32') Red-brown fine angular gravel with red-brown silt and coarse sand, moist	GM		
40	0.0			ARGILLITE: (32'-38') Red-brown weathered argillite	ARGILLITE	(38' bgs) Competent bedrock begins	
45	0.0			ARGILLITE: (38'-45') Brown argillite			(45'-48') Hydrated bentonite
50	0.0			ARGILLITE: (45'-60') Dark-brown to black argillite		(50' bgs) Driller introduced water	
55	0.0						
60	0.0			ARGILLITE: (60'-65') Brown argillite with dark organic streaking		(60'-65' bgs) Driller introduced water	(48'-75') No. 2 Sand
65	0.0			ARGILLITE: (65'-75') Black argillite with dark organic streaking		(70'-75' bgs) Driller introduced water	(50'-75') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
70	0.0						
75							

General Comments:

bgs = Below ground surface, SAA = Same as above

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level





MONITORING WELL LOG

MW-8S

Page 1 of 1

PROJECT: SPLP - Washington Crossing WELL DIAMETER: 2" TOTAL DEPTH: 40'
ADDRESS: Washington Crossing, PA CASING ELEVATION: NM WATER DEPTH: 14'
BOREHOLE DIAMETER: 6"

Logged By: Michael Haezebrouck Drilling Method: Air-Rotary
Dates Drilled: 8/5/2025, 8/8/2025 Sampling Method: Grab
Drilling Company: Summit Drilling Soil Class. System: Unified Soil Classification System (USCS)
Drill Rig Type: Reichdrill T-650 W-II Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0'-0.5') Asphalt and fill material	ASPHALT	Hand-cleared to refusal at 0.75' bgs	Flush-mounted well vault with locking cap
				FILL: (0.5'-0.75') Gray to dark-brown silty sand with angular gravel fill	FILL		
				CL: (0.75'-5') Lean clay with sand and saprolitic gravel	CL		(0'-2') Concrete
5				CH: (5'-8') Fat clay with few gravel	CH		(0'-7') Grout
				ARGILLITE: (8'-20') Dark gray to very dark gray argillite	ARGILLITE	(8.5' bgs) Rock	(0'-10') 2-inch-diameter schedule 40 PVC riser
10							
15						(14' bgs) Little water	(7'-8') Hydrated bentonite
20				ARGILLITE: (20'-35') Light gray to gray calcareous argillite		(22'-24' bgs) Little water	(8'-40') No. 2 Sand
25						(23' bgs) Organic shale <1cm	(10'-40') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
30							
35				ARGILLITE: (35'-40') Dark gray slightly calcareous argillite		(35'-37' bgs) Little water at 35' and fractures at 35' and 37'	
40							

General Comments:

bgs = Below ground surface

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level



MONITORING WELL LOG

MW-8D

Page 1 of 1

PROJECT: SPLP - Washington Crossing

WELL DIAMETER: 2"

TOTAL DEPTH: 75'

ADDRESS: Washington Crossing, PA

CASING ELEVATION: NM

WATER DEPTH: 32'

BOREHOLE DIAMETER: 6"

Logged By: Michael Haezebrouck

Drilling Method: Air-Rotary

Dates Drilled: 8/5/2025, 8/8/2025

Sampling Method: Grab

Drilling Company: Summit Drilling

Soil Class. System: Unified Soil Classification System (USCS)

Drill Rig Type: Reichdrill T-650 W-II

Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen (ppm)	Recovery (inches)	SAMPLE LITHOLOGY (USCS)	Stratigraphy	Comments	COMPLETION DETAILS
0				ASPHALT: (0'-0.5') Asphalt and fill material	ASPHALT	Hand-cleared to refusal at 0.7' bgs	Flush-mounted well vault with locking cap
5	0.0			FILL: (0.5'-0.7') Dark-brown to gray silty-sand with angular gravel fill	FILL		
10	0.0			CLAY: (0.7'-5') Lean clay with sand and saprolitic gravel, dry	CLAY	(8' bgs) Hammering	(0'-2') Concrete
15	0.0			CLAY: (5'-8') SAA with no sand	ARGILLITE	(12'-15' bgs) Very stiff	(2'-47') Grout
20	0.0			ARGILLITE: (8'-20') Dark-gray to very dark greenish-gray argillite with organic shale parings, interbeds		(18'-20' bgs) Organic shale pairings <1 cm	
25	0.0			ARGILLITE: (20'-35') Light-gray to gray calcareous argillite			
30	0.0					(30' bgs) No water	(0'-50') 2-inch-diameter schedule 40 PVC riser
35	0.0					(32' bgs) Little water	
40	0.0			ARGILLITE: (35'-40') Dark-gray calcareous argillite			
45	0.0			ARGILLITE: (40'-55') Dark-gray to brown red-brown argillite		(42'-45' bgs) Little water	(47'-48') Hydrated bentonite
50	0.0					(50' bgs) Vertical joint	
55	0.0			ARGILLITE: (55'-75') Red-brown to brown argillite		(53'-55' bgs) Fracture with little water	(48'-75') No. 2 Sand
60	0.0						
65	0.0					(60' bgs) Organic shale interbeds	(50'-75') 2-inch-diameter schedule 40 PVC 0.020" slotted screen
70	0.0					(71'-73' bgs) Fracture with little water	
75							

General Comments:

bgs = Below ground surface, SAA = Same as above

ppm = Parts per million, NM = Not measured

Symbol Key:

Apparent Water Level