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Colliers Engineering & Design

October 6, 2023

Zach Lander
Lander Development
216 Landowne Dr
Verona, PA 15147

Wetland and Surface Waters Assessment
Lander Development Wedding Venue Development Project
Jackson Township, Cambria County, Pennsylvania
Colliers Engineering & Design Project No. 23012396A

Dear Mr. Lander,

Colliers Engineering & Design, Inc. (DBA Maser Consulting) was contracted to provide environmental due diligence services for a proposed 18-acre wedding venue development site located along the northeast side of PA State Route (SR271) and the intersection of US Highway Route 22 in Jackson Township, Pennsylvania (Figure 1 and Figure 2). This environmental due diligence is limited to a field identification of approximate limits of potential jurisdictional Waters of the U.S. (WOTUS) and a summary of the potential permitting constraints associated with the development project.

Background Information

Colliers Engineering & Design (CED) assessed potential jurisdictional wetlands and waters within the proposed Project area. Prior to onsite field investigations, several publicly available sources of information were reviewed to determine the likelihood of wetlands and surface waters occurring within the proposed alignment. These mapping resources generally include, but are not limited to, the United States Geological Survey (USGS) maps, the US Department of Agriculture - Natural Resource Conservation Service (NRCS) soils database, the US Fish & Wildlife Service National Wetlands Inventory (NWI) database, and the FEMA Flood Insurance Rate Map (FIRM).

USGS Quadrangle

The proposed alignment is located on the Nanty Glow, Pennsylvania quadrangle of the USGS (United States Geological Survey) Topographic Map. An unnamed perennial tributary to South Branch-Blacklick Creek flows from the southwestern to northeastern portion of the Project area. The northwestern portion of the Project area is mapped as wooded, while the remaining portions of the Project area are mapped as open field/meadow.

USDA Web Soil Survey

According to the US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), the proposed alignment is mapped as underlain by five (5) predominant soil types:

- Bethesda-Fairpoint channery silt loams, 0 to 8 percent slopes (BfB), which is classified as well drained with the water table located at a depth greater than 80 inches Below Ground Surface (BGS).
- Blairton silt loam, 3 to 8 percent slopes (BmB), which is classified as well drained with the water table located at a depth greater than 80 inches BGS.
- Brinkerton soils, 3 to 8 percent slopes (BtB), which is classified as somewhat poorly drained with the water table located at approximately 6 to 36 inches BGS.
- Gilpin-Rayne silt loams, 15 to 25 percent slopes (GtD), which is classified as well drained with the water table located at a depth greater than 80 inches BGS.
- Urban land-Udorthents complex, sloping (URC), which is classified as well drained with the water table located at a depth greater than 80 inches BGS.

The area mapped as Brinkerton soils, 3 to 8 percent slopes (BtB) is most likely to contain waters or wetlands. Soils within the Project area are mapped in Figure 3.

USFWS National Wetlands Inventory

The US Fish & Wildlife (USFWS) National Wetlands Inventory mapping depicts a linear riverine wetland running through the northeastern portion of the Project area (Figure 4). No other NWI wetlands are mapped within or in the immediate vicinity surrounding the Project area.

FEMA Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM No. 42021C0279D for Cambria County, map effective June 19, 2012), the proposed Project area does not contain any mapped FEMA floodplains.

Wetlands/Waters Assessment

The proposed Project area, which consisted of approximately 18 acres, was investigated to identify potential jurisdictional WOTUS and wetlands subject to Federal or State regulatory jurisdiction. The delineation methodologies developed by the USACE and the USEPA, as described in the *1987 Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0*) and the subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high-water mark within drainage features (Environmental Laboratory, 1987; USACE 2012; USACE 2005) were utilized during our identification. The Pennsylvania Department of Environmental Protection (PADEP) PA Code Title 25, Chapter 105 Dam Safety and Waterway Management documents were also utilized for wetland and stream delineations associated with this project. The approximate location and size of potential jurisdictional features observed are shown on the attached Figure 5.

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Field investigations were conducted on October 3, 2023, by Jacob C. Spuck PWS. Mr. Spuck has over 14 years of experience conducting wetland and stream delineations and has obtained multiple certifications in this field. Weather conditions were relatively warm, in the high 70s to low 80s (degrees Fahrenheit). Small amounts of rainfall in the weeks before and during the field study was recorded.

In total, Data point locations and mapped wetland boundaries are shown in Figures 5. This includes a series of upland data points (UL1-UL4) in addition to those data points completed in wetlands (WL1-WL4). Wetland determination data forms are provided in Appendix A. Forms are included for UL2 and UL4 as well. Representative site photographs are provided in Appendix B. A brief description of the wetland and stream resources identified are provided below:

Wetlands

Wetland 1

Wetland 1 is a 0.06-acre vegetated depressional palustrine freshwater emergent (PEM) wetland located at the southeast corner of the Project area (see Figure 5). Wetland 1 exhibited several indicators of wetland hydrology, vegetation and soils. Wetland 1 is "isolated," i.e., it has no surface connection to any interstate waterway, and is therefore probably not regulated by the USACE. However, it is probably still considered a Water of the Commonwealth, and regulated by PA DEP.

Wetland 2

Wetland 2 is a 0.02-acre vegetated depressional palustrine freshwater emergent (PEM) wetland located at the southeast corner of the Project area (see Figure 5). Wetland 2 exhibited several indicators of wetland hydrology, vegetation and soils. Wetland 2 is "isolated," i.e., it has no surface connection to any interstate waterway, and is therefore probably not regulated by the USACE. However, it is probably still considered a Water of the Commonwealth, and regulated by PA DEP.

Wetland 3

Wetland 3 is a 0.01-acre vegetated depressional palustrine freshwater emergent (PEM) wetland located at the northeast corner of the Project area (see Figure 5). Wetland 3 exhibited several indicators of wetland hydrology, vegetation and soils. Wetland 3 is "isolated," i.e., it has no surface connection to any interstate waterway, and is therefore probably not regulated by the USACE. However, it is probably still considered a Water of the Commonwealth, and regulated by PA DEP.

Wetland 4

Wetland 4 is a 0.29-acre vegetated depressional palustrine freshwater emergent (PEM) wetland located at the southwest corner of the Project area (see Figure 5). Wetland 4 exhibited several indicators of wetland hydrology, vegetation and soils. Wetland 4 is hydrologically connected to an unnamed perennial tributary to South Branch-Blacklick Creek, a CWF, and WOTUS.

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Streams

Two ephemeral stream channels, and one perennial stream channel were also identified within the Project area (see Figure 5). Stream 1 is a perennial stream and unnamed tributary to South Branch-Blacklick Creek, a CWF, and WOTUS. Stream 1 runs a length of approximately 1,459 feet within the Project area. Stream 2 is an ephemeral stream channel located in the northern portion of the Project area. Stream 2 runs a total length of approximately 377 feet and is not hydrologically connected at the surface to any WOTUS. Stream 3 is an ephemeral stream channel located in the southeastern portion of the Project area. Stream 3 runs a total length of approximately 325 feet and is not hydrologically connected at the surface to any WOTUS.

Permitting Assessment

As described above, jurisdictional Waters of the US (WOTUS) have been observed within the proposed Project area. Development within the Project area is feasible but will require complete avoidance of these delineated features to avoid the need for U.S. Army Corps of Engineers (USACE) and Pennsylvania Department of Environmental Protection (PADEP) Water Obstruction and Encroachment Permit.

Conclusion

Jurisdictional WOTUS features are present within the project limits, but do not preclude construction within the Project area. Should construction occur that impacts any of the delineated resources, USACE and PADEP permits will be required.

If you have any questions about our findings above, or wish to discuss next steps, please do not hesitate to call or email. I can be reached at 814-657-2006 or jacob.spuck @collierseng.com.

Sincerely,

Colliers Engineering & Design, Inc.
(DBA Maser Consulting)

Jacob Spuck M.S., PWS
Principal Investigator

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Figure 1: Aerial Photograph of the Project area.

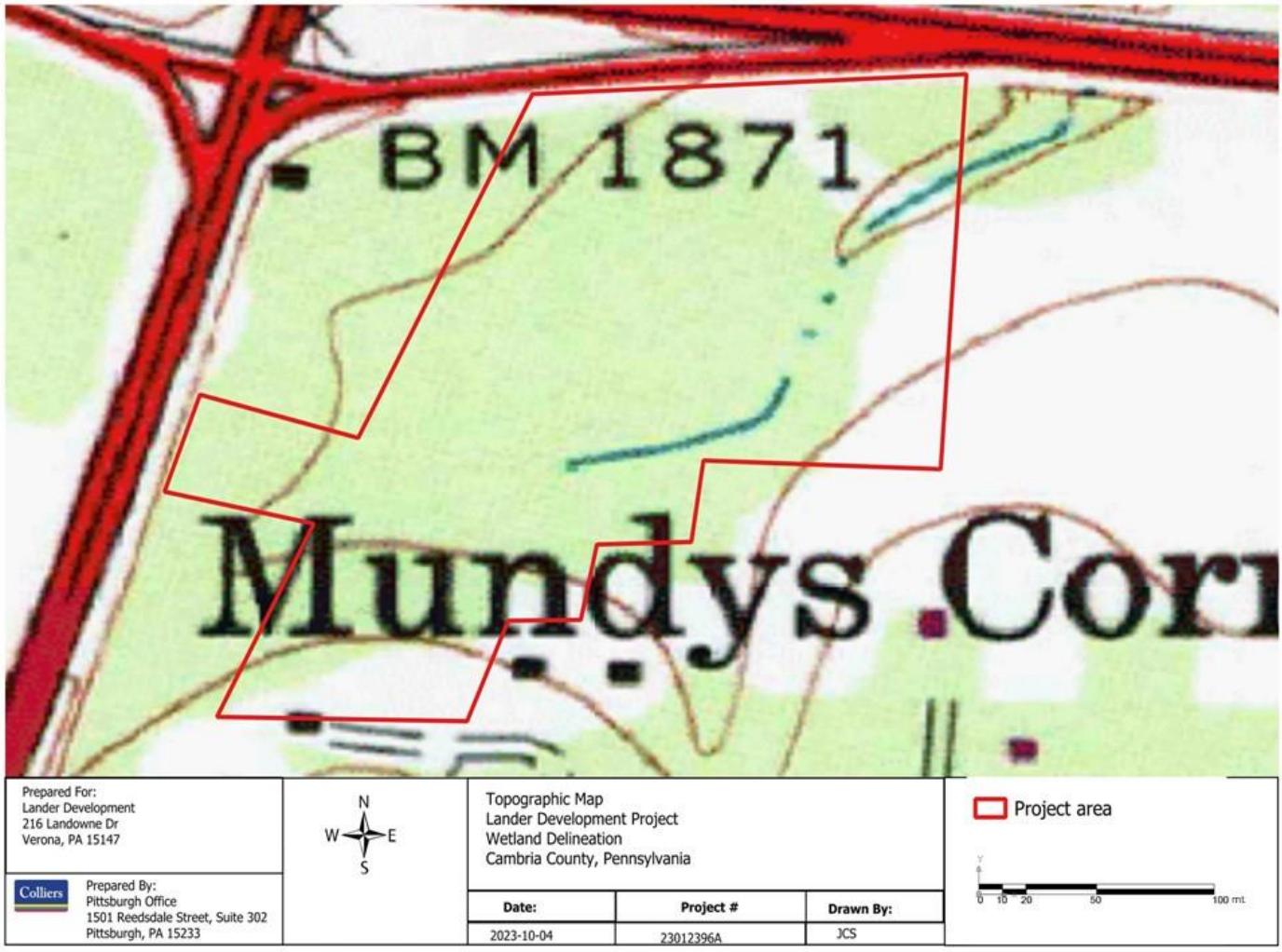

Figure 2: Topographic Map of the Project area.

Figure 3: Soil Map of the Project area.

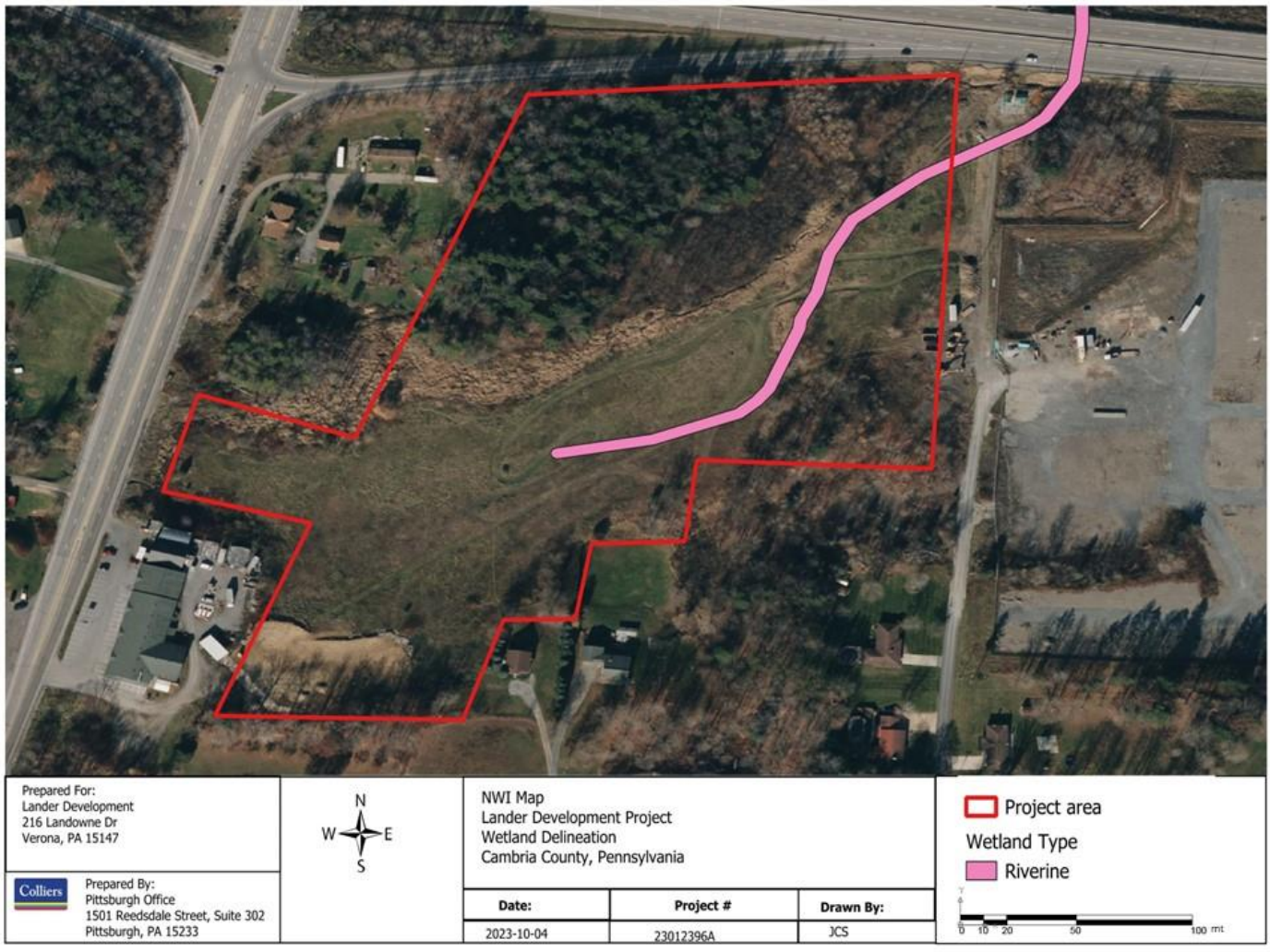

Figure 4: NWI map of the Project area.

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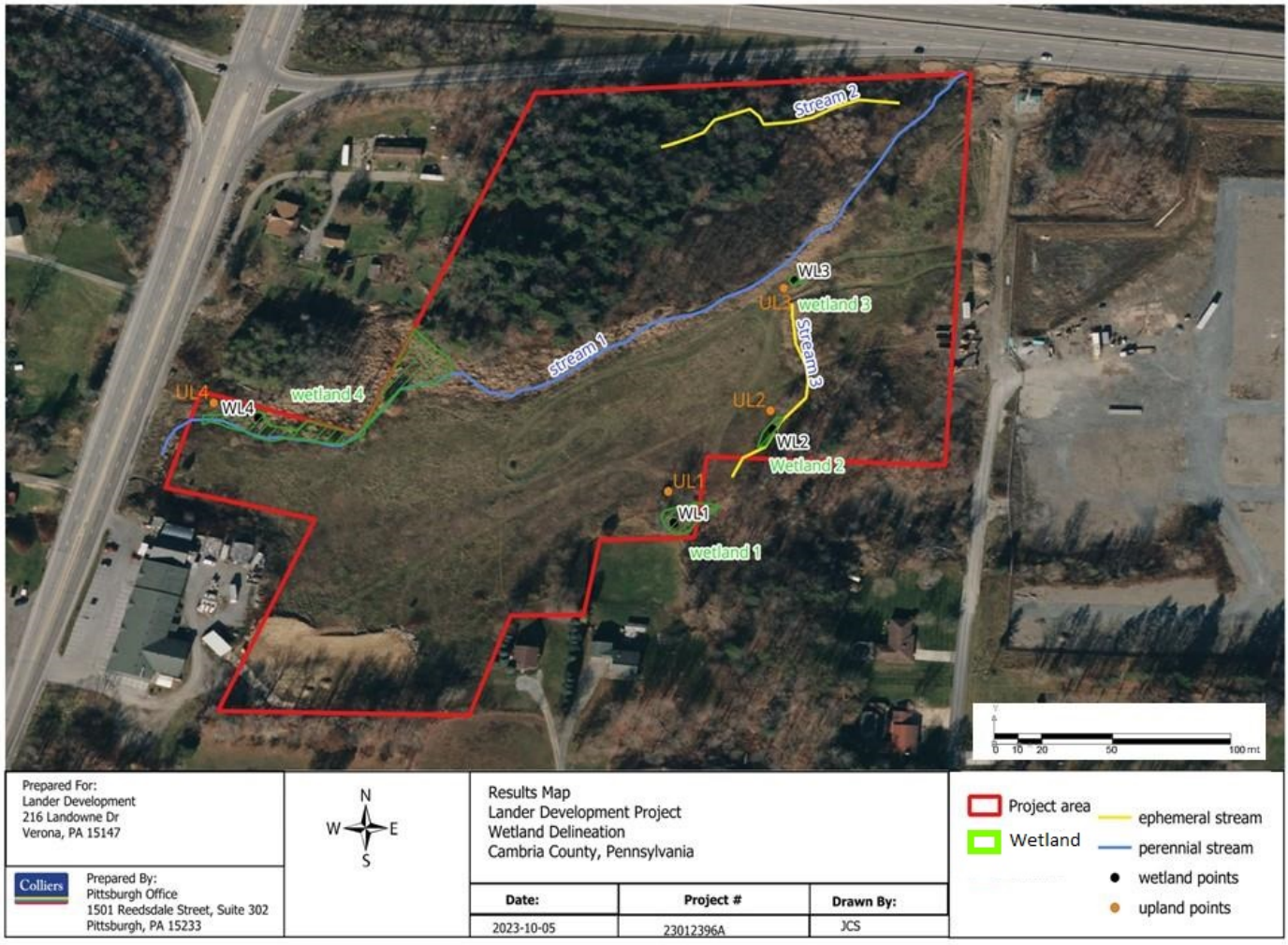

Figure 5: Results map of the Project area showing resources identified.

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Appendix A

Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Zach Lander Proposed Wedding Developme | City/County: Jackson/Cambria | Sampling Date: 10/3/2023
Applicant/Owner: Lander Development | State: PA | Sampling Point: WL1
Investigator(s): Jacob C. Spuck PWS | Section, Township, Range: Nanty-Glo
Landform (hillslope, terrace, etc.): low terrace | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR or MLRA): EAPM | Lat: 40.447239° | Long: -78.837496° | Datum: NAD1983
Soil Map Unit Name: BtB | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✔] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [✔] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✔] Surface Water (A1)
- [✔] High Water Table (A2)
- [✔] Saturation (A3)
- [ ] Water Marks (B1)
- [✔] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [✔] Iron Deposits (B5)
- [✔] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [✔] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [✔] Saturation Visible on Aerial Imagery (C9)
- [✔] Stunted or Stressed Plants (D1)
- [✔] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [✔]	No [ ]	Depth (inches): 1
Water Table Present?	Yes [✔]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [✔]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✔] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WL1

Tree Stratum (Plot size: 10 sq meter)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 10 sq meter)			
1. Cornus amomum	40	Y	FACW
2. Rosa multiflora	15	N	FACU
3.			
4.			
5.			
6.			
	55 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10 sq meter)			
1. Impatiens capensis	40	Y	FACW
2. Symphyotrichum puniceum	20	Y	OBL
3. Typha Latifolia	25	Y	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	80	x 2 =	160
FAC species	60	x 3 =	180
FACU species	15	x 4 =	60
UPL species		x 5 =	
Column Totals:	200 (A)		445 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/4	90	7.5YR 4/4	10	C	PL	Sicllo	
2-14	Gley 2 8/5PB	80	7.5YR 4/4	20	C	PL	Cllo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Zach Lander Proposed Wedding Developme | City/County: Jackson/Cambria | Sampling Date: 10/3/2023
Applicant/Owner: Lander Development | State: PA | Sampling Point: WL2
Investigator(s): Jacob C. Spuck PWS | Section, Township, Range: Nanty-Glo
Landform (hillslope, terrace, etc.): low terrace | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR or MLRA): EAPM | Lat: 40.447699° | Long: -78.836990° | Datum: NAD1983
Soil Map Unit Name: BtB | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✔] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [✔] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [✔] High Water Table (A2)
- [✔] Saturation (A3)
- [✔] Water Marks (B1)
- [✔] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [✔] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [✔] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✔] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [✔] Saturation Visible on Aerial Imagery (C9)
- [✔] Stunted or Stressed Plants (D1)
- [✔] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [ ] No [✔] Depth (inches):
Water Table Present? Yes [✔] No [ ] Depth (inches): 1
Saturation Present? (includes capillary fringe) Yes [✔] No [ ] Depth (inches): 1

Wetland Hydrology Present? Yes [✔] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WL2

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 sq meter)			
1. Acer rubrum	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
	____ = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 10 sq meter)			
1. Cornus amomum	60	Y	FACW
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 10 sq meter)			
1. Impatiens capensis	25	Y	FACW
2. Symphyotrichum puniceum	10	N	OBL
3. Typha Latifolia	35	Y	OBL
4. Scirpus cyperinus	15	N	FACW
5. Symplocarpus foetidus	5	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	100	x 2 =	200
FAC species	50	x 3 =	150
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	200 (A)		400 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					Sicllo	100 percent saturated
2-14	Gley 2 4/10BG	100					Cllo	100 percent saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Zach Lander Proposed Wedding Developme | City/County: Jackson/Cambria | Sampling Date: 10/3/2023
Applicant/Owner: Lander Development | State: PA | Sampling Point: WL3
Investigator(s): Jacob C. Spuck PWS | Section, Township, Range: Nanty-Glo
Landform (hillslope, terrace, etc.): low terrace | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR or MLRA): EAPM | Lat: 40.448421° | Long: -78.836877° | Datum: NAD1983
Soil Map Unit Name: BtB | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✔] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [✔] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✔] Surface Water (A1)
- [✔] High Water Table (A2)
- [✔] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [✔] Iron Deposits (B5)
- [✔] Inundation Visible on Aerial Imagery (B7)
- [✔] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [✔] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [✔] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [✔] Saturation Visible on Aerial Imagery (C9)
- [✔] Stunted or Stressed Plants (D1)
- [✔] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✔] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [✔]	No [ ]	Depth (inches): 0
Water Table Present?	Yes [✔]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [✔]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✔] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WL3

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 sq meter)			
1. Acer rubrum	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
	____ = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
	____ = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 10 sq meter)			
1. Phalaris arundinacea	65	Y	FACW
2. Typha Latifolia	10	N	OBL
3. Solidago canadensis	10	N	FACU
4. Symphyotrichum puniceum	10	N	OBL
5. Scirpus cyperinus	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	70	x 2 =	140
FAC species	30	x 3 =	90
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	130 (A)		290 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	Gley 2 8/5PB	80					Cllo	100 percent saturated
0-14	10YR 4/3	20					Cllo	100 percent saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Zach Lander Proposed Wedding Developme | City/County: Jackson/Cambria | Sampling Date: 10/3/2023
Applicant/Owner: Lander Development | State: PA | Sampling Point: WL4
Investigator(s): Jacob C. Spuck PWS | Section, Township, Range: Nanty-Glo
Landform (hillslope, terrace, etc.): low terrace | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR or MLRA): EAPM | Lat: 40.447740° | Long: -78.839645° | Datum: NAD1983
Soil Map Unit Name: BtB | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✔] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [✔] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✔]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✔] No [ ]
Hydric Soil Present?	Yes [✔]	No [ ]	
Wetland Hydrology Present?	Yes [✔]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✔] Surface Water (A1)
- [✔] High Water Table (A2)
- [✔] Saturation (A3)
- [✔] Water Marks (B1)
- [✔] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [✔] Algal Mat or Crust (B4)
- [✔] Iron Deposits (B5)
- [✔] Inundation Visible on Aerial Imagery (B7)
- [✔] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [✔] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [✔] Sparsely Vegetated Concave Surface (B8)
- [✔] Drainage Patterns (B10)
- [✔] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [✔] Saturation Visible on Aerial Imagery (C9)
- [✔] Stunted or Stressed Plants (D1)
- [✔] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [✔] No [ ] Depth (inches): 0
Water Table Present? Yes [✔] No [ ] Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes [✔] No [ ] Depth (inches): 0

Wetland Hydrology Present? Yes [✔] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WL4

Tree Stratum (Plot size: 10 sq meter)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ailanthus altissima	20	Y	FACU
2. Betula nigra	20	Y	FACW
3.			
4.			
5.			
6.			
	40	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10 sq meter)			
1. Phalaris arundinacea	25	Y	FACW
2. Typha latifolia	15	N	OBL
3. Impatiens capensis	10	N	FACW
4. Mentha aquatica	10	N	FACW
5. Phalaris arundinacea	20	Y	FACW
6. Scirpus cyperinus	10	N	FACW
7. Carex echinata	5	N	OBL
8.			
9.			
10.			
11.			
	95	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	95	x 2 =	190
FAC species		x 3 =	
FACU species	20	x 4 =	80
UPL species		x 5 =	
Column Totals:	135 (A)		290 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	Gley 2 6/5BG	80					Cllo	100 percent saturated
0-14	10YR 4/3	20					Cllo	100 percent saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Zach Lander Proposed Wedding Developme | City/County: Jackson/Cambria | Sampling Date: 10/3/2023
Applicant/Owner: Lander Development | State: PA | Sampling Point: UL2
Investigator(s): Jacob C. Spuck PWS | Section, Township, Range: Nanty-Glo
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 2-4
Subregion (LRR or MLRA): EAPM | Lat: 40.447751° | Long: -78.837071° | Datum: NAD1983
Soil Map Unit Name: BtB | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✔] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [✔] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✔]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✔]
Hydric Soil Present?	Yes [ ]	No [✔]	
Wetland Hydrology Present?	Yes [ ]	No [✔]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✔] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✔]	Depth (inches):
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✔]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✔]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: UL2

Tree Stratum (Plot size: 10 sq meter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 10 sq meter)			
1. Rubus armeniacus	25	Y	UPL
2.			
3.			
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10 sq meter)			
1. Solidago canadensis	35	Y	FACU
2. Anthemis cotula	20	N	FACU
3. Daucus carota	25	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species	55	x 4 =	220
UPL species	50	x 5 =	250
Column Totals:	105 (A)		470 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10yr 4/3	80					Silo	Heavy gravel. Disturbed soil.
0-14	10YR 4/1	20					Silo	Heavy gravel. Disturbed soil.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Zach Lander Proposed Wedding Developme | City/County: Jackson/Cambria | Sampling Date: 10/3/2023
Applicant/Owner: Lander Development | State: PA | Sampling Point: UL4
Investigator(s): Jacob C. Spuck PWS | Section, Township, Range: Nanty-Glo
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 2-4
Subregion (LRR or MLRA): EAPM | Lat: 40.447794° | Long: -78.839831° | Datum: NAD1983
Soil Map Unit Name: BtB | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✔] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [✔] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✔]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✔]
Hydric Soil Present?	Yes [ ]	No [✔]	
Wetland Hydrology Present?	Yes [ ]	No [✔]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✔] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✔]	Depth (inches):
Water Table Present?	Yes [ ]	No [✔]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✔]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✔]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: UL4

Tree Stratum (Plot size: 10 sq meter)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	35	Y	FACU
2. Pinus strobus	30	Y	FACU
3.			
4.			
5.			
6.			
	65 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 10 sq meter)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 10 sq meter)			
1. Cornus alba	20	N	FACW
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10 sq meter)			
1. Solidago canadensis	40	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 20	x 2 = 40
FAC species	x 3 =
FACU species 105	x 4 = 420
UPL species	x 5 =
Column Totals: 125 (A)	460 (B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WL4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10yr 4/3	100					Silo	Heavy gravel
4-8	10YR 4/4	100					Silo	Impassible. Disturbed soil.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
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- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks:

Colliers
Engineering
& Design

Appendix B

Photo Log

Photo 1: Southwestern portion of the Project area, facing east. Note: Stream 1 in foreground.

Photo 2: Northeastern portion of the Project area, facing southwest.

Photo 3: western portion of Wetland 1, facing east.

Photo 4: WL1 Soil Profile.

Photo 5: Western side of Wetland 2, facing East. Ephemeral channel 3 in background.

Photo 6: WL2 Soil Profile.

Photo 7: UL2 Soil Profile.

Photo 8: South of Wetland 3, facing north.

Photo 9: WL 3 Soil Profile.

Photo 10: Center of WL 4, facing south.

Photo 11: WL 4 Soil Profile.

Photo 12: UL4 Soil Profile.

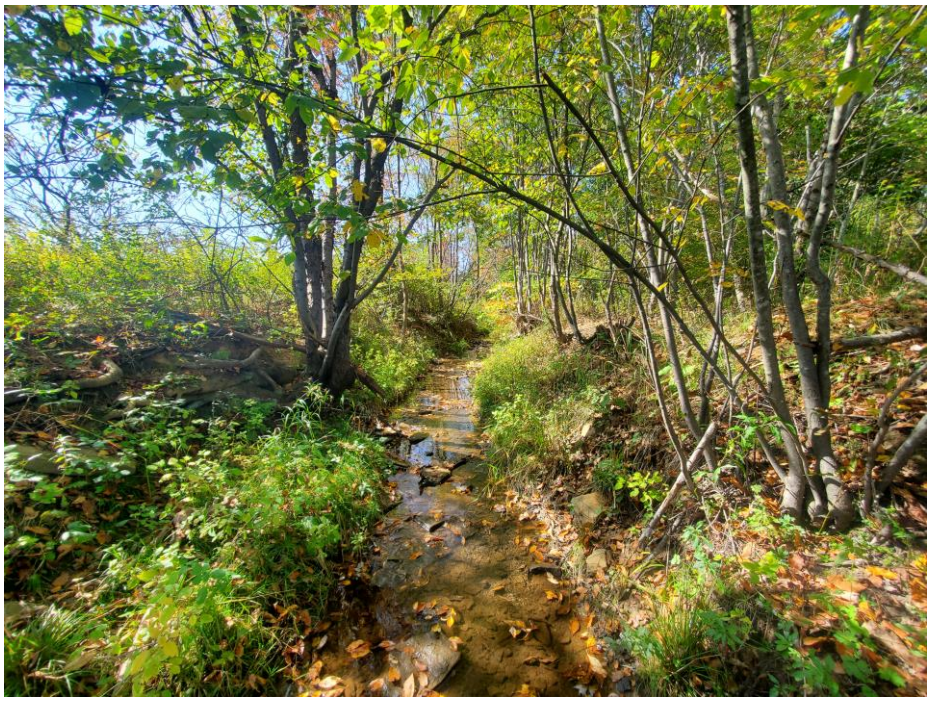

Photo 13: Stream Channel 1 in northern section of project area, facing south.

Photo 14: Stream Channel 2 in northern section of project area, facing east.