

WETLAND DELINEATION REPORT FOR THE MALIN ROAD PROPERTIES

**East Whiteland Township
Chester County, Pennsylvania**

October 29, 2014

By

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1.0 INTRODUCTION

Malin Road Properties, LLC. is proposing the development of a 23.2-acre parcel of ground located on the western side of Malin Road in East Whiteland Township, Chester County, PA. At the request of Inland Design, Great Valley Environmental, Inc. (GVE) delineated Wetlands and Regulated Waters of the U.S. on the property (See Figure1) on 6/26/14, 6/30/14, 7/2/14 and 7/7/14. Wetlands/Waters were flagged in the field and surveyed by Inland Design. The enclosed Plan of Property depicts the on-site wetlands/waters, soil types, photographs, data point locations, topography, and existing site features.

2.0 GENERAL SITE DESCRIPTION

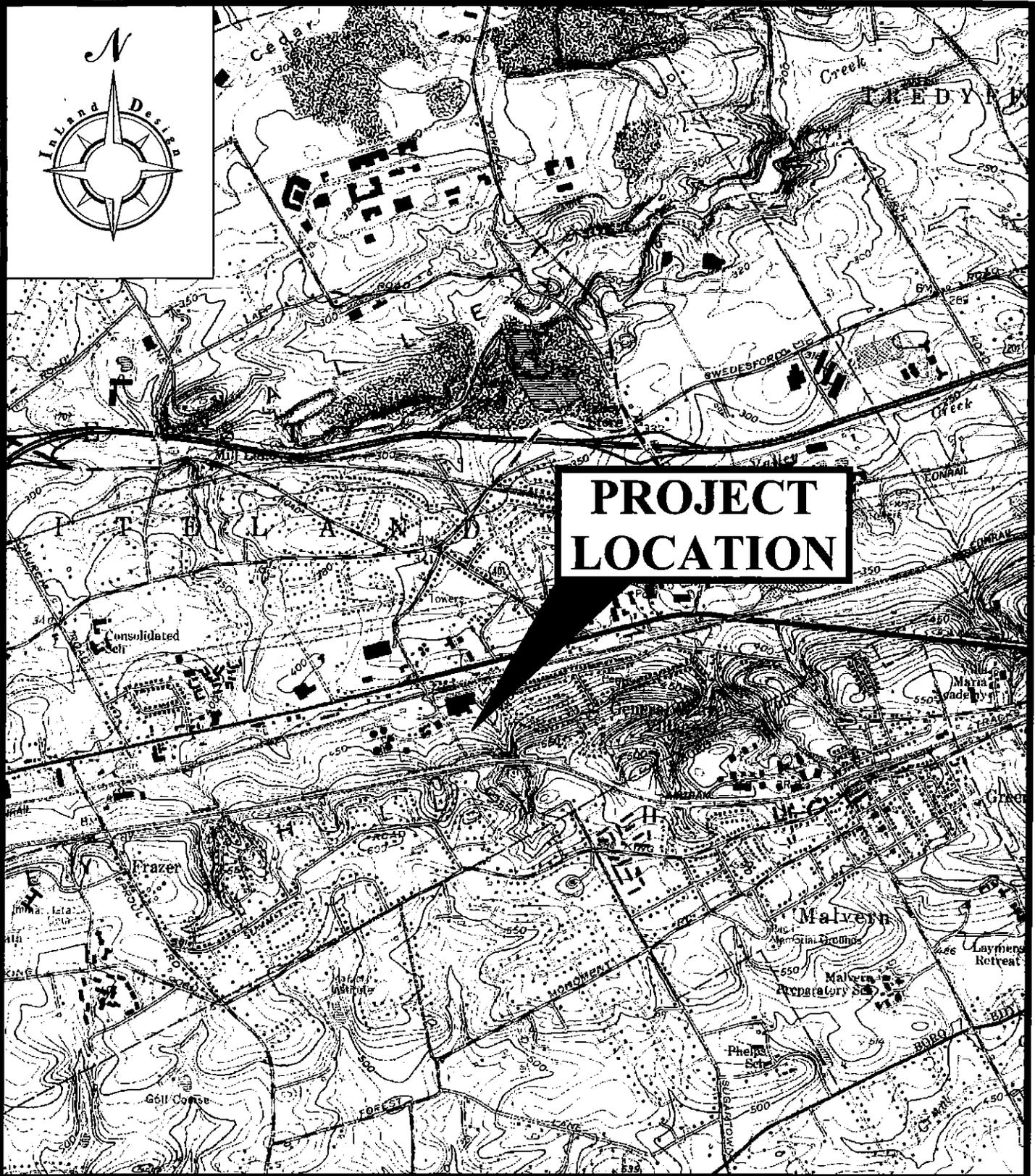
The property is generally rectangular in shape. Access is provided by Malin Road. Approximately half the site is wooded to the south with abandoned industrial buildings and macadam parking to the north. Wetlands and a stream are situated along the eastern part of the property. Topography on the site slopes steeply in the forested southern portion becoming relatively level in the developed northern half.

3.0 REGULATORY BACKGROUND AND DEFINITIONS

Activities in wetlands are regulated at both the Federal and State level in Pennsylvania. The Pennsylvania Department of Environmental Protection (PADEP) regulates activities in wetlands under the authority of the Dam Safety and Encroachments Act (act) (32 P.S. 693.1-693.28) of the Chapter 105 Dam and Waterway Management Program. The Army Corps of Engineers (ACOE) also regulates wetland-filling activities under Section 404 of the Clean Water Act. Recognizing the potential for continued or accelerated degradation of the Nation's waters, the United States Congress enacted the Clean Water Act (Act). The objective of the Act is to maintain and restore the chemical, physical, and biological integrity of the waters of the United States. Section 404 of the Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into the waters of the United States, including wetlands.

4.0 METHODOLOGY

Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions including swamps, marshes, bogs and similar areas. Diagnostic environmental characteristics of wetlands include vegetation, soils, and hydrology. By applying the principles outlined in the 2009 *Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*, the 1987 *Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1)* with guidance provided by the ACOE memorandum dated 6 March 1992, *Clarification and Interpretation of the 1987 Manual*, wetlands are identified in the field using the three parameter approach which requires investigation of vegetation, soils, and



**PROJECT
LOCATION**

InLand Design
Civil Engineers, Surveyors & Land Development Consultants

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**9 MALIN ROAD
USGS Location Map**
UP: 8.7 ACROSS: 5.8
Malvern Quad
East Whiteland Twp • Chester Co • Pa

Date:
10/14/2014
Scale:
1" = 2000'
Project No.
10383

hydrology. A minimum of one positive wetland indicator from each parameter must be found in order to make a positive wetland determination. Under certain circumstances, where one or more criterion is absent or disturbed the manual provides additional techniques used to identify wetlands.

Diagnostic environmental characteristics of wetlands include vegetation, soils, and hydrology. Wetlands have the following general characteristics:

Vegetation: The prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described in the preceding definition of "wetlands." Hydrophytic species, due to morphological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soils conditions.

Soil: Soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing conditions.

Hydrology: The area is inundated either permanently or periodically at mean water depths < 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation.

A Chapter 105 Water Obstruction and Encroachment permit is needed for any structure or activity which changes, expands or diminishes the course, current or cross section of a watercourse, floodway, or body of water. Bodies of water include both natural and artificial lakes, ponds, reservoirs, swamps, marshes, and wetlands. Under the Departments Chapter 106 Rules and Regulations additional permit requirements are placed upon activities within the Commonwealths floodplains. All of these activities are either waived or permitted at the state and federal level. A small projects permit is granted for activities with minimal impact to floodplains, they are not applicable for projects in wetlands. General permits are issued for ten types of activities that occur fairly commonly (minor road crossings, utility line crossings, etc.) and also have limited environmental impacts. A Joint Permit is required for larger projects involving impacts that are not considered minor. This is submitted jointly to the PADEP and the ACOE. An Environmental Assessment is required as a component of the joint permit or it may be required independently of any associated permit (i.e., as supporting documentation for certain waivers).

4.1 HYDROPHYTIC VEGETATION

Hydrophytic Vegetation is the sum total of macrophyte plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. A macrophyte is any plant species that can be readily observed without the aid of optical magnification. This includes all vascular plant species and mosses, as well as large algae. When the dominant species in a plant community are typically adapted for life in anaerobic soil

conditions, a hydrophytic plant community is present. Dominant plant species are those that contribute more to the character of a plant community than other species present, as estimated or measured in terms of various ecological parameters. Anaerobic conditions exist when molecular oxygen is absent (or effectively so) from the environment.

The US Army Corps of Engineers, Cold Regions Research and Engineering Laboratory, Eastern Mountains and Piedmont Region – NWPL Final Draft Ratings (2012), rates species of macrophytes based on their affinity or avoidance for/of anaerobic soils as follows:

Plant Indicator Status Categories

<u>Indicator Category</u>	<u>Indicator Symbol</u>	<u>Definition</u>
Obligate Wetland Plants	OBL	Plants that occur almost always (estimated probability 99%) in wetlands under natural conditions, but which may also occur rarely (estimated probability 1%) in nonwetlands.
Facultative Wetland Plants	FACW	Plants that occur usually (estimated probability 67% to 99%) in wetlands, but also occur (estimated probability 1% to 33% in nonwetlands).
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and nonwetlands.
Facultative Upland Plants	FACU	Plants that occur sometimes (estimated probability 1% to 33%) in wetlands, but occur more often (estimated probability 67% to 99%) in nonwetlands.
Obligate Upland Plants	UPL	Plants that rarely occur (estimated probability 1%) in wetlands, but occur almost always (estimated probability 99%) in nonwetlands under natural conditions.

A plant community is considered hydrophytic if greater than 50% of the dominant plants from all strata (herb, shrub, woody vine, or tree) are rated OBL, FACW, or FAC. If a plant community is dominated by FAC species, non-dominant species must be considered. The plant community is considered hydrophytic if more than 50% of the dominant from all strata are OBL, FACW, or FAC (excluding FAC-).

The most common form of wetland evaluation is referred to as the Routine Determination. After determining, through best professional judgment, that normal circumstances prevail on a

site, a characterization of plant community types is visually performed. Each stratum is evaluated and dominant plants are listed and assigned respective indicator status ratings. Again, the plant community is considered hydrophytic if more than 50% of all species present are wetter than FAC, otherwise the area is nonwetland. This is the methodology that was applied on this project.

4.2 HYDRIC SOILS

Hydric soils are defined as a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. Hydric soils that occur in areas having positive indicators of hydrophytic vegetation and wetland hydrology are wetland soils.

Field investigation of soils are conducted by obtaining a soil sample which penetrates below the A horizon, or to a depth of ten inches (whichever is shallower). (GVE typically evaluates soils to a depth of at least 24 inches throughout the investigation area). The soil is examined for hydric soil indicators with soil color being the primary indicator of a hydric condition. Soil color is characterized by three features: hue, value, and chroma. Hue refers to the soil color in relation to red, yellow, blue, etc. Value refers to the lightness of the hue, and chroma refers to the strength of the color. Soil colors are determined by use of a Munsell (Munsell Color, 1994). Each Munsell Color Book has color charts of different hues ranging from 10R to 5Y. Each page of hue has color chips that show values and chromas. Values are shown in columns down the page from as low as 0 to as much as 8, and chromas are shown in rows across the page from as low as 0 to as high as 8. In writing the color notations, the sequence is always hue, value, and chroma (e.g., 10YR5/2). The soil is matched to the closest soil color chip in the Munsell book. Mineral hydric soils usually have one of the following color features immediately below the A-horizon or 10 inches (whichever is shallower). If the predominant color (matrix) is found on the gley pages, the soil is hydric. If the soil is nongleyed and the matrix chroma is 0 or 1, the soil is hydric. If the matrix chroma is 2 and other colors (mottles) are present within the matrix, the soil is hydric. Soils with matrix chromas of 3 or greater are nonhydric.

4.3 WETLAND HYDROLOGY

Wetland hydrology is present when the area is inundated either permanently or periodically at mean water depths <6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation. Hydrology is often the least exact of the parameters, and indicators of wetland hydrology are often difficult to find in the field. It is essential to establish that a wetland area is periodically inundated or has saturated soils during the growing season. Indicators of wetland hydrology may include: drainage patterns, drift lines, sediment deposition, watermarks, stream gage data and flood predictions, historic records, visual observation of saturated soils, and visual observation of inundation.

5.0 SITE VEGETATION

A Palustrine scrub/shrub/forested wetland was identified along the eastern portion of the property

which includes sections of non-wetland Regulated Waters with well-defined streambanks delineated in the field by orange flags. Details of these features are included on the enclosed data forms.

The mucky forested wetland substrates were dominated by skunk cabbage, jewelweed, sedges and grasses. Trees and shrubs were dominated by red maple and spicebush. These areas are depicted on photographs E, F, G, H, I, J, and L located in Appendix A. Data forms 3, 5, 7 and 9 in Appendix B documents hydrology, vegetation and soils in the wetlands.

The Regulated Waters are depicted on photographs A, B, Q, R, and S located in Appendix A. Data form 1 in Appendix B documents hydrology, vegetation and soils in the Regulated Waters.

The majority of the site is non-wetland deciduous forest and abandoned industrial facilities. These areas are depicted on photographs C, D, M, N, O, P and T, located in Appendix A. Data forms 2, 4, 6, 8, 10, 11, 12 and 13 in Appendix B document hydrology, vegetation and soils at representative nonwetland areas within the site.

“MALIN ROAD PROPERTIES” MASTER PLANT LIST

HERBACEOUS PLANTS

clearweed (*Pilea pumila*, FACW)
soft rush (*Juncus effusus*, FACW+)
broad-leaved cattail (*Typha latifolia*, OBL)
jewelweed (*Impatiens capensis*, FACW)
skunk cabbage (*Symplocarpus foetidus*, OBL)
wool grass (*Scirpus cyperinus*, FACW)
path rush (*Juncus tenuis*, FAC)
phragmites (*Phragmites australis*, FACW)
boneset (*Eupatorium perfoliatum*, FACW)
water plantain (*Alisma subcordata*, OBL)
teasel (*Dipsacus sylvestris*, FAC)
marsh fern (*Thelypteris palustris*, FACW)
stilt grass (*Microstegium vimineum*, FAC)
Kentucky bluegrass (*Poa pratensis*, FACU)
deertongue panic grass (*Panicum clandestinum*, NL)
path rush (*Juncus tenuis*, FAC)
Canada goldenrod (*Solidago canadensis*, FACU)
yellow rocket (*Barbarea vulgaris*, FACU)
gill-over-the-ground (*Glechoma hederacea*, FACU)
field mustard (*Brassica rapa*, NL)
garlic mustard (*Alliaria petiolata*, FACU-)
hay-scented fern (*Dennstaedtia punctilobula*, UPL)
English plantain (*Plantago lanceolata*, UPL)

common plantain (*Plantago major*, FACU)
pokeweed (*Phytolacca americana*, FACU+)
Asiatic tearthumb (*Polygonum perfoliatum*, FAC)
Canadian thistle (*Cirsium arvense*, FACU)
Enchanter's nightshade (*Circaea lutetiana*, FACU)
Trillium (*Trillium cernuum*, FACW)
Common ragweed (*Ambrosia artemisiifolia*, FACU)
Solomon's seal (*Polygonatum biflorum*, FACU)
Common burdock (*Arctium minus*, FACU)

SHRUBS

spicebush (*Lindera benzoin*, FAC)
arrowwood (*Viburnum dentatum*, FAC)
witch hazel (*Hamamelis virginiana*, FAC-)
European privet (*Ligustrum vulgare*, FACU)
multiflora rose (*Rosa multiflora*, FACU)
raspberry (*Rubus ideaus*, FAC)
wineberry (*Rubus phoenicolasius*, UPL)
bush honeysuckle (*Lonicera macckii*, NL)
smooth sumac (*Rhus glabra*, NL)
Staghorn sumac (*Rhus typhina*, NL)

VINES

Japanese honeysuckle (*Lonicera japonica*, FAC)
Summer grape (*Vitis aestivalis*, FACU)
Asian bittersweet (*Celastrus orbiculatus*, UPL)
poison ivy (*Toxicodendron radicans*, FAC)
Virginia creeper (*Parthenocissus quinquefolia*, FACU)

TREES

green ash (*Fraxinus pennsylvanica*, FACW)
black willow (*Salix nigra*, FACW)
sycamore (*Platanus occidentalis*, FACW)
red maple (*Acer rubrum*, FAC)
box elder (*Acer negundo*, FAC)
ironwood (*Carpinus carolineana*, FAC)
Chestnut oak (*Quercus prinus*, UPL, FACU)
Eastern red cedar (*Juniperus virginiana*, FACU)
black cherry (*Prunus serotina*, FACU)
American beech (*Fagus grandifolia*, FACU)
tulip poplar (*Liriodendron tulipifera*, FACU)
Northern red oak (*Quercus rubra*, FACU)

black cherry (*Prunus serotina*, FACU)
black walnut (*Juglans nigra*, FACU)
black oak (*Quercus velutina*, NL)
Norway maple (*Acer platanoides*, UPL)
Northern Catalpa (*Catalpa speciosa*, FAC)
Mockernut hickory (*Carya tomentosa*, NL)

6.0 SITE SOILS

The U. S. Department of Agriculture, Natural Resources Conservation Services (2014) “ Web Soil Survey of Chester County” classifies and characterizes the soils on the site. (See Figure 2).

There are no hydric soils mapped within the site according to the soil survey (See figure 3).

Custom Soil Resource Report
Soil Map

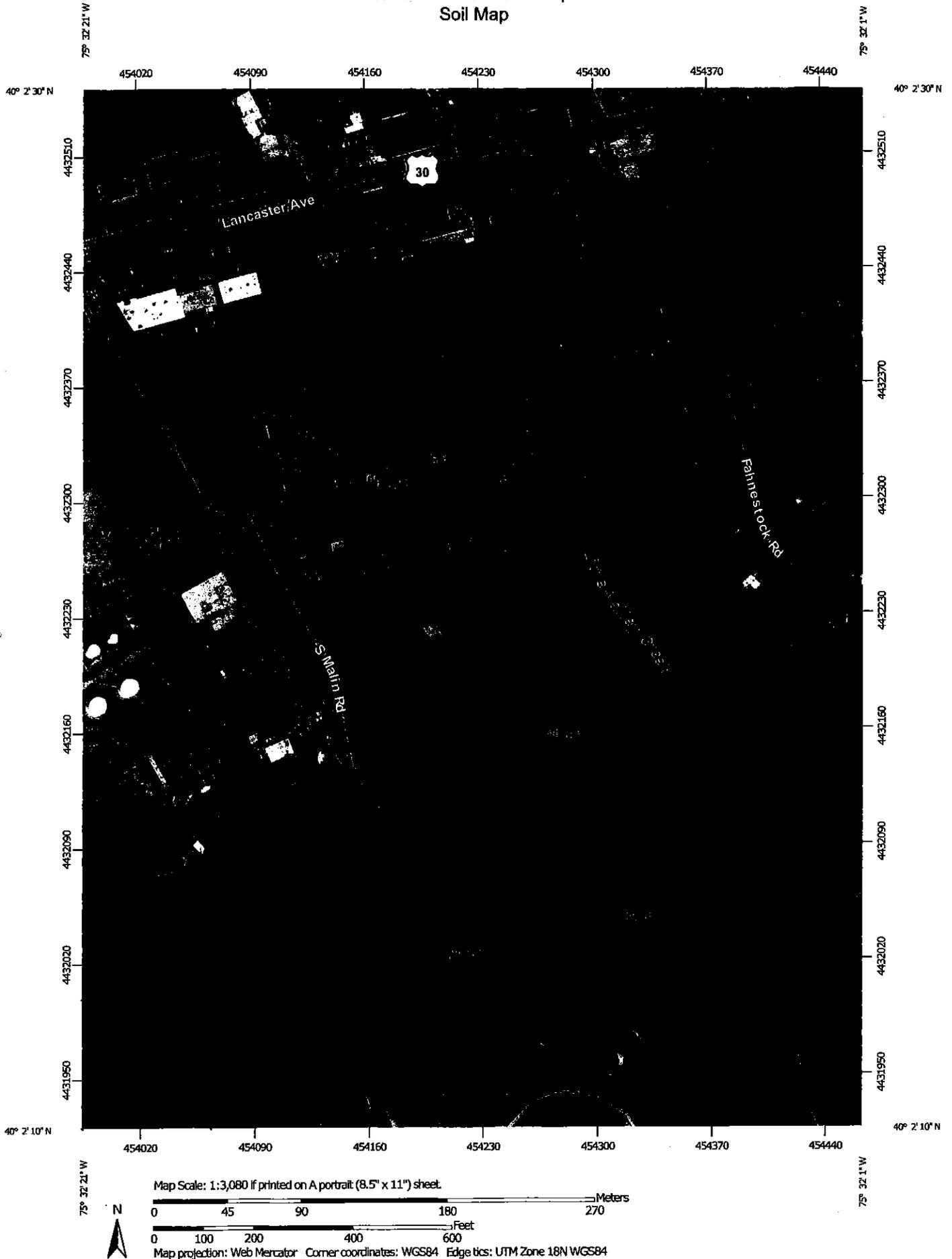


FIGURE 2

MAP LEGEND

	Area of Interest (AOI)		Area of Interest (AOI)
	Soils		Soil Area
	Soil Map Unit Polygons		Stony Spot
	Soil Map Unit Lines		Very Stony Spot
	Soil Map Unit Points		Wet Spot
	Special Point Features		Other
	Blowout		Special Line Features
	Borrow Pit		Water Features
	Clay Spot		Streams and Canals
	Closed Depression		Transportation
	Gravel Pit		+++
	Gravelly Spot		Rails
	Landfill		Interstate Highways
	Lava Flow		US Routes
	Marsh or swamp		Major Roads
	Mine or Quarry		Local Roads
	Miscellaneous Water		Background
	Perennial Water		Aerial Photography
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chester County, Pennsylvania
 Survey Area Data: Version 5, Sep 15, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 17, 2010—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Chester County, Pennsylvania (PA029)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MaB	Manor loam, 3 to 8 percent slopes	0.1	0.5%
MaD	Manor loam, 15 to 25 percent slopes	13.1	48.7%
MaE	Manor loam, 25 to 35 percent slopes	0.7	2.7%
UrgD	Urban land-Conestoga complex, 8 to 25 percent slopes	11.5	43.0%
UugD	Urban land-Udorthents, schist and gneiss complex, 8 to 25 percent slopes	1.3	5.0%
Totals for Area of Interest		26.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially

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where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Chester County, Pennsylvania

MaB—Manor loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: pjl2
Elevation: 200 to 1,000 feet
Mean annual precipitation: 35 to 50 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 140 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Manor and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manor

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from mica schist

Typical profile

Ap - 0 to 8 inches: loam
Bw - 8 to 23 inches: channery loam
C - 23 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 72 to 99 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Minor Components

Glenville

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope, head slope

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Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

Hatboro

Percent of map unit: 2 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

MaD—Manor loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: pjl8

Elevation: 200 to 1,000 feet

Mean annual precipitation: 35 to 50 inches

Mean annual air temperature: 48 to 57 degrees F

Frost-free period: 150 to 220 days

Farmland classification: Not prime farmland

Map Unit Composition

Manor and similar soils: 97 percent

Minor components: 3 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manor

Setting

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Residuum weathered from mica schist

Typical profile

A - 0 to 7 inches: loam

Bw - 7 to 20 inches: channery loam

C - 20 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 72 to 99 inches to paralithic bedrock

Natural drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Custom Soil Resource Report

Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Minor Components

Glenville

Percent of map unit: 3 percent

Landform: Hillslopes

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Side slope, head slope

Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

MaE—Manor loam, 25 to 35 percent slopes

Map Unit Setting

National map unit symbol: pjlc

Elevation: 200 to 1,000 feet

Mean annual precipitation: 35 to 50 inches

Mean annual air temperature: 48 to 57 degrees F

Frost-free period: 150 to 220 days

Farmland classification: Not prime farmland

Map Unit Composition

Manor and similar soils: 98 percent

Minor components: 2 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manor

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Residuum weathered from mica schist

Typical profile

A - 0 to 4 inches: loam

Bw - 4 to 19 inches: channery loam

C - 19 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 25 to 35 percent

Depth to restrictive feature: 72 to 99 inches to paralithic bedrock

Natural drainage class: Well drained

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Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B

Minor Components

Glenville

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear

UrgD—Urban land-Conestoga complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: pjn8
Elevation: 400 to 1,600 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 170 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent
Conestoga and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Parent material: Variable

Typical profile

C - 0 to 6 inches: variable

Custom Soil Resource Report

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 10 to 99 inches to lithic bedrock

Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Description of Conestoga

Setting

Landform: Hillsides

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Residuum weathered from limestone and/or residuum weathered from schist

Typical profile

A - 0 to 8 inches: silt loam

Bt - 8 to 40 inches: silty clay loam

C - 40 to 60 inches: channery fine sandy loam

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 60 to 99 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

UugD—Urban land-Udorthents, schist and gneiss complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: pjnz

Elevation: 200 to 2,000 feet

Mean annual precipitation: 35 to 55 inches

Mean annual air temperature: 45 to 61 degrees F

Frost-free period: 110 to 235 days

Custom Soil Resource Report

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent

Udorthents, schist and gneiss, and similar soils: 15 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluve, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Pavement, buildings and other artificially covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 10 to 99 inches to lithic bedrock

Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Description of Udorthents, Schist And Gneiss

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluve, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Graded areas of schist and/or gneiss

Typical profile

Ap - 0 to 6 inches: loam

C - 6 to 40 inches: silty clay loam

R - 40 to 60 inches: bedrock

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 20 to 70 inches to paralithic bedrock

Natural drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 60 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 6.8 inches)

Custom Soil Resource Report

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C

Minor Components

Edgemont

Percent of map unit: 1 percent

Landform: Ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Mountaintop

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Gladstone

Percent of map unit: 1 percent

Landform: Hillslopes

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Nose slope, side slope

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Glennelg

Percent of map unit: 1 percent

Landform: Hillslopes

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluve, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Glenville

Percent of map unit: 1 percent

Landform: Hillslopes

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Side slope, head slope

Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

Baile

Percent of map unit: 1 percent

Landform: Depressions

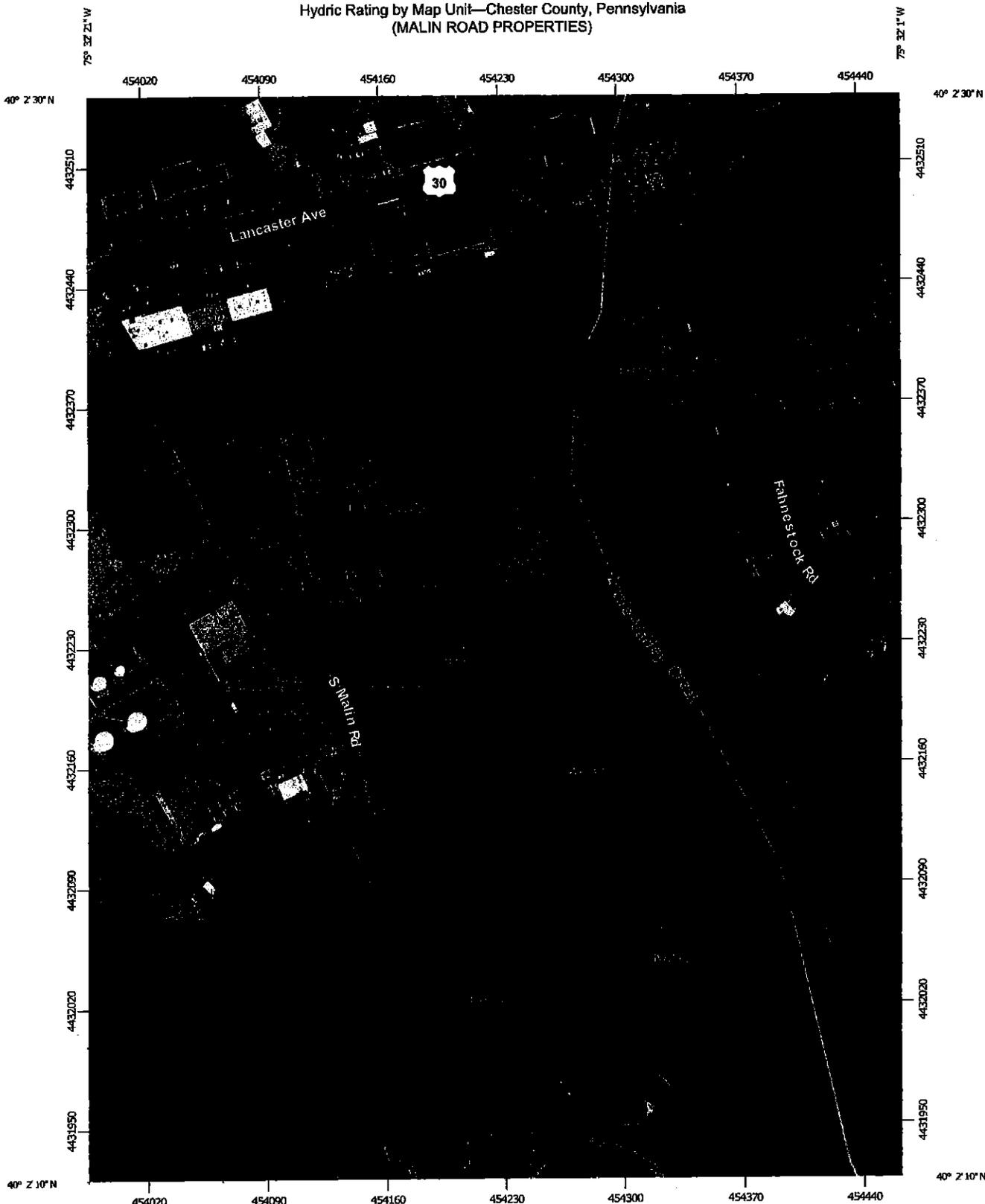
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric Rating by Map Unit—Chester County, Pennsylvania
(MALIN ROAD PROPERTIES)



Map Scale: 1:3,080 if printed on A portrait (8.5" x 11") sheet.

0 45 90 180 270 Meters

0 100 200 400 600 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 18N WGS84

FIGURE 3

MAP LEGEND

	Area of Interest (AOI)		Predominantly Hydric (66 to 99%)
	Area of Interest (AOI)		Partially hydric (33 to 65%)
	Soils		Predominantly nonhydric (1 to 32%)
	Soil Rating Polygons		Nonhydric (0%)
	Hydric (100%)		Not rated or not available
	Predominantly Hydric (66 to 99%)		
	Partially hydric (33 to 65%)		
	Predominantly nonhydric (1 to 32%)		
	Nonhydric (0%)		
	Not rated or not available		
	Soil Rating Lines		
	Hydric (100%)		
	Predominantly Hydric (66 to 99%)		
	Partially hydric (33 to 65%)		
	Predominantly nonhydric (1 to 32%)		
	Nonhydric (0%)		
	Not rated or not available		
	Soil Rating Points		
	Hydric (100%)		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chester County, Pennsylvania
Survey Area Data: Version 5, Sep 15, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 17, 2010—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Chester County, Pennsylvania (PA029)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MaB	Manor loam, 3 to 8 percent slopes	2	0.1	0.5%
MaD	Manor loam, 15 to 25 percent slopes	0	13.1	48.7%
MaE	Manor loam, 25 to 35 percent slopes	0	0.7	2.7%
UrgD	Urban land-Conestoga complex, 8 to 25 percent slopes	0	11.5	43.0%
UugD	Urban land-Udorthents, schist and gneiss complex, 8 to 25 percent slopes	1	1.3	5.0%
Totals for Area of Interest			26.8	100.0%

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

**MALIN ROAD
PROPERTIES**

Oct 22, 2014

Wetlands

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other

Riparian

-  Herbaceous
-  Forested/Shrub

Riparian Status

-  Digital Data



U.S. Fish and Wildlife Service
National Wetlands Inventory



This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:
CHESTER COUNTY, PA

FIGURE 4

7.0 SITE HYDROLOGY

The site is drained by Little Valley Creek which enters the property in the southeast corner via a culvert under the Penn Central Amtrack railroad line just south of the property as Regulated Waters which become forested wetlands and then scrub shrub wetlands and then into Regulated Waters as it flows off site. Flowing north then east into Valley Creek which flows into the Schuylkill River at Valley Forge, PA and ultimately to the Delaware River at Philadelphia, PA. Valley Creek is classified as EV/MF – Exceptional Value and Migratory Fisheries, PADEP Chapter 93 - Water Quality Standards.

The National Wetlands Inventory Map (Figure 4) depicts no wetlands on the property. This information is derived from aerial photographs and typically only depicts wetlands of five acres or more.

8.0 SUMMARY AND CONCLUSIONS

At the request of Inland Design, Great Valley Environmental, Inc. (GVE) delineated wetlands/waters on the proposed “Malin Road Properties” located in East Whiteland Township, Chester County, PA. Specifically, GVE delineated “Waters of the United States, including Federally Regulated Wetlands” on the site. Wetlands were flagged in the field and surveyed by Inland Design. The enclosed Plan of Property depicts the on-site wetlands/waters, photographs, topography, and existing site features. This delineation report and the surveyed wetland boundary partially fulfill the requirements for obtaining a Jurisdictional Determination (JD) from the Army Corps of Engineers (ACOE). The JD serves to officially approve the delineation as accurate.

9.0 REFERENCES

Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (2009).

Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1) with guidance provided by the ACOE memorandum dated 6 March 1992, Clarification and Interpretation of the 1987 Manual (1987).

US Army Corps of Engineers, Cold Regions Research and Engineering Laboratory, Eastern Mountains and Piedmont Region – NWPL Final Draft Ratings (2012).

Munsell Color, Munsell Soil Color Charts. Kollmorgen Corp, Baltimore, Maryland (1994).

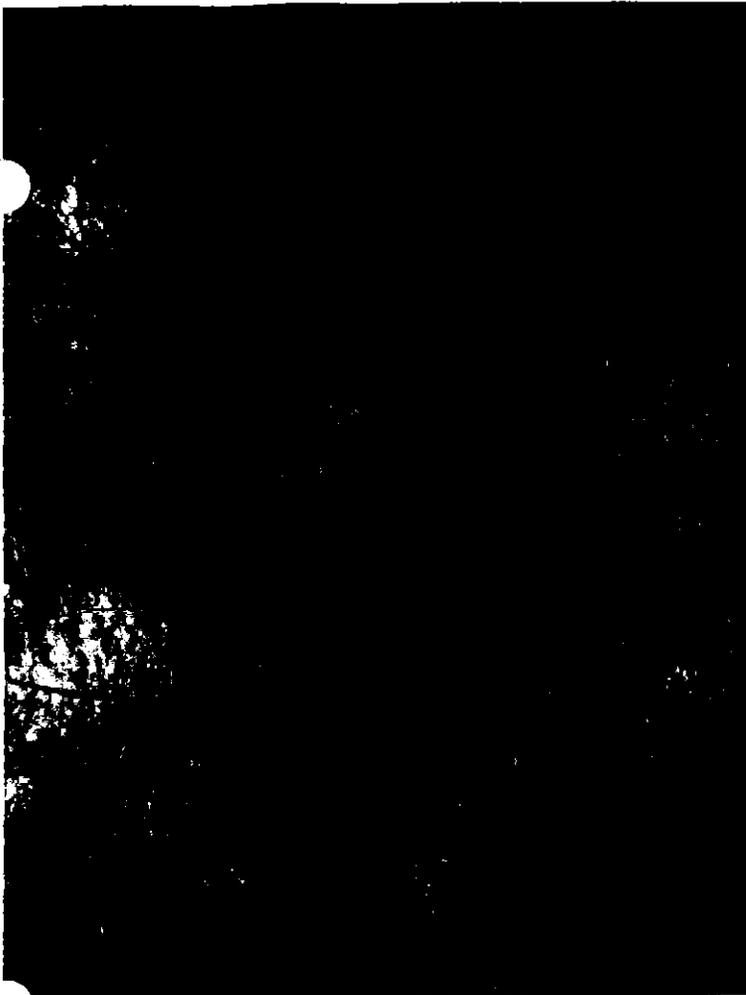
The U. S. Department of Agriculture, Natural Resources Conservation Services
“ Web Soil Survey of Chester County” (2014).

USGS, 7.5-Minute Topographic Quad, Malvern, PA.

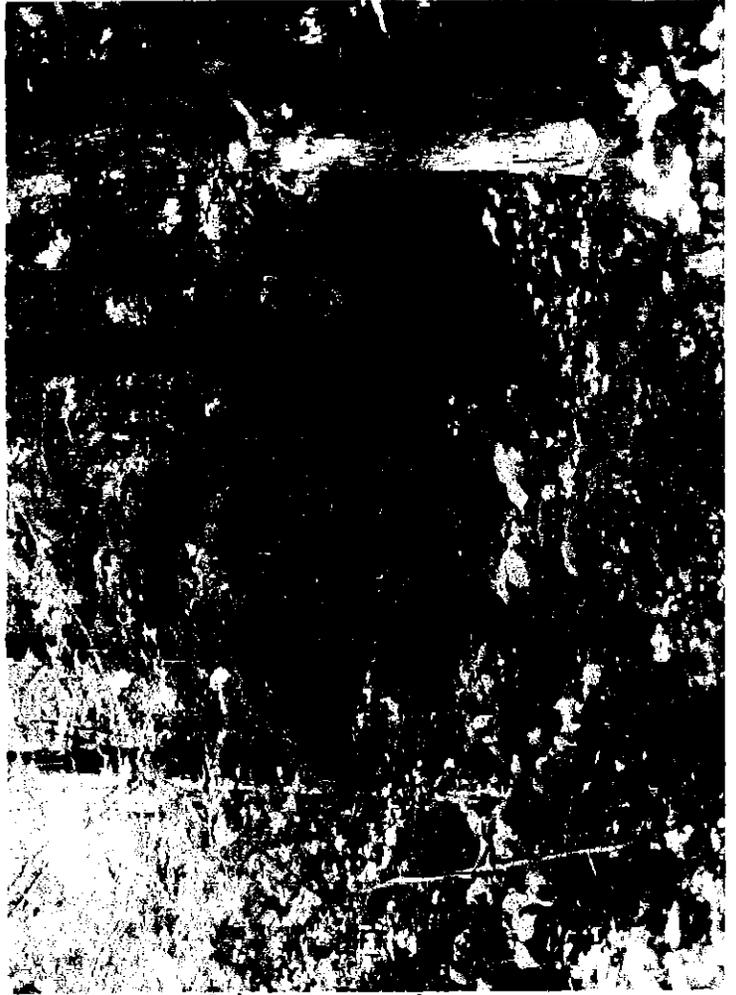
USFWS, National Wetlands Inventory Quad (2014).

APPENDIX A
Site Photographs – 7/2/14

- A. View looking north into Regulated Waters.
- B. View looking south into Regulated Waters where Little Valley Creek flows into the site.
- C. Box turtle in uplands.
- D. View of the uplands at Data Point 11.
- E. View looking north into forested wetlands.
- F. View looking north into forested wetlands.
- G. View looking northeast into forested wetlands.
- H. Looking from wetlands toward uplands.
- I. View looking into wetlands from upland edge.
- J. Looking into Regulated Waters where old pipe structure crosses creek.
- K. Hydric soil sample.
- L. View from upland into forested wetlands.
- M. Typical view of forested uplands.
- N. Non-hydric soil sample.
- O. View into low-lying area, which does not fulfill wetland soil/hydrology criteria.
- P. Typical view of abandoned industrial facility on-site.
- Q. View of Regulated Waters in tunnel in northeastern corner of the site.
- R. Another view of Regulated Waters in tunnel in northeastern corner of the site.
- S. Regulated Waters entering stream enclosure in northeastern corner of the site.
- T. Groundwater monitoring well.



A↑ B↓



C↓ D↑





EV

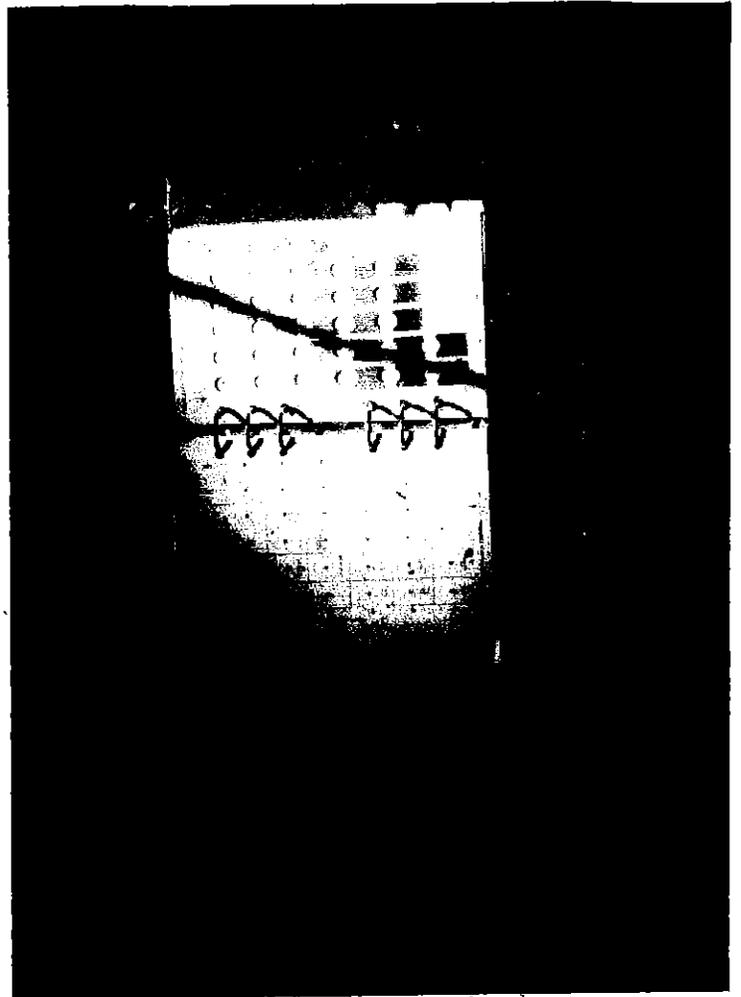
ET



GV

HT

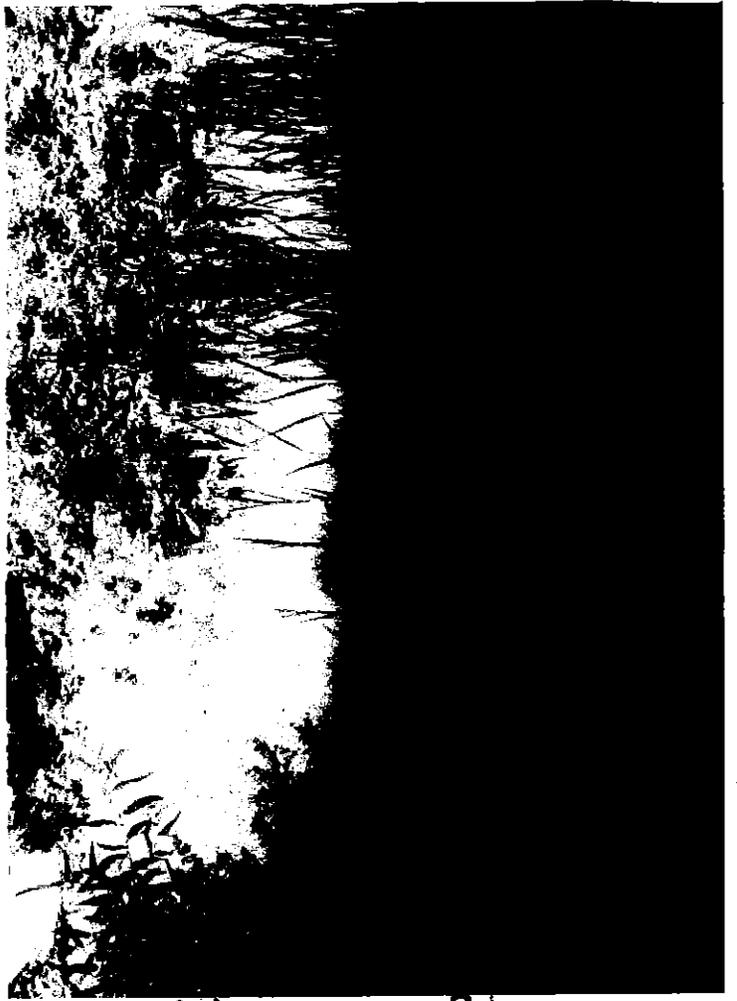






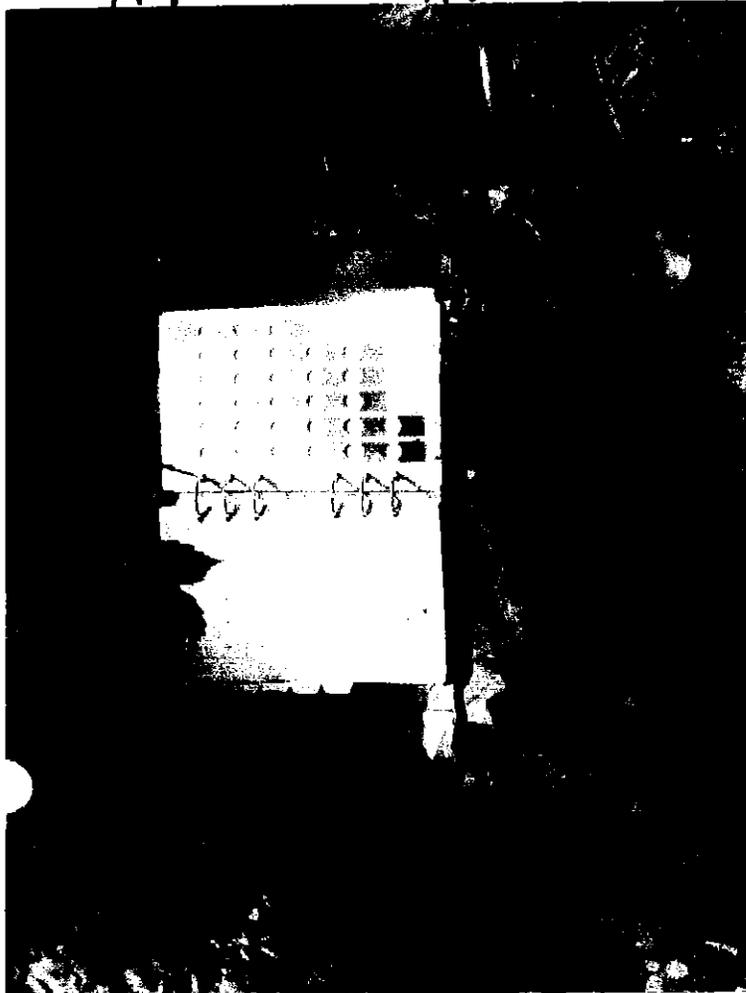
M ↑

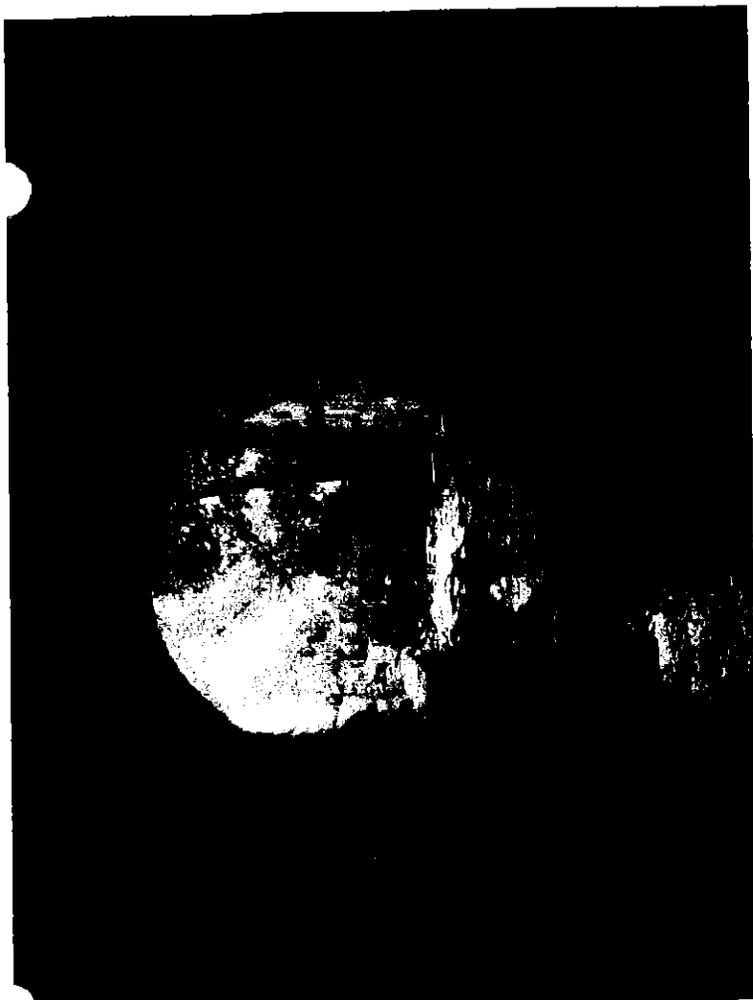
N ↓



O ↑

P ↓





Q ↓ R ↑



S ↓ T ↑



APPENDIX B Site Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont *4- strata*

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 1
 Investigator(s): Christopher Mulvey Section/Township/Range: East Whiteland
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): _____
 Subregion (LRR or MLRA): LRRS 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Major Form (MAD) NWI classification: Regulated Waters

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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Regulated Waters</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) <input checked="" type="checkbox"/> Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) <input checked="" type="checkbox"/> Aquatic Fauna (B13)	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 <input checked="" type="checkbox"/> No _____ Depth (inches): <u>6</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: <u>Permanently flowing stream.</u>	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <i>Acer nigrum</i>			FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>0</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. <i>Lonicera mackii</i>		X	UPL	
2. <i>Lonicera bercoini</i>			FAC	
3. <i>Rosa multiflora</i>		X	FACU	
4. <i>Rubus phoenicolasius</i>		X	UPL	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <i>Densthaedia punctilobula</i>			UPL	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. <i>Vitis aestivalis</i>		X	FACU	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
_____ = Total Cover				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.) Photo: 1, 2, 3				

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont *4-structure*

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 2
 Investigator(s): Christopher Mulvey Section (Township) Range: East Whiteland
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRRS → 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: _____ 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks:	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one is required; check all that apply)</p> <p>___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)</p>	<p>Secondary Indicators (minimum of two required)</p> <p>___ Surface Soil Cracks (S6) ___ Sparsely Vegetated Concave Surface (S8) ___ 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)</p>
<p>Field Observations:</p> <p>Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/></p>
<p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p>	
<p>Remarks: <u>Upland, includes some sediment.</u></p>	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer platanoides</i>		X	UPL
2. <i>Citrodendron chilipitosa</i>		X	FACU
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Rubus phoenicolasos</i>		X	UPL
2. <i>Rosa multiflora</i>		X	FACU
3. <i>Lonicera bancroftii</i>			FAC
4. <i>Lonicera mackii</i>			UPL
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			

Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Microrhizidium viminalis</i>			FAC
2. <i>Fragaria virginiana</i>			FACU
3. <i>Ranunculus punctilobus</i>		X	UPL
4. <i>Impatiens sp.</i>			FACU
5. <i>Arctium minus</i>		X	UPL
6. <i>Plantago major</i>		X	FACU
7. <i>Barbarea vulgaris</i>			FACU
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Toxicodendron radicans</i>			FAC
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 7 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species _____ x 1 = _____
 FACW species _____ x 2 = _____
 FAC species _____ x 3 = _____
 FACU species _____ x 4 = _____
 UPL species _____ x 5 = _____
 Column Totals: _____ (A) _____ (B)
 Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

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

Photo

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont ^{4- strata}

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 3
 Investigator(s): Christopher Mulvey Section/Township/Range: East Whiteland
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): _____
 Subregion (LRR or MLRA): LRBS 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Manor loam MaS NWI classification: PFO
 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks:	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input checked="" type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B8) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)</p>
<p>Field Observations:</p> <p>Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2"</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>variable</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>variable</u></p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____</p>
<p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p>	
<p>Remarks: <u>Spring head area with channels</u></p>	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 3

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: _____)					
1. <i>Quercus rubra</i>		X	OBL	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. <i>Carpinus carolina</i>		X	FAC		
3. <i>Fraxinus pennsylvanica</i>		X	FACW		
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)					
1. <i>Lindera benzoin</i>		X	FAC		Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <i>Viburnum dentatum</i>		X	FACW		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
_____ = Total Cover					
Herb Stratum (Plot size: _____)					
1. <i>Synoplocarpus foetidus</i>		X	OBL	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
2. <i>Thelypteris palustris</i>		X	FACW		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
_____ = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
_____ = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					
Photo <u>G7</u>					

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont *4-strata*

Project/Site: Malm Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: J. Malm Road Development LLC. State: PA Sampling Point: 4
 Investigator(s): Christopher Mulvey Section/Township/Range: East Whiteland
 Landform (Hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 30
 Subregion (LRR or MLRA): LRR5 → 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Manor loam MaB NWI classification: V
 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____ _____	
Remarks: _____ _____ _____	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 4

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <i>Fagus grandifolia</i>	X		FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. <i>Acer rubrum</i>	F		FACW	Total Number of Dominant Species Across All Strata: <u>8</u> (B)
3. <i>Fraxinus pennsylvanica</i>			FACU	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
4. <i>Prunus sp.</i>	V		FACU	
5. <i>Liriodendron tulipifera</i>	X		FACU	
6. <i>Quercus</i>	X		FACU	
7. _____				
8. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <i>Lonicera benzoin</i>		P	FAC	Total % Cover of: _____ Multiply by: _____
2. <i>Hamelis virginiana</i>		X	FAC	OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
6. _____				UPL species _____ x 5 = _____
7. _____				Column Totals: _____ (A) _____ (B)
8. _____				Prevalence Index = B/A = _____
9. _____				
10. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <i>Dennstaedia punctiloba</i>		X	UPL	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <i>Trillium cernuum</i>			FACW	<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____				<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Four Vegetation Strata:
1. <i>Parthenocissus quinquefolia</i>			FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
2. <i>Toxicodendron radicans</i>			FAC	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
3. _____				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
4. _____				Woody vine – All woody vines greater than 3.28 ft in height.
5. _____				
6. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/2	100					s.l.	silt loam, top soil
1-6	10YR 5/4	100					s.l.	w/ rock
6+	rock							

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)			

³Indicators 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 *4 strata*

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 5
 Investigator(s): Christopher Mulvey Section/Township/Range: East Whiteland
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 5
 Subregion (LRR or MLRA): LR85 → 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Manor loam (MaD) NWI classification: PFO
 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ 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 <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____	
Remarks: <u>Spring head zone.</u>	

Sampling Point: 5

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Carpinus caroliniana</i>			FAC
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Liriodendron benzoin</i>		X	FAC
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FACU species _____ x 3 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Syntherisma foetidum</i>		X	OBL
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is $\leq 3.0^1$

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

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

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

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

Photos: L, K

Sampling Point: 5

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR ^{2/1}	100					Srl.	w/ gravel, sand
5+	rock							

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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)
- Indicators for Problematic Hydric Soils³:**
- 2 cm Muck (A10) (MLRA 147)
 - Coast Prairie Redox (A16) (MLRA 147, 148)
 - Piedmont Floodplain Soils (F19) (MLRA 136, 147)
 - Red Parent Material (TF2)
 - Very Shallow Dark Surface (TF12)
 - Other (Explain in Remarks)
- ³Indicators 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 *4- strata*

Project/Site: Malm Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: J Malm Road Development LLC. State: PA Sampling Point: 6
 Investigator(s): Christopher Mulvey Section (Township) Range: East Whiteland
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 10
 Subregion (LRR or MLRA): 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Mamor Loan (MaD) NWI classification: U
 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____ _____ _____	
Remarks: _____ _____ _____	

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: 6

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>		X	FAC
2. <i>Fagus grandifolia</i>		X	FACU
3. <i>Liriodendron tulipifera</i>		Y	FACU
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			

_____ = Total Cover

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			

_____ = Total Cover

Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Dennstaedtia punctiloba</i>		X	UPL
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			

_____ = Total Cover

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Parthenocissus quinquefolia</i>		X	FACU
2. <i>Vitis aestivalis</i>		X	FACU
3. _____			
4. _____			
5. _____			
6. _____			

_____ = Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

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

Photos: K, N

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 5/2	100					S.P.	top soil
3-7	10YR 5/6	"					"	
7+	rock							

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont *4- strata*

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 7
 Investigator(s): Christopher Mulvey Section (Township) Range: East Whiteland
 Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): _____ Slope (%): 7
 Subregion (LRR or MLRA): LR85 → 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Macon loam (MaD) NWI classification: PFO
 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ _____ Inundation Visible on Aerial Imagery (B7) _____ _____ Water-Stained Leaves (B9) _____ _____ Aquatic Fauna (B13) _____	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C6) _____ 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 <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 7

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <i>Acer rubrum</i>		X	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)																
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)																
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)																
4. _____				Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
= Total Cover																				
Sapling/Shrub Stratum (Plot size: _____)																				
1. <i>Rosa multiflora</i>		X	FACU	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>																
2. <i>Rubus edifolius</i>			FAC																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
= Total Cover																				
Herb Stratum (Plot size: _____)																				
1. <i>Synlocarpus foetidus</i>		X	OBL																	
2. <i>Chenopodium lasense</i>		X	FACW																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
= Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. <i>Parthenocissis quinquefolia</i>			FACU																	
2. <i>Zonocera japonica</i>			FAC																	
3. <i>Vitis aestivalis</i>			FACU																	
4. <i>Celastrus orbiculatus</i>			UPL																	
5. _____																				
6. _____																				
= Total Cover																				
Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont 4- strata

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 8
 Investigator(s): Christopher Mulvey Section/Township/Range: East Whiteland
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat Slope (%): 45
 Subregion (LRR or MLRA): LRRS → 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Mamos loam (MaD) NWI classification: V
 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Fill soils along stream with garbage, tires, bottles, pallet, basketball.</u>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	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 <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: <u>Fill soils are drained to creek via 4" pvc.</u>	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 8

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				Dominance Test worksheet:
1. <i>Juglans nigra</i>			<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by: _____
1. <i>Ligustrum vulgare</i>		<u>X</u>	<u>FACU</u>	OBL species _____ x 1 = _____
2. _____				FACW species _____ x 2 = _____
3. _____				FAC species _____ x 3 = _____
4. _____				FACU species _____ x 4 = _____
5. _____				UPL species _____ x 5 = _____
6. _____				Column Totals: _____ (A) _____ (B)
7. _____				Prevalence Index = B/A = _____
8. _____				
9. _____				
10. _____				
_____ = Total Cover				Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: _____)				<u>X</u> 1 - Rapid Test for Hydrophytic Vegetation
1. <i>Poa pratensis</i>		<u>X</u>	<u>FACU</u>	___ 2 - Dominance Test is >50%
2. <i>Chypetium copensis</i>			<u>FACW</u>	___ 3 - Prevalence Index is ≤3.0 ¹
3. _____				___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				___ Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____				Definitions of Four Vegetation Strata:
7. _____				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
8. _____				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
9. _____				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
10. _____				Woody vine – All woody vines greater than 3.28 ft in height.
11. _____				
12. _____				
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Woody Vine Stratum (Plot size: _____)				
1. <i>Vitis aestivalis</i>			<u>FACU</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont ^{4- strata}

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 9
 Investigator(s): Christopher Mulvey Section (Township) Range: East Whiteland
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 5
 Subregion (LRR or MLRA): LRR5 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Urban land - Udisthents, Schist + gneiss complex, udgP Soil classification: PSS
 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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____		

Remarks:

Area underlain with sewer, water lines.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	_____ Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> Surface Water (A1)	_____ Sparsely Vegetated Concave Surface (B8)
_____ High Water Table (A2)	_____ Drainage Patterns (B10)
_____ Saturation (A3)	_____ Moss Trim Lines (B16)
_____ Water Marks (B1)	_____ Dry-Season Water Table (C2)
_____ Sediment Deposits (B2)	_____ Crayfish Burrows (C8)
_____ Drift Deposits (B3)	_____ Saturation Visible on Aerial imagery (C9)
_____ Algal Mat or Crust (B4)	_____ Stunted or Stressed Plants (D1)
_____ Iron Deposits (B5)	_____ Geomorphic Position (D2)
_____ Inundation Visible on Aerial Imagery (B7)	_____ Shallow Aquitard (D3)
_____ Water-Stained Leaves (B9)	_____ Microtopographic Relief (D4)
_____ Aquatic Fauna (B13)	_____ FAC-Neutral Test (D5)
_____ 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)	

Field Observations:

Surface Water Present?	Yes _____ No _____	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes _____ No _____	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>surface</u>	

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 9

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <i>Salix nigra</i>		X	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>10</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <i>Fraxinus pennsylvanica</i>		X	FACW	
3. <i>Acer rubrum</i>		X	FAC	
4. <i>Platanus occidentalis</i>		X	FACW	
5. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
6. _____				
7. _____				
8. _____				
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 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)
Sapling/Shrub Stratum (Plot size: _____)				
1. <i>Lindera benzoin</i>		X	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <i>Alisma subcordata</i>		X	CBL	
2. <i>Phragmites australis</i>		X	FACW	
3. <i>Dryas sylvestris</i>			NL	
4. <i>Impatiens capensis</i>		X	FACW	
5. <i>Pilea pumila</i>		X	FACW	
6. <i>Juncus effusus</i>		X	FACW	
7. <i>Poa sp.</i>				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. <i>Celastrus orbiculatus</i>			UPL	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) 				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR ^{2/1}	100					S.P.	
10-20	5/10Y	u					muck	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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)
- Indicators for Problematic Hydric Soils³:**
- 2 cm Muck (A10) (MLRA 147)
 - Coast Prairie Redox (A16) (MLRA 147, 148)
 - Piedmont Floodplain Soils (F19) (MLRA 136, 147)
 - Red Parent Material (TF2)
 - Very Shallow Dark Surface (TF12)
 - Other (Explain in Remarks)
- ³Indicators 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:
 Gleyed soils

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont 4- strata

Project/Site: Malm Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: 9 Malm Road Development LLC State: PA Sampling Point: 10
 Investigator(s): Christopher Mulvey Section/Township/Range: East Whiteland
 Landform (hillslope, terrace, etc.): Road edge Local relief (concave, convex, none): Flat Slope (%): 0
 Subregion (LRR or MLRA): LRRS → 147148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Urban land - Unorthentic, schist & gneiss complex Hug 1 NWI classification: U
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Sample taken at edge of VillageWay cul-de-sac.</u>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ 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 <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 10

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)			
1. <i>Rubus idaeus</i>		<input checked="" type="checkbox"/>	FAC
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
_____ = Total Cover			
Herb Stratum (Plot size: _____)			
1. <i>Solidago canadensis</i>		<input checked="" type="checkbox"/>	FACU
2. <i>Ambrosia artemisiifolia</i>		<input checked="" type="checkbox"/>	FACU
3. <i>Phytolacca americana</i>		<input checked="" type="checkbox"/>	FACU
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
_____ = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

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

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont 4- strata

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC. State: PA Sampling Point: 11
 Investigator(s): Christopher Mulvey Section/Township/Range: East Whiteland
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 20
 Subregion (LRR or MLRA): 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Minor loam (MaD) NWI classification: V

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? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____ _____	
Remarks: _____ _____ _____	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 11

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Zinodendron tulipifera</i>		X	FACU
2. <i>Carya tomentosa</i>		X	NL
3. <i>Quercus rubra</i>		X	FACU
4. <i>Prunus serotina</i>		X	FACU
5. <i>Quercus velutina</i>			NL
6. <i>Fagus grandifolia</i>		X	FACU
7. _____			
8. _____			
_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)		X	FAC
1. <i>Rubus idaeus</i>			UPL
2. <i>Rubus phoenicolasius</i>			FAC
3. <i>Lindera benzoin</i>			FACU
4. <i>Rosa multiflora</i>		X	FACU
5. <i>Ligustrum vulgare</i>		X	FACU
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
_____ = Total Cover			
Herb Stratum (Plot size: _____)			FACU
1. <i>Polygonum biflorum</i>			FACU
2. <i>Circaea lutetiana</i>			FAC
3. <i>Micostegium vimineum</i>		X	FAC
4. <i>Gleichenia hederacea</i>		X	FACU
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
_____ = Total Cover			
Woody Vine Stratum (Plot size: _____)		X	FACU
1. <i>Pithecolobium virginianum</i>			FAC
2. <i>Toxicodendron radicans</i>			UPL
3. <i>Celastrus orbiculatus</i>			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 18 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

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

Photos: C, D

Sampling Point: 11

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	150					s.l.	top soil
3-6	10YR 5/6	"					s.p.	
6+	rock							

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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 X

Remarks:

Sampling Point: 12

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Liriodendron tulipifera</i>		X	FACU
2. <i>Acer rubrum</i>		X	FAC
3. <i>Catalpa speciosa</i>		P	FAC
4. <i>Prunus serotina</i>		X	FACU
5. <i>Quercus rubra</i>		X	FACU
6. <i>Carya tomentosa</i>			NL
7. _____			
8. _____			
_____ = Total Cover			

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Rubus idaeus</i>		X	FAC
2. <i>Rosa multiflora</i>		P	FACU
3. <i>Lindera spicata</i>			FAC
4. <i>Rhus typhina</i>			NL
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
_____ = Total Cover			

Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Microstegum junceum</i>		X	FAC
2. <i>Panicum canadense</i>			NL
3. <i>Arctium minus</i>		X	FACU
4. <i>Phytolacca americana</i>			FACU
5. <i>Polygonum perfoliatum</i>		X	FAC
6. <i>Achillea ptarmica</i>			FACU
7. <i>Opuntia sp.</i>			NL
8. <i>Cirsium discolor</i>		X	FACU
9. <i>Ambrosia artemisiifolia</i>		X	FACU
10. _____			
11. _____			
12. _____			
_____ = Total Cover			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Vitis aestivalis</i>		X	FACU
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 30 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No

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

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100					s.p.	top soil
2-6	10YR 4/6	"					u	
6+	roots/rock							

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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 X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont 4-strata

Project/Site: Malin Road Properties City/County: Chester Sampling Date: 7/2/14
 Applicant/Owner: Malin Road Development LLC State: PA Sampling Point: 13
 Investigator(s): Christopher Mulvey Section (Township) Range: East Whiteland
 Landform (hillslope, terrace, etc.): parking lot Local relief (concave, convex, none): Flat Slope (%): 0
 Subregion (LRR or MLRA): LRBS → 147,148 Lat: 40° 02' 54" N Long: 75° 32' 3.68" W Datum: _____
 Soil Map Unit Name: Urban land - limestone complex UsgD NWI classification: U
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <p align="center" style="font-size: 1.2em;"><i>Paved area with vegetation</i></p>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C6) ___ 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 <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	

Remarks:
Area receives runoff from up slope areas, water collects at base of slope during wet periods

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 13

Tree Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Sapling/Shrub Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Herb Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1.		X	OBL
2.		X	FACW
3.			
4.		X	FAC
5.			FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			

Woody Vine Stratum (Plot size: _____)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

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

Photo: 0

