

Aquatic Resource Report Addendum
for the
Pennsylvania Pipeline Project,
Southwest Region,
Westmoreland County,
Pennsylvania



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ACRONYMS

1987 Manual	Corps of Engineers Wetland Delineation Manual
Corps Regional Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GIS	Geographic Information Systems
GPS	Global Positioning System
LOD	Limit of Disturbance
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
PA	Pennsylvania
PEM	Palustrine Emergent
PFO	Palustrine Forested
Project	Southwest Region, Pennsylvania Pipeline Project
PSS	Palustrine Scrub Shrub
ROW	Right-of-Way
SF	Square Feet
SPLP	Sunoco Pipeline, LP
UNT	Unnamed Tributary
UPL	Upland
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

On behalf of Sunoco Pipeline, LP (SPLP), Tetra Tech, Inc. (Tetra Tech), has prepared this Aquatic Resource Addendum Report for Westmoreland County to support the Pennsylvania Pipeline Project (Project). Additional aquatic resource surveys were determined to be necessary to accommodate additional Project area changes. This report is an addendum to the original Aquatic Resources Report prepared for Westmoreland County, Pennsylvania (PA) and dated June 2015. The two reports provide a comprehensive delineation of aquatic resources to be or likely to be impacted the proposed Project. Wetland areas were delineated onsite using methodology outlined within the United States Army Corps of Engineers (USACE) *Wetland Delineation Manual* (Environmental Laboratory, 1987; *1987 Manual*), as amended by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*, April 2012 (Environmental Laboratory, 2012; *Corps Regional Supplement*).

The content of this report presents the methodology, results, and conclusions of wetland delineation and stream identification activities completed for addendum study areas. This report provides additional baseline, existing environment information in regards to aquatic resources so that proper avoidance and minimization measures can be implemented. This report does not reference a detailed project description or present impacts, or discuss Clean Water Act jurisdiction.

1.0 INTRODUCTION

On behalf of Sunoco Pipeline, LP (SPLP), Tetra Tech, Inc. (Tetra Tech), has prepared this Aquatic Resource Addendum Report for Westmoreland County to support the Pennsylvania Pipeline Project (Project). Additional aquatic resource surveys were determined to be necessary to accommodate additional Project area changes. This report is an addendum to the original Aquatic Resources Report prepared for Westmoreland County, Pennsylvania (PA) and dated June 2015. The two reports provide a comprehensive delineation of aquatic resources to be or likely to be impacted by the proposed Project. Wetland areas were delineated onsite using methodology outlined within the United States Army Corps of Engineers (USACE) *Wetland Delineation Manual* (Environmental Laboratory, 1987; *1987 Manual*), as amended by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*, April 2012 (Environmental Laboratory, 2012; *Corps Regional Supplement*).

The content of this report presents the methodology, results, and conclusions of wetland delineation and stream identification activities completed for Addendum Study Areas. This report provides additional baseline, existing environment information in regards to aquatic resources so that proper avoidance and minimization measures can be implemented. This report does not reference a detailed project description or present impacts, or discuss Clean Water Act jurisdiction.

2.0 METHODOLOGY

USACE requires the use of the procedures enumerated in the *1987 Manual* (Environmental Laboratory, 1987) and the *Corps Regional Supplement* (Environmental Laboratory, 2012) for making jurisdictional determinations. According to the *1987 Manual*, an area is defined as a wetland if, under normal circumstances, it meets all three of the following criteria:

1. Predominance of hydrophytic vegetation (plants which are adapted for life in saturated soil conditions);
2. Hydric soils (soils which were formed under water, or in saturated conditions); and
3. Wetland hydrology (or the presence of inundated or saturated soils at some time during the growing season).

Wetlands identified in the field were classified in accordance with the U.S. Fish and Wildlife Service's (USFWS) *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). Wetland classifications are as follows: palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine forested (PFO). Dominant vegetation was identified and classified according to The National Wetland Plant List: 2014 Update of Wetland Ratings (Lichvar, 2014). Plant classifications are as follows:

Obligate (OBL) - essentially always found in wetlands; estimated probability >99%

Facultative Wetland (FACW) - usually found in wetlands; estimated probability 67%-99%

Facultative (FAC) - equally likely to occur in wetlands and non-wetlands;
estimated probability 34%-66%

Facultative Upland (FACU) - sometimes occurs in wetlands; estimated probability 1%-33%

Upland (UPL) - rarely occurs in wetlands; estimated probability <1%

The field investigations for modifications to the proposed pipeline Project were performed during numerous field visits from November 2013 through March 2016. The study area was limited to the modification areas illustrated on the Project mapping. Preliminary site reconnaissance of the study area was conducted through a review of available Geographic Information Systems (GIS) resources. Existing information reviewed included the following:

- United States Geological Survey (USGS) topographic mapping (Figures 1-1 to 1-9; USGS, 2009)
- Natural Resources Conservation Service (NRCS) National Cooperative Soil Survey (Figures 2-1 to 2-9; NRCS, 2014)
- USFWS National Wetland Inventory (NWI) Mapping (Figures 3-1 to 3-9; USFWS, 2009)

The delineation consisted of the establishment of the wetland/upland margin with flagging hung at intervals that accurately depicted the outline of the boundary. The individual flags were then located using a Global Positioning System (GPS) receiver and later added to the Project area mapping. Wetland flagging was limited to the bounds of the investigated study area and wetlands are shown as closed or partially closed systems on the detail map (Figures 4-1 to 4-19).

Data concerning soils, hydrology, and vegetation were collected and recorded on USACE Wetland Determination Data Forms at wetlands and upland point locations associated with wetlands, which are provided in Appendix A. Photographs depicting wetland topography and vegetation are included in Appendix B. Stream data sheets detailing stream characteristics are provided in Appendix C. Appendix D contains photographs of streams located within the study area. Appendix E provides a list of hydric soils known to occur within Westmoreland County. Resumes of project personnel are included in Appendix F.

3.0 RESULTS

The field investigations identified 21 areas within Westmoreland County, located within the Southwest Region of the proposed Pennsylvania Pipeline Project Addendum Study Area, that met the wetland criteria outlined in the *1987 Manual*, as amended by the *Corps Regional Supplement*. Fourteen streams were identified within the Project Addendum Study Area. A narrative summary of field data collected for these systems is presented below. The detail maps provided as Figures 4-1 to 4-19 illustrate the wetland and stream locations in relation to the Addendum Study Area.

3.1 WETLAND IDENTIFICATION AND DELINEATION

Hydric soils and soils with hydric components are often associated with wetlands. The NRCS Soil Survey hydric soils list for Westmoreland County, PA is included in Appendix E. The NRCS soil survey maps are included as Figures 2-1 to 2-9. Confirmation of the soil mapping units was not performed during this site evaluation.

See Figures 3-1 to 3-9 for NWI's that fall within the Addendum Study Area.

Based on field evidence and best professional judgment, it was determined that 21 wetlands are present within the modification study area. These areas demonstrated the presence of all three wetland parameters required by the *1987 Manual and the Regional Supplement*. The vegetative community was dominated by hydrophytic plant species or had a prevalence index ≤ 3 , the soils exhibited hydric characteristics, and the areas contained wetland hydrology indicators.

USACE wetland determination data forms that detail the existing vegetation, soil characteristics, and hydrology were prepared for each wetland and its associated upland point (Appendix A).

Wetland SZ8

Wetland SZ8 (W-SZ8) is a 273-square foot (SF) PEM wetland (Figure 4-2). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*) and broad-leaf cattail (*Typha latifolia*). The soil between 0 and 2 inches exhibits a low-chroma matrix (10YR 4/2) with a muck texture. The soil between 2 and 6 inches exhibits a low-chroma matrix (10YR 4/2) with a sandy silt loam texture that contains redoximorphic features (7.5YR 4/6).

Wetland CS1

Wetland CS1 (W-CS1) is a 4,257-SF PEM wetland (Figure 4-3). Indicators of wetland hydrology include surface water, high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, microtopographic relief, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*). The soil between 0 and 12 inches exhibits a 10YR 3/2 and 10YR 5/8 matrix with a clay loam texture that contains redoximorphic features (7.5YR 5/3).

Wetland SZ7

Wetland SZ7 (W-SZ7) is a 6,327-SF PEM wetland (Figure 4-4). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*) and broad-leaf cattail (*Typha latifolia*). The soil between 0 and 10 inches exhibits a low-chroma matrix (10YR 4/2) with a silt loam texture that contains redoximorphic features (7.5YR 4/6). The soil between 10 and 16 inches exhibits a low-chroma matrix (5Y 5/2) with a clay loam texture that contains redoximorphic features (7.5YR 4/6).

Wetland 65 PSS

Wetland 65 PSS (W-65 PSS) is a 1,743-SF PSS wetland (Figure 4-4). Indicators of wetland hydrology include oxidized rhizospheres on living roots, microtopographic relief, and a positive FAC-neutral test. Dominant vegetation consists of red maple (*Acer rubrum*), an unidentified hawthorn (*Crataegus sp.*), late goldenrod (*Solidago gigantea*), and Japanese stilt grass (*Microstegium vimineum*). The soil between 0 and 4 inches exhibits a low-chroma matrix (10YR 3/1) with a silt loam texture. The soil between 4 and 14 inches exhibits a low-chroma matrix (10YR 4/2) with a silt loam texture that contains redoximorphic features (7.5YR 5/8).

Wetland SZ6

Wetland SZ6 (W-SZ6) is an 8,191-SF PEM wetland (Figure 4-6). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*) and narrow-leaf cattail (*Typha angustifolia*). The soil between 0 and 2 inches exhibits a low-chroma matrix (10YR 3/1) with a muck texture. The soil between 2 and 12 inches exhibits a low-chroma matrix (10YR 4/1) with a silty clay texture.

Wetland CS3

Wetland CS3 (W-CS3) is a 17,460-SF PEM wetland (Figure 4-10). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, microtopographic relief, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*), rough stalk bluegrass (*Poa trivialis*), and purple lead willowherb (*Epilobium coloratum*). The soil between 0 and 16 inches exhibits a low-chroma matrix (10YR 4/1) with a sandy clay loam texture that contains redoximorphic features (10YR 5/6).

Wetland CS2

Wetland CS2 (W-CS2) is a 256-SF PEM wetland (Figure 4-11). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, microtopographic relief, and a positive FAC-neutral test. Dominant vegetation consists of rice cut grass (*Leersia oryzoides*) and curly dock (*Rumex crispus*). The soil between 0 and 8 inches exhibits a low-chroma matrix (10YR 4/2) with a gravelly sandy clay loam texture that contains redoximorphic features (7.5YR 5/8).

Wetland CC26

Wetland CC26 (W-CC26) is a 6,368-SF PEM wetland (Figure 4-14). Indicators of wetland hydrology include drift deposits, drainage patterns, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*). The soil between 0 and 18 inches exhibits a low-chroma matrix (10YR 4/1) with a silty clay loam texture that contains redoximorphic features (10YR 5/8).

Wetland M68

Wetland M68 (W-M68) is a PFO wetland greater than 668-SF (Figure 4-15). Indicators of wetland hydrology include a high water table, saturation within the upper 12 inches of the soil profile, and a positive FAC-neutral test. Dominant vegetation consists of red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), Japanese stilt grass (*Microstegium vimineum*), arrow-leaf tearthumb (*Persicaria sagittata*), and sensitive fern (*Onoclea sensibilis*). The soil between 0 and 3 inches exhibits a low-chroma matrix (10YR 4/2) with a silt loam texture that contains redoximorphic features (10YR 4/6). The soil between 3 and 12 inches exhibits a low-chroma matrix (2.5YR 6/2) with a silty clay loam texture that contains redoximorphic features (10YR 5/6).

Wetland R43

Wetland R43 (W-R43) is a 2,068-SF PEM wetland (Figure 4-17). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*). The soil between 0 and 12 inches exhibits a low-chroma matrix (10YR 4/2) with a silt loam texture that contains redoximorphic features (7.5YR 5/4).

Wetland Q69 PSS

Wetland Q69 PSS (W-Q69 PSS) is a 5,666-SF palustrine scrub-shrub (PSS) wetland (Figure 4-17). Indicators of wetland hydrology include a high water table, saturation within the upper 12 inches of the soil profile, water-stained leaves, drainage patterns, and a positive FAC-neutral test. Dominant vegetation consists of southern arrow-wood (*Viburnum dentatum*), silky dogwood (*Cornus amomum*), black cherry (*Prunus serotina*), sensitive fern (*Onoclea sensibilis*), an unidentified touch-me-not (*Impatiens* sp.), and fox grape (*Vitis labrusca*). The soil between 0 and 4 inches exhibits a low-chroma matrix (10YR 5/2) with a silt loam texture that contains redoximorphic features (7.5YR 5/6). The soil between 4 and 12 inches exhibits a low-chroma matrix (10YR 5/1) with a clay loam texture that contains redoximorphic features (7.5YR 5/6).

Wetland Q69 PEM

Wetland Q69 PEM (W-Q69 PEM) is a 27,007-SF PEM wetland (Figure 4-17). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*), lamp rush (*Juncus effusus*), common fox sedge (*Carex vulpinoidea*), shallow sedge (*Carex lurida*), pointed broom sedge (*Carex scoparia*), and rice cut grass (*Leersia oryzoides*). The soil between 0 and 10 inches exhibits a low-chroma matrix (10YR 5/2) with a clay loam texture that contains redoximorphic features (7.5YR 4/6). The soil between 10 and 12 inches exhibits a low-chroma matrix (10YR 5/1) with a clay loam texture that contains redoximorphic features (7.5YR 4/6).

Wetland Q70 PFO

Wetland Q70 PFO (W-Q70 PFO) is a 1,066,543-SF PFO wetland (Figure 4-17). Indicators of wetland hydrology include water-stained leaves, standing dead plants, drainage patterns, stunted or stressed plants, and geomorphic position. Dominant vegetation consists of red maple (*Acer rubrum*), black cherry (*Prunus serotina*), ash-leaf maple (*Acer negundo*), rambler rose (*Rosa multiflora*), northern spicebush (*Lindera benzoin*), an unidentified touch-me-not (*Impatiens* sp.), Japanese stilt grass (*Microstegium vimineum*), New York fern (*Parathelypteris noveboracensis*),

fox grape (*Vitis labrusca*), and Eastern poison ivy (*Toxicodendron radicans*). The soil between 0 and 12 inches exhibits a low-chroma matrix (7.5YR 5/2) with a clay loam texture that contains redoximorphic features (10YR 5/6 and 10YR 6/1).

Wetland Q70 PEM (2)

Wetland Q70 PEM (2) (W-Q70 PEM (2)) is a 3,173-SF PEM wetland (Figure 4-18). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of shallow sedge (*Carex lurida*), southern arrow-wood (*Viburnum dentatum*), lamp rush (*Juncus effusus*), and reed canary grass (*Phalaris arundinacea*). The soil between 0 and 12 inches exhibits a gleyed matrix (Gley 1 5/10Y) with a clay loam texture that contains redoximorphic features (7.5YR 5/6).

Wetland Q90

Wetland Q90 (W-Q90) is a 14,330-SF PSS wetland (Figure 4-18). Indicators of wetland hydrology include a high water table, saturation within the upper 12 inches of the soil profile, sediment deposits, oxidized rhizospheres on living roots, surface soil cracks, drainage patterns, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of green ash (*Fraxinus pennsylvanica*), silky dogwood (*Cornus amomum*), southern arrow-wood (*Viburnum dentatum*), arrow-leaf tearthumb (*Persicaria sagittata*), Canadian goldenrod (*Solidago canadensis*), Canadian clearweed (*Pilea pumila*), and an unidentified grape vine (*Vitis* sp.). The soil between 0 and 18 inches exhibits a low-chroma matrix (10YR 4/1) with a silty clay loam texture that contains redoximorphic features (7.5YR 4/6).

Wetland Q72

Wetland Q72 PEM (W-Q72 PEM) is a 41,132-SF PEM wetland (Figure 4-18). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of lamp rush (*Juncus effusus*), dark-green bulrush (*Scirpus atrovirens*), sensitive fern (*Onoclea sensibilis*), and an unidentified goldenrod (*Solidago* sp.). The soil between 0 and 12 inches exhibits a gleyed matrix (Gley 1 5/10Y) with a clay loam texture that contains redoximorphic features (7.5YR 5/6).

Wetland Q73

Wetland Q73 PFO (W-Q73 PFO) is a 32,745-SF PFO wetland (Figure 4-18). Indicators of wetland hydrology include a high water table, saturation within the upper 12 inches of the soil profile, water-stained leaves, geomorphic position, and a positive FAC-neutral test. Dominant vegetation

consists of red maple (*Acer rubrum*), swamp white oak (*Quercus bicolor*), northern spicebush (*Lindera benzoin*), Japanese stilt grass (*Microstegium vimineum*), and New York fern (*Parathelypteris noveboracensis*). The soil between 0 and 6 inches exhibits a low-chroma matrix (10YR 4/2) with a clay loam texture that contains redoximorphic features (7.5YR 4/4). The soil between 6 and 12 inches exhibits a low-chroma matrix (10YR 5/2) with a clay loam texture that contains redoximorphic features (7.5YR 4/4).

Wetland Q93 PFO

Wetland Q93 PFO (W-Q93 PFO) is a 2,552-SF PFO wetland (Figure 4-19). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of swamp white oak (*Quercus bicolor*), black willow (*Salix nigra*), silky dogwood (*Cornus amomum*), Morrow's honeysuckle (*Lonicera morrowii*), Japanese stilt grass (*Microstegium vimineum*), and shallow sedge (*Carex lurida*). The soil between 0 and 3 inches exhibits a low-chroma matrix (10YR 3/2) with a mucky texture. The soil between 3 and 10 inches exhibits a low-chroma matrix (10YR 3/2) with a silty clay loam texture that contains redoximorphic features (2.5Y 4/4).

Wetland Q93 PEM

Wetland Q93 PEM (W-Q93 PEM) is a 2,140-SF PEM wetland (Figure 4-19). Indicators of wetland hydrology include a high water table, saturation within the upper 12 inches of the soil profile, and geomorphic position. Dominant vegetation consists of Japanese stilt grass (*Microstegium vimineum*). The soil between 0 and 10 inches exhibits a mixed matrix (10YR 4/2 and 10YR 5/4) with a clay loam texture that contains redoximorphic features (10YR 5/6).

Wetland Q74

Wetland Q74 (W-Q74) is a 13,986-SF PFO wetland (Figure 4-18). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, water-stained leaves, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of red maple (*Acer rubrum*), black walnut (*Juglans nigra*), black tupelo (*Nyssa sylvatica*), black willow (*Salix nigra*), swamp white oak (*Quercus bicolor*), twinsisters (*Lonicera tartarica*), southern arrow-wood (*Viburnum dentatum*), gray dogwood (*Cornus racemosa*), and skunk-cabbage (*Symplocarpus foetidus*). The soil between 0 and 3 inches exhibits a low-chroma matrix

(10YR 3/1) with a sand loam texture. The soil between 3 and 10 inches exhibits a low-chroma matrix (10YR 4/2) with a clay loam texture that contains redoximorphic features (7.5YR 4/4).

Wetland Q92 PEM

Wetland Q92 PEM (W-Q92 PEM) is a 470-SF PEM wetland (Figure 4-19). Indicators of wetland hydrology include geomorphic position and a positive FAC-neutral test. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*) and Japanese stilt grass (*Microstegium vimineum*). The soil between 0 and 16 inches exhibits a low-chroma matrix (10YR 4/2) with a sandy clay texture that contains redoximorphic features (10YR 5/4).

Wetland Q92 PSS

Wetland Q92 PSS (W-Q92 PSS) is an 804-SF PSS wetland (Figure 4-19). Indicators of wetland hydrology include geomorphic position and a positive FAC-neutral test. Dominant vegetation consists of black willow (*Salix nigra*), silky dogwood (*Cornus amomum*), poison ivy (*Toxicodendron radicans*), and harvestlice (*Agrimonia parviflora*). The soil between 0 and 10 inches exhibits a low-chroma matrix (10YR 3/2) with a sandy clay texture that contains redoximorphic features (2.5Y 4/4). The soil between 10 and 16 inches exhibits a low-chroma matrix (10YR 4/2) with a sandy clay texture that contains redoximorphic features (2.5Y 4/4).

Wetland Q84

Wetland Q84 (W-Q84) is a 1,420-SF PEM wetland (Figure 4-19). Indicators of wetland hydrology include surface water, a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of shallow sedge (*Carex lurida*), reed canary grass (*Phalaris arundinacea*), and dark-green bulrush (*Scirpus atrovirens*). The soil between 0 and 2 inches exhibits a low-chroma matrix (10YR 4/1) with a silt loam texture. The soil between 2 and 12 inches exhibits a low-chroma matrix (10YR 5/1) with a silty clay loam texture that contains redoximorphic features (7.5YR 5/6).

Wetland Q85

Wetland Q85 (W-Q85) is a 516-SF PEM wetland (Figure 4-19). Indicators of wetland hydrology include a high water table, saturation within the upper 12 inches of the soil profile, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, and a positive FAC-neutral test. Dominant vegetation consists of shallow sedge (*Carex lurida*) and reed canary grass (*Phalaris arundinacea*). The soil between 0 and 4 inches exhibits a low-chroma matrix (10YR 3/2) with a silty clay loam texture that contains redoximorphic features (7.5YR 4/6). The soil between 4 and

12 inches exhibits a low-chroma matrix (10YR 4/2) with a silty clay loam texture that contains redoximorphic features (7.5YR 4/6).

Wetland N28 PFO

W-N28 PFO is a previously identified wetland that was extended inside the Addendum Study Area (Figure 4-19). No new data was collected for this wetland extension.

3.2 STREAM IDENTIFICATION AND EVALUATION

Based on field evidence and best professional judgment, it was determined that 14 streams were identified within the evaluated study area. A data sheet that details the bank and channel characteristics, substrate composition, aquatic habitat, and hydrology was prepared for each of the streams (Appendix C).

Stream CS1 (Upstream)

Stream S-CS1 (S-CS1 Upstream) is an intermittent unnamed tributary (UNT) to the Youghiogheny River (Figure 4-3). The bank is approximately 3 feet in width and 6 inches in height. The stream bed contains a cobble, gravel, sand, silt, and clay substrate. The stream exhibited no flow at the time of the field investigation.

Stream CS1 (Downstream)

Stream S-CS1 (S-CS1 Downstream) is an intermittent UNT to the Youghiogheny River (Figure 4-3). The stream bank is approximately 5 feet in width. The left bank height is 3 feet and the right bank height is 4 feet. The stream bed contains a boulder, cobble, gravel, sand, and silt substrate. The stream exhibited no flow at the time of the field investigation.

Stream CS2

Stream CS2 (S-CS2) is an intermittent UNT to the Youghiogheny River (Figure 4-3). The stream bank is approximately 3 feet in width. The left bank height is 1.5 feet and the right bank height is 1 foot. The stream bed contains a boulder, cobble, gravel, sand, and silt substrate. The stream exhibited a water depth of 1 inch at the time of the field investigation.

Stream Z2

Stream Z2 (S-Z2) is a perennial UNT to Little Sewickley Creek (Figure 4-10). The stream bank is approximately 5 feet in width. The left bank height is 4 feet and the right bank height is 5 feet. The

stream bed contains a boulder, cobble, gravel, sand, and silt substrate. The stream exhibited a water depth of 4 inches at the time of the field investigation.

Stream CS3

Stream CS3 (S-CS3) is an intermittent UNT to Little Sewickley Creek (Figure 4-11). The stream bank is approximately 2 feet in width and 6 inches in height. The stream bed contains a boulder, cobble, gravel, and sand substrate. The stream exhibited a water depth of 1 inch at the time of the field investigation

Stream CC21

Stream CC21 (S-CC21) is an intermittent UNT to Beaver Run (Figure 4-14). The stream bank is approximately 3 feet in width and 1 foot in height. The stream bed contains a cobble, gravel, silt, and clay substrate. The stream exhibited a water depth of 2 inches at the time of the field investigation.

Stream R90

Stream R90 (S-R90) is an intermittent UNT to Conemaugh River (Figure 4-17). The stream bank is approximately 1 foot in width and 1 foot in height. The stream bed contains a sand and clay substrate. The stream exhibited no flow at the time of the field investigation.

Stream R96

Stream R96 (S-R96) is an ephemeral UNT to Conemaugh River (Figure 4-17). The stream bank is approximately 4 feet in width and 8 inches in height. The stream bed contains a cobble, gravel, sand, and silt substrate. The stream exhibited no flow at the time of the field investigations.

Stream R92

Stream R92 (S-R92) is an intermittent UNT to Conemaugh River (Figure 4-17). The stream bank is approximately 5 feet in width. The left bank height is 3 feet and the right bank height is 2 feet. The stream bed contains a sand, silt, and clay substrate. The stream exhibited a water depth of 1 inch at the time of the field investigation.

Stream R95

Stream R95 (S-R95) is an ephemeral UNT to Conemaugh River (Figure 4-17). The stream bank is approximately 3 feet in width and 1 foot in height. The stream bed contains a cobble, silt, and clay substrate. The stream exhibited no flow at the time of the field investigation.

Stream R94

Stream R94 (S-R94) is an ephemeral UNT to Conemaugh River (Figure 4-18). The stream bank is approximately 2 feet in width and 1 foot in height. The stream bed contains a cobble, gravel, sand, silt, and clay substrate. The stream exhibited no flow at the time of the field investigation.

Stream R104

Stream R104 (S-R104) is a perennial UNT to Conemaugh River (Figure 4-18). The stream bank is approximately 4 feet in width and 1 foot in height. The stream bed contains a cobble, gravel, silt, and clay substrate. The stream exhibited a water depth of 4 inches at the time of the field investigation.

Stream Q80

Stream Q80 (S-Q80) is a perennial UNT to Conemaugh River (Figure 4-18). The stream bank is approximately 5 feet in width. The left bank height is 2 feet and the right bank height is 6 inches. The stream contains a boulder, cobble, gravel, sand, and organic substrate. The stream exhibited a water depth of 3 inches at the time of the field investigation.

Stream Q100

Stream Q100 (S-Q100) is a perennial UNT to Conemaugh River (Figure 4-19). The stream bank is approximately 10 feet in width. The left bank height is 2 feet and the right bank height is 3 feet. The stream contains a boulder, cobble, gravel, sand, silt, clay, and organic substrate. The stream exhibited a water depth of 4 inches at the time of the field investigation.

Stream P18

S-P18 is a previously identified stream that was extended outside the Addendum Study Area (Figure 4-17). No new data was collected for this stream extension.

3.3 STREAMS WITH FLOODWAY IMPACTS OUTSIDE THE STUDY AREA

Streams with floodway impacts that extend within the Project limit of disturbance (LOD), but are outside of the study area, are described on Table 2 and shown on Figures 4-1 to 4-19. There are three streams within Westmoreland County with floodways that extend into the Project LOD.

4.0 CONCLUSIONS

During the field investigations in Westmoreland County, PA, located within the Southwest Region of the proposed Pennsylvania Pipeline Project, 21 areas were identified within the Addendum Study Area which exhibited all three criteria necessary to be classified as a jurisdictional wetland in accordance with the *1987 Manual and the Regional Supplement*.

1. Predominance of hydrophytic vegetation (plants which are adapted for life in saturated soil conditions);
2. Hydric soils (soils which were formed under water, or in saturated conditions); and
3. Wetland hydrology (or the presence of inundated or saturated soils at some time during the growing season).

Fourteen streams were identified within the evaluated study area.

There are three streams within Westmoreland County with floodways that extend into the Project LOD.

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TABLES

Table 1
Wetland and Stream Summary
Pennsylvania Pipeline Project
Page 1 of 2

Water Resource	Dominant Plant Community/Flow Regime	Bank Full Width (ft.)	Water Depth	Channel Depth	Wetland Size (Square Feet)	Wetland Size (Acres)	Associated Water Resource
W-SZ8	PEM	-	-	-	273	0.01	N/A
W-CS1	PEM	-	-	-	4257	0.10	S-CS1
W-SZ7	PEM	-	-	-	6327	0.15	N/A
W-65 PSS	PSS				1743	0.04	N/A
W-SZ6	PEM	-	-	-	8191	0.19	N/A
W-CS3	PEM	-	-	-	17460	0.40	S-182
W-CS2	PEM	-	-	-	256	0.01	S-CS3
W-CC26	PEM	-	-	-	6368	0.15	S-CC21
W-M68	PFO	-	-	-	668	0.02	S-P35
W-R43	PEM	-	-	-	2068	0.05	S-R90
W-Q69	PSS	-	-	-	5666	0.13	S-R90
W-Q69	PEM	-	-	-	27007	0.62	S-R90
W-Q70	PFO	-	-	-	1066543	24.48	S-R92, S-R95
W-Q70	PEM (2)	-	-	-	3173	0.07	S-R94
W-Q90	PSS	-	-	-	14330	0.33	S-R104
W-Q72	PEM	-	-	-	41132	0.94	N/A
W-Q73	PFO	-	-	-	32745	0.75	N/A
W-Q93	PFO	-	-	-	2552	0.06	S-Q100
W-Q93	PEM	-	-	-	2140	0.05	S-Q100
W-Q74	PFO	-	-	-	13986	0.32	S-Q80
W-Q92	PEM	-	-	-	470	0.01	N/A
W-Q92	PSS	-	-	-	804	0.02	N/A
W-Q84	PEM	-	-	-	1420	0.03	N/A
W-Q85	PEM	-	-	-	516	0.01	S-Q100
Streams							
S-CS1 Upstream	Intermittent	3.0	0.0"	6.0"	-	-	W-CS1
S-CS1 Downstream	Intermittent	5.0	0.0"	4.0'	-	-	W-CS1
S-CS2	Intermittent	3.0	1.0"	1.5'	-	-	N/A
S-Z2	Perennial	5.0	4.0"	5.0'	-	-	N/A
S-CS3	Intermittent	2.0	1.0"	6.0"	-	-	W-CS2

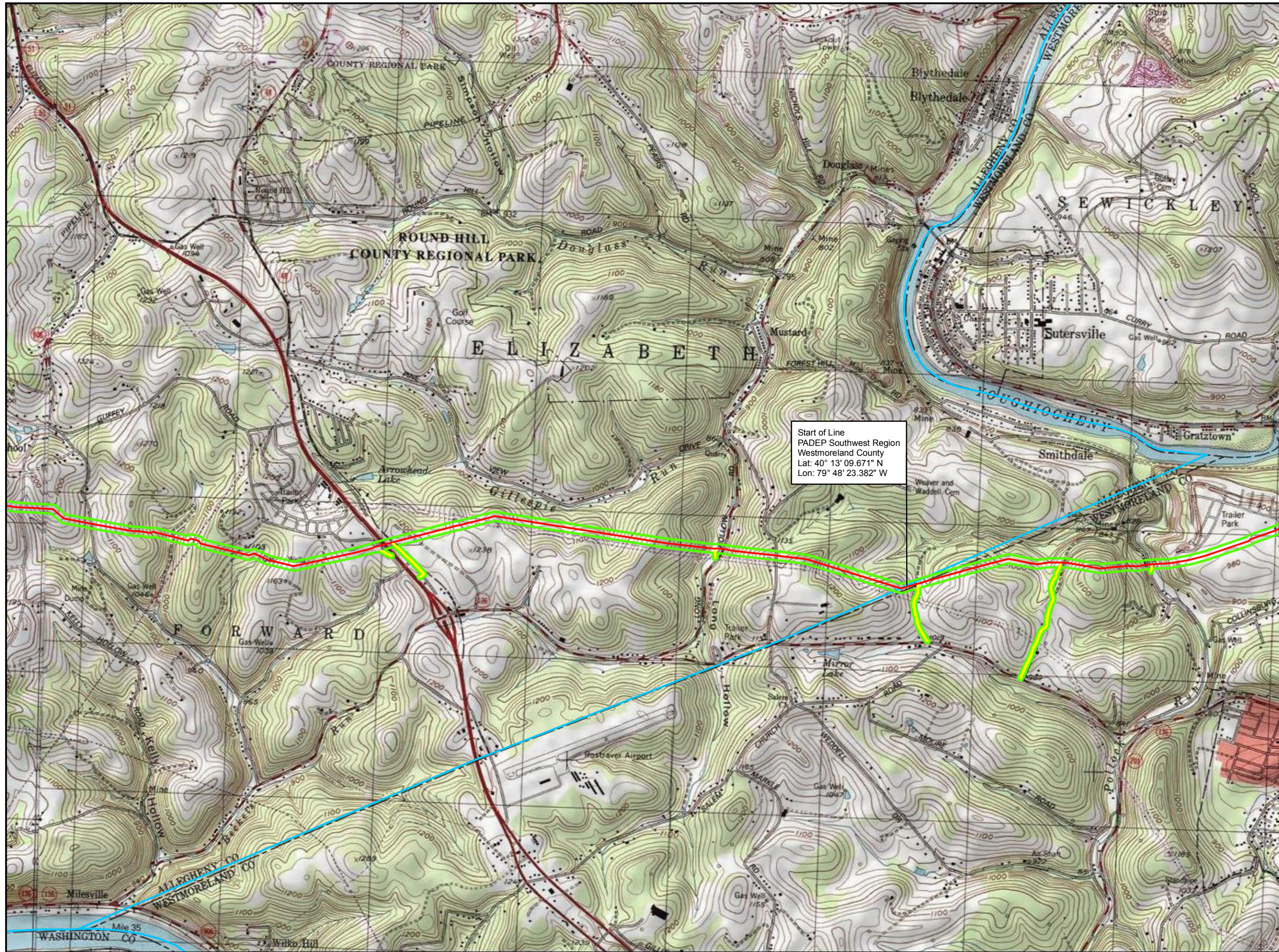
Table 1
Wetland and Stream Summary
Pennsylvania Pipeline Project
Page 2 of 2

Water Resource	Dominant Plant Community/Flow Regime	Bank Full Width (ft.)	Water Depth	Channel Depth	Wetland Size (Square Feet)	Wetland Size (Acres)	Associated Water Resource
S-CC21	Intermittent	3.0	2.0"	1.0'	-	-	W-CC26, W-P25
S-R90	Intermittent	1.0	0.0"	1.0'	-	-	W-R43, W-Q69
S-R96	Ephemeral	4.0	0.0"	8.0"	-	-	N/A
S-R92	Intermittent	5.0	1.0"	2.0'	-	-	W-Q70
S-R95	Ephemeral	3.0	0.0"	1.0'	-	-	W-Q70
S-R94	Ephemeral	2.0	0.0"	1.0'	-	-	W-Q70
S-R104	Perennial	4.0	4.0"	1.0'	-	-	W-Q90
S-Q80	Perennial	5.0	3.0"	2.0'	-	-	W-Q74
S-Q100	Perennial	10.0	4.0"	2.0'	-	-	W-Q85

Table 2
Streams with Floodway Impacts
Outside the Study Area
Pennsylvania Pipeline Project
Page 1 of 1

Stream ID	Flow Regime	Bank Full Width (ft.)	Water Depth (in.)	Channel Depth (ft.)
S-P48	Ephemeral	1	1	0.5
S-Q51	Perennial	15	12	4
S-R93	Ephemeral	2.5	0	1

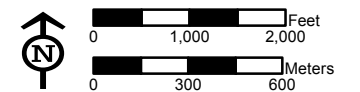
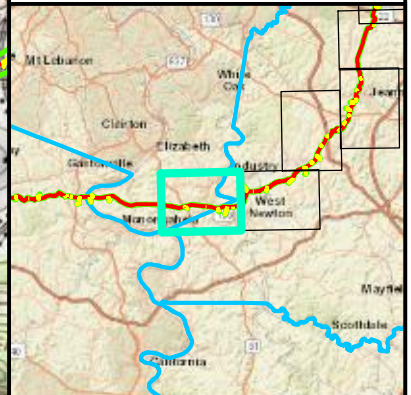
FIGURES



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary

Start of Line
 PADEP Southwest Region
 Westmoreland County
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 Lon: 79° 48' 23.382" W

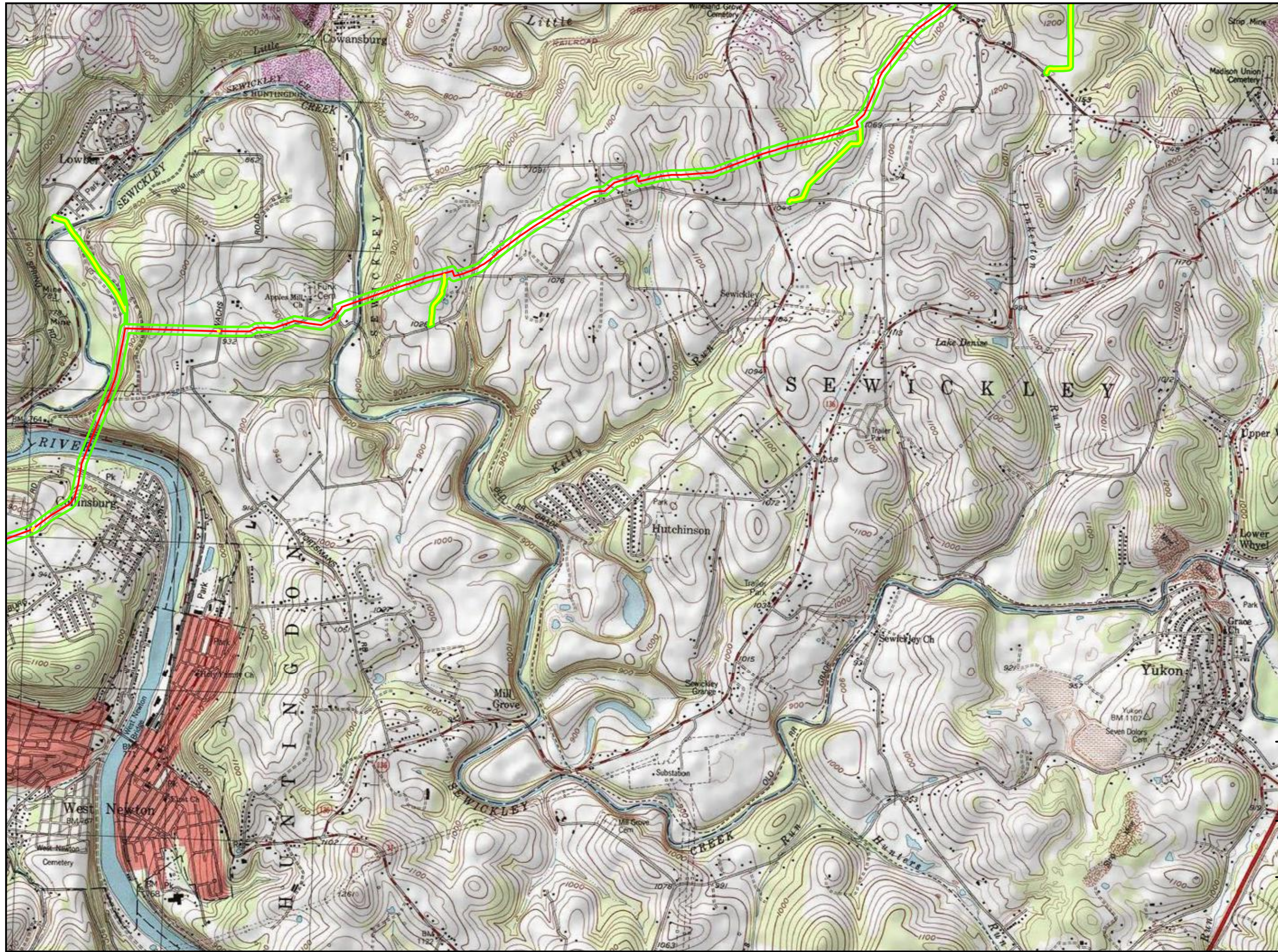
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USGS PROJECT LOCATION MAP
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PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

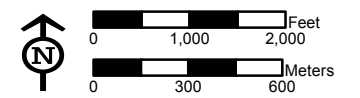
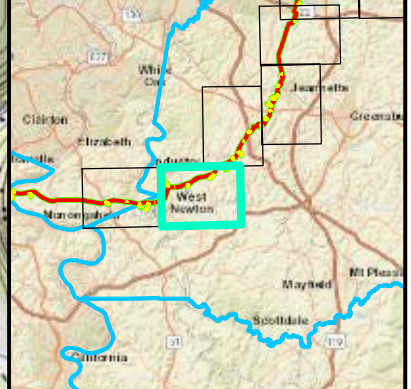


Notes:
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 2) Quadrangles being displayed are Donora, McKeesport, Monongahela



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 - Study Area
 - County Boundary

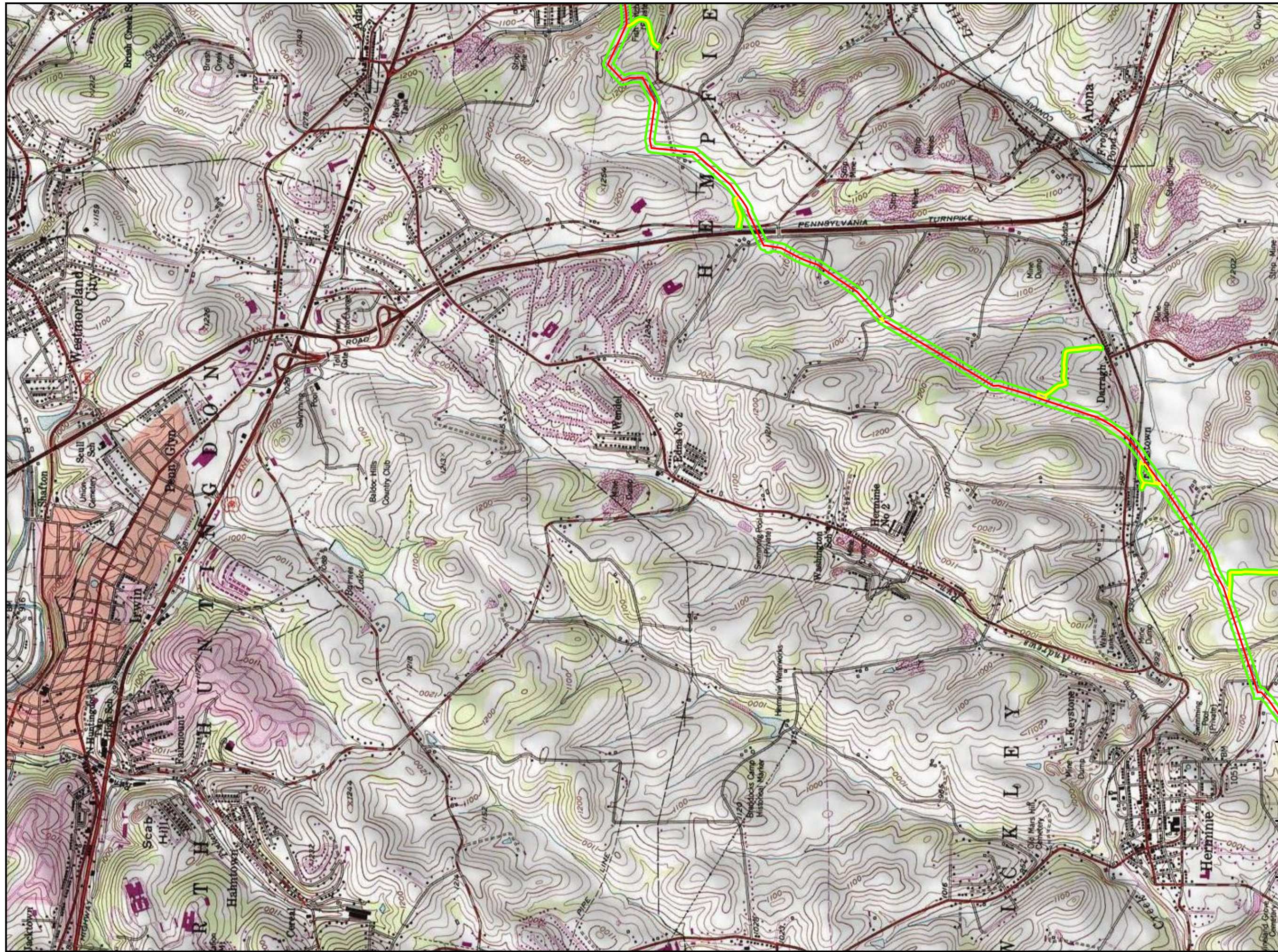
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**USGS PROJECT LOCATION MAP
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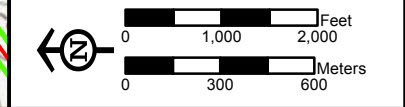
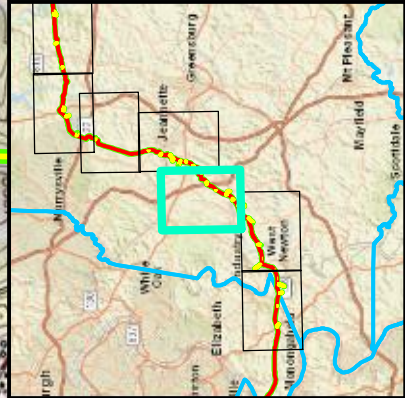


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- Legend**
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 - Alignment Centerline
 - Study Area
 - County Boundary

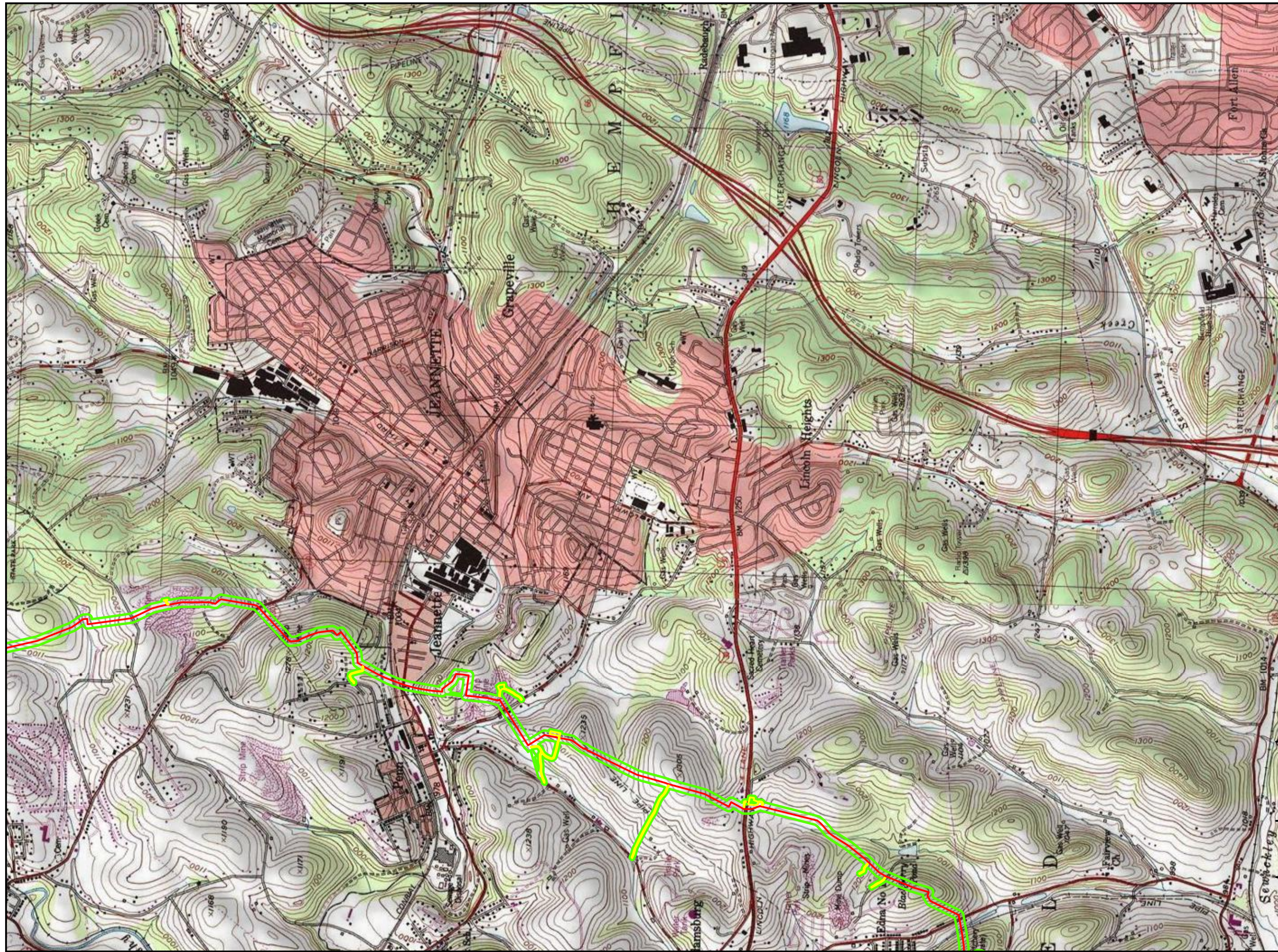
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**USGS PROJECT LOCATION MAP
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FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

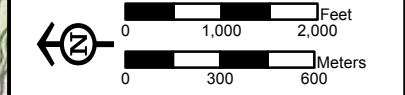
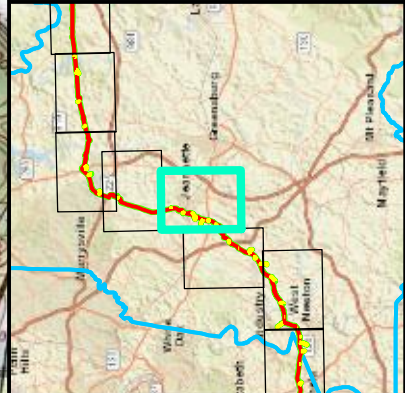


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- Legend**
- Access Road
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 - County Boundary

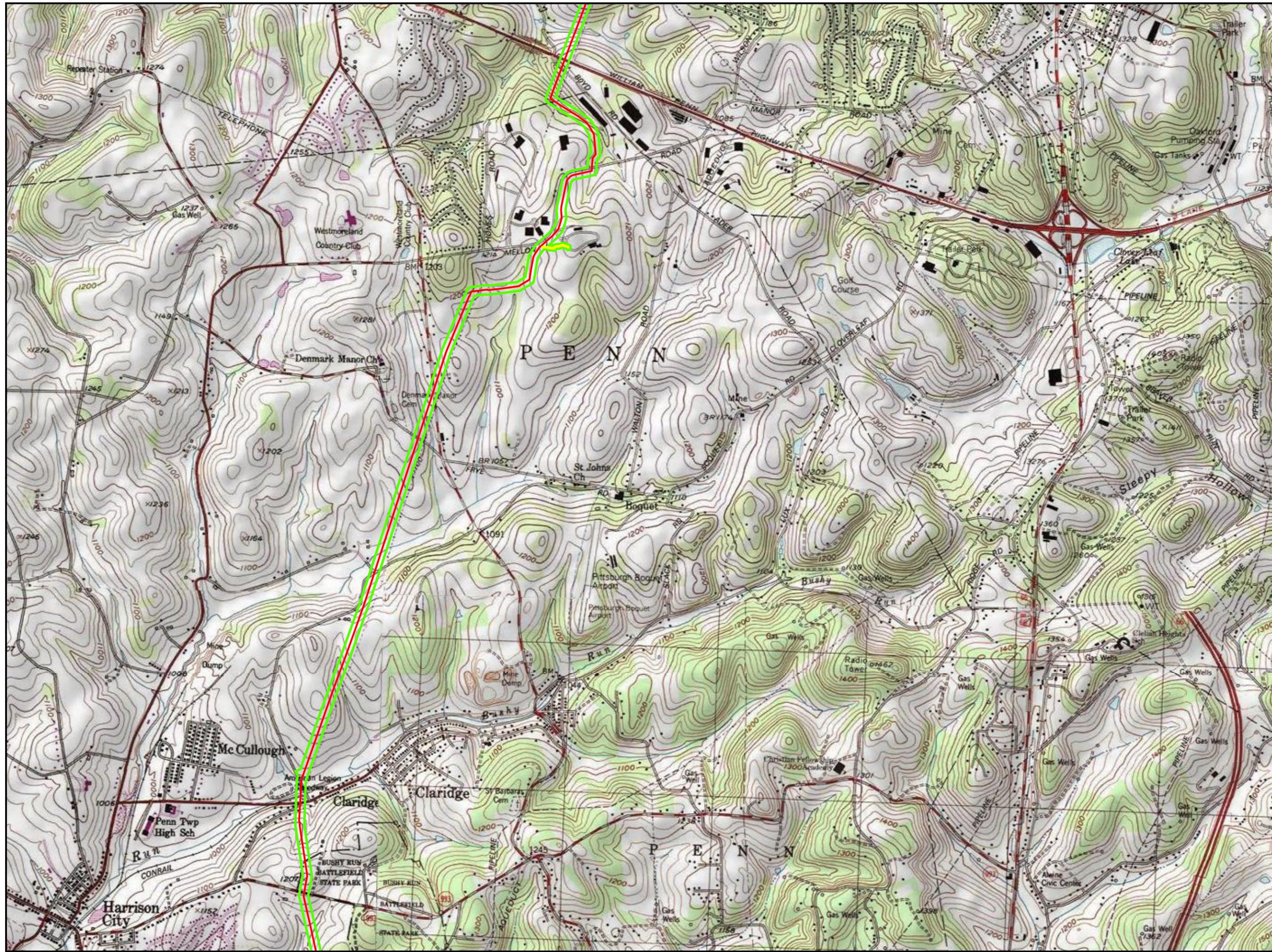
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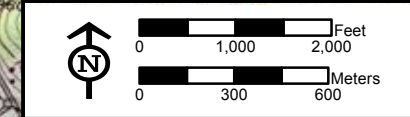
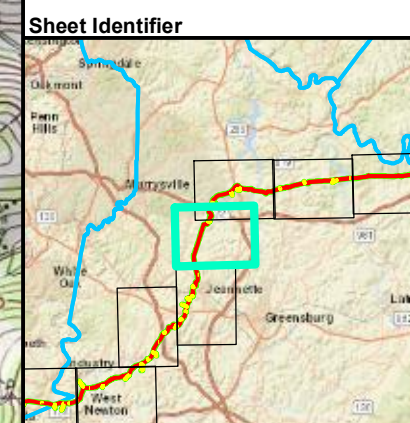
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PENNSYLVANIA PIPELINE PROJECT
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WESTMORELAND COUNTY, PA**



Notes:
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary

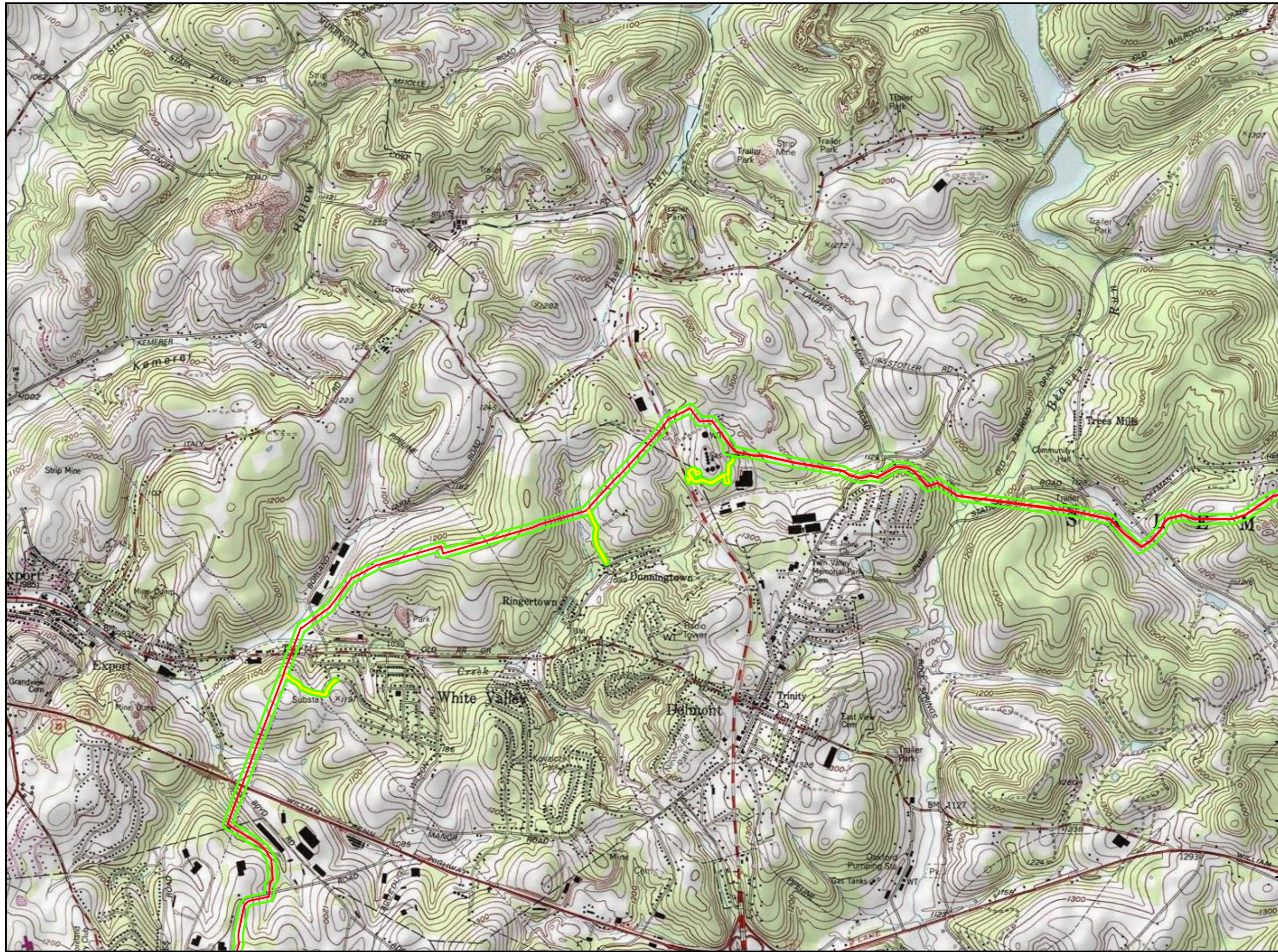


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WESTMORELAND COUNTY, PA**



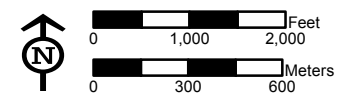
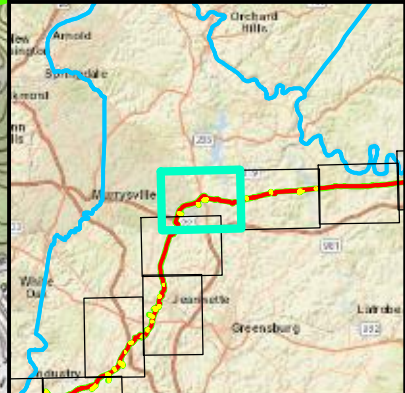
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary

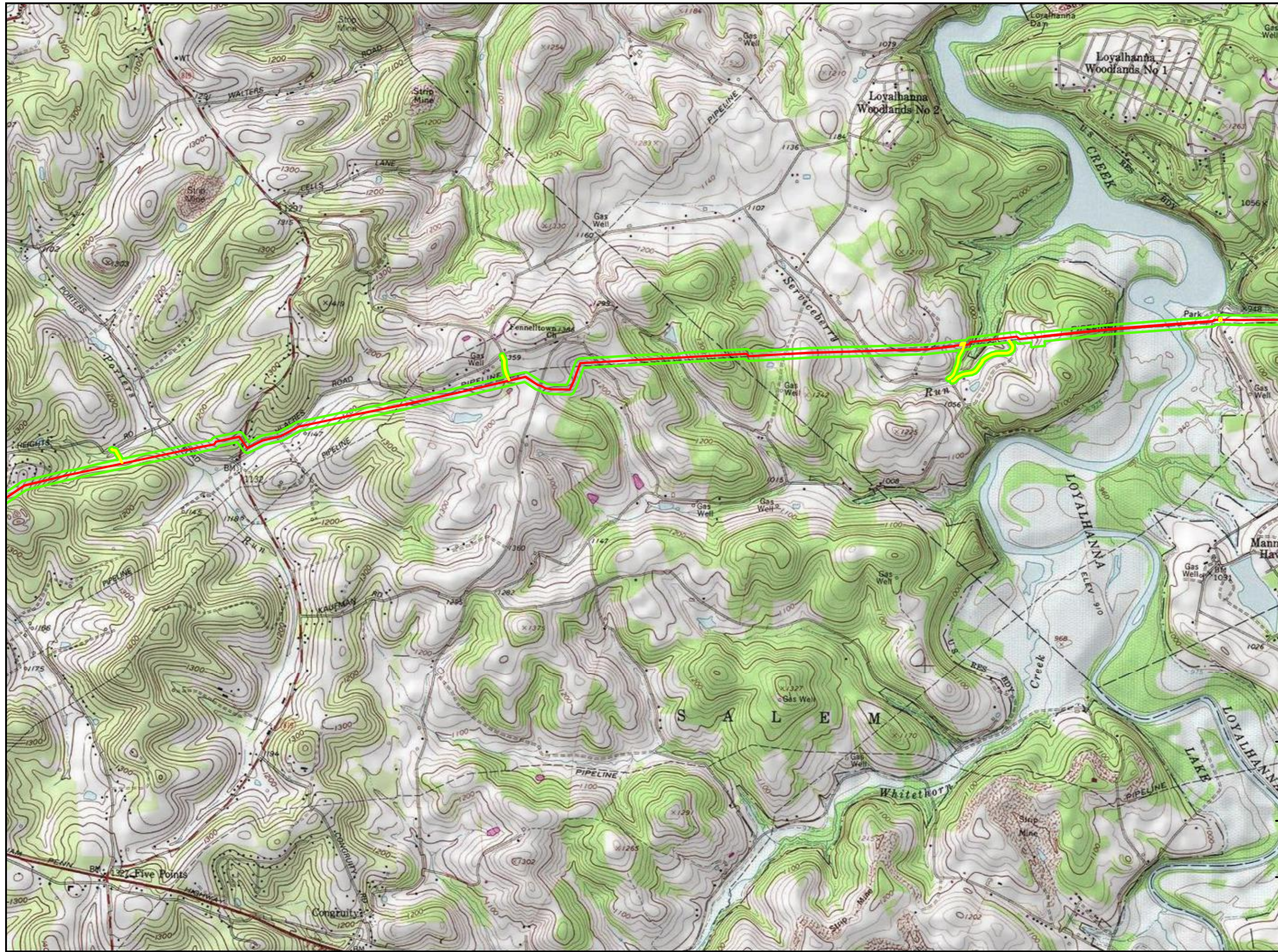
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**USGS PROJECT LOCATION MAP
FIGURE 1-6
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WESTMORELAND COUNTY, PA**

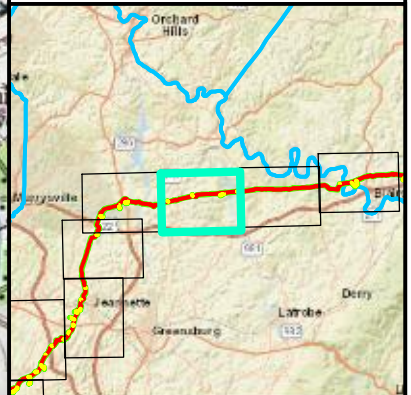


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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary

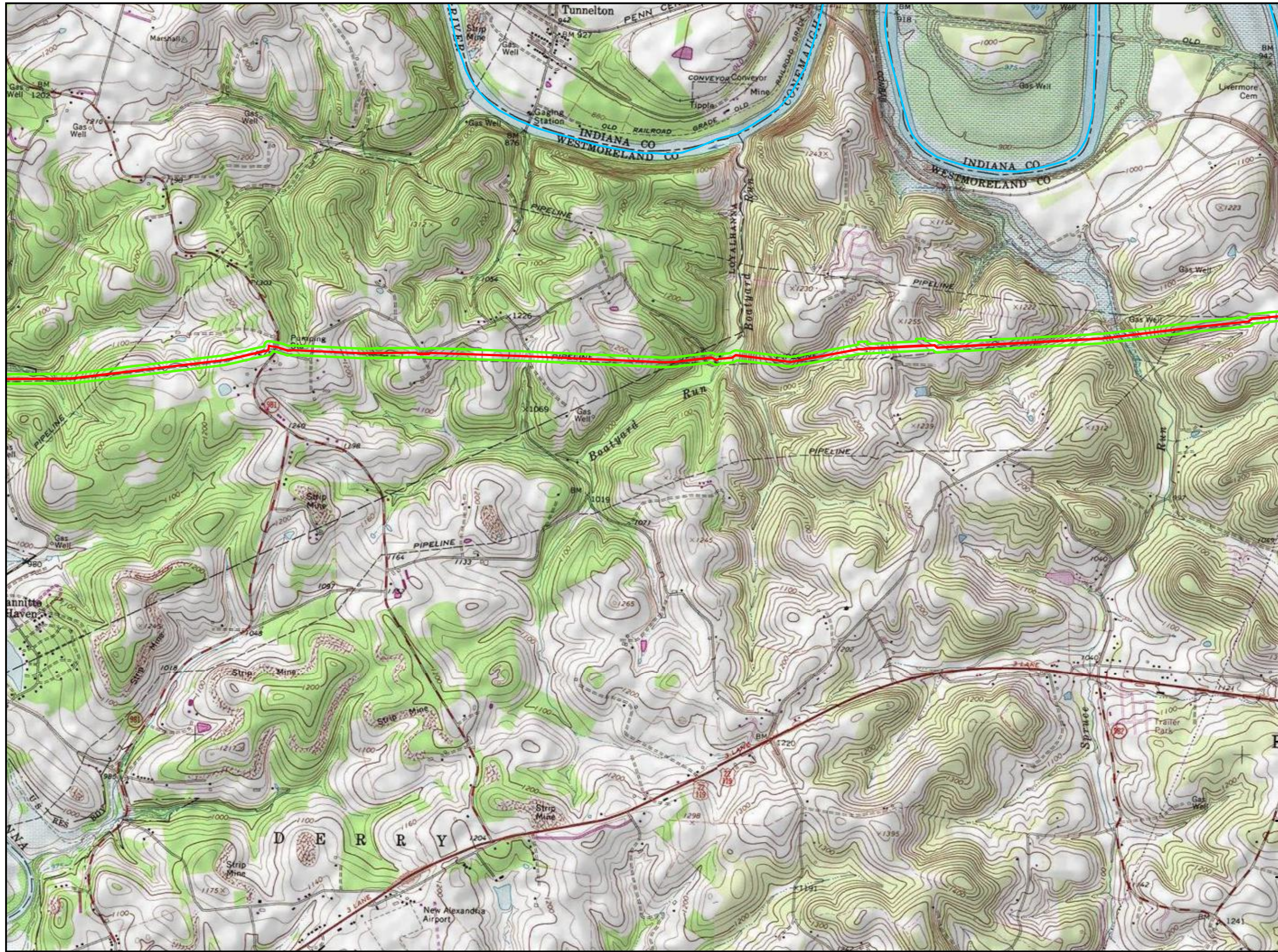
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**USGS PROJECT LOCATION MAP
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FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

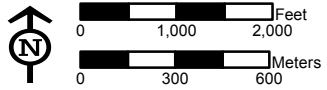
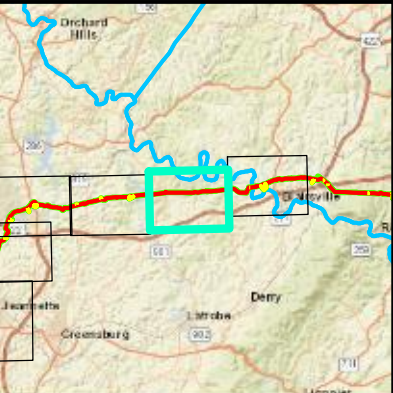


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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary

Sheet Identifier

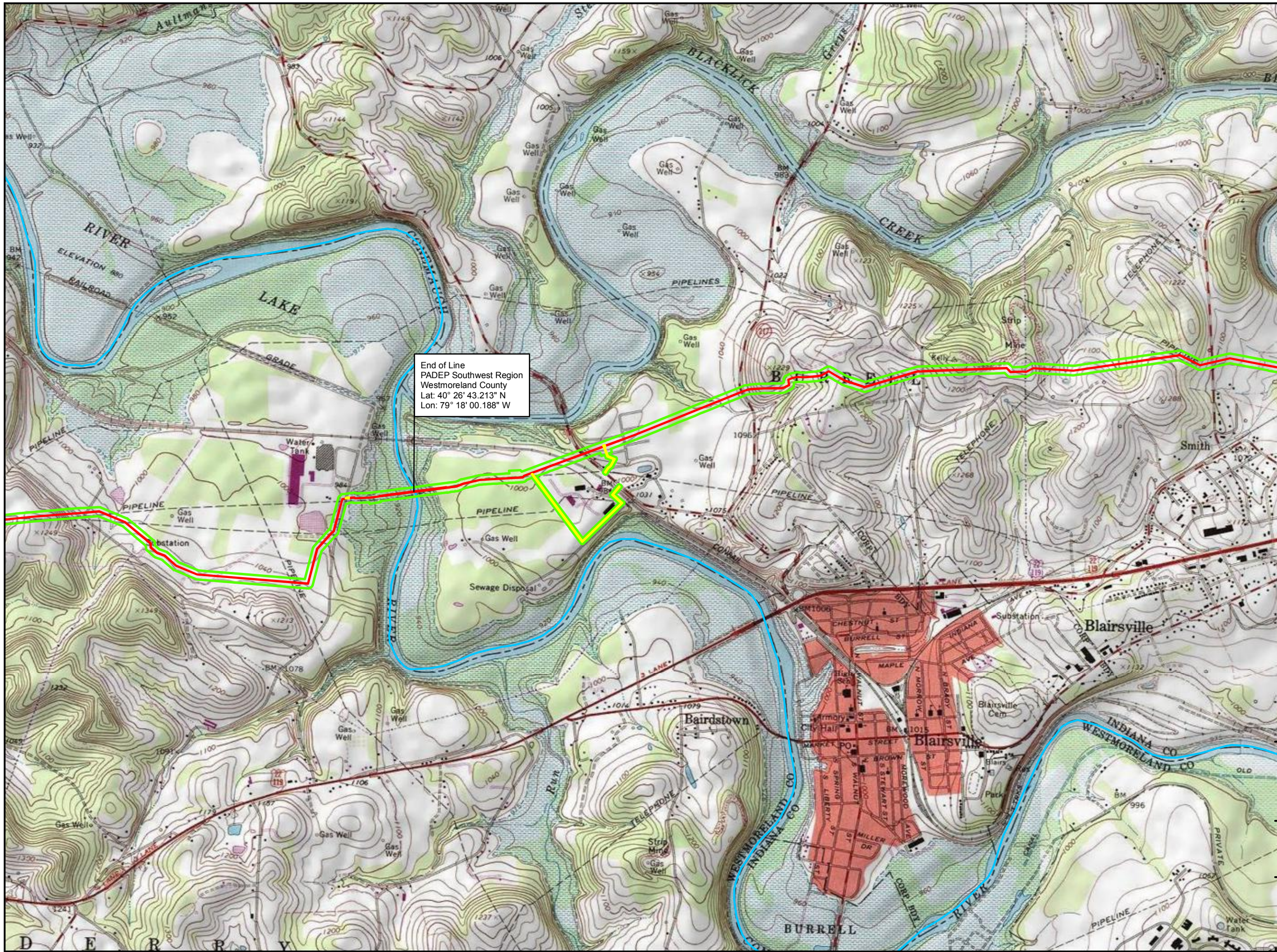


**USGS PROJECT LOCATION MAP
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FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



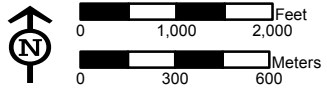
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End of Line
 PADEP Southwest Region
 Westmoreland County
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary

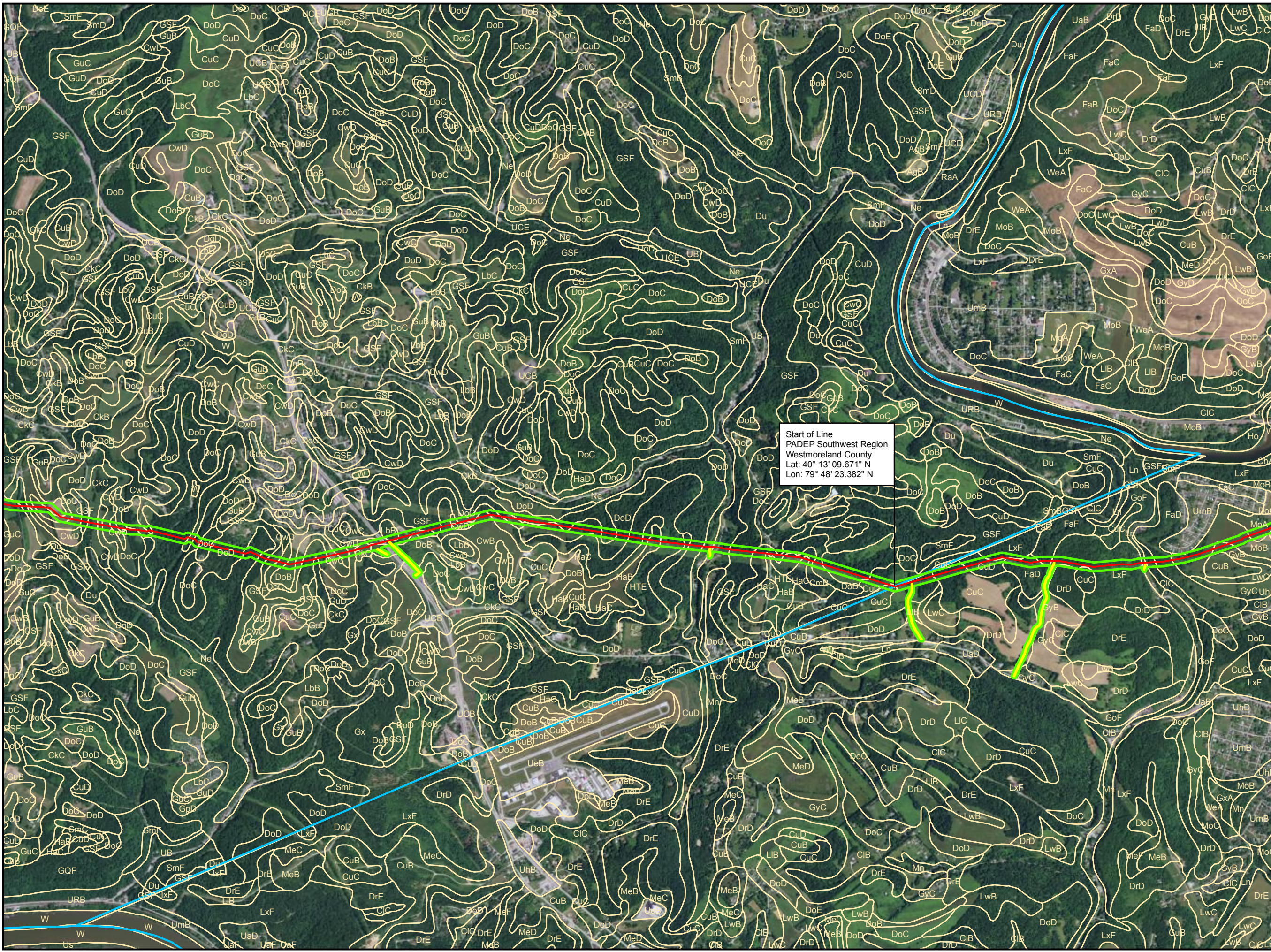


**USGS PROJECT LOCATION MAP
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 PENNSYLVANIA PIPELINE PROJECT
 FEBRUARY 25, 2016 ALIGNMENT
 SUNOCO LOGISTICS, L.P.
 WESTMORELAND COUNTY, PA**



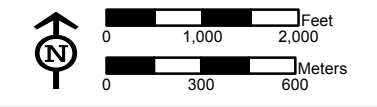
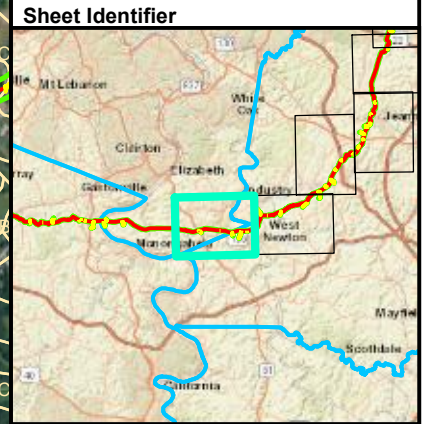
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

Start of Line
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 Westmoreland County
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 Lon: 79° 48' 23.382" N

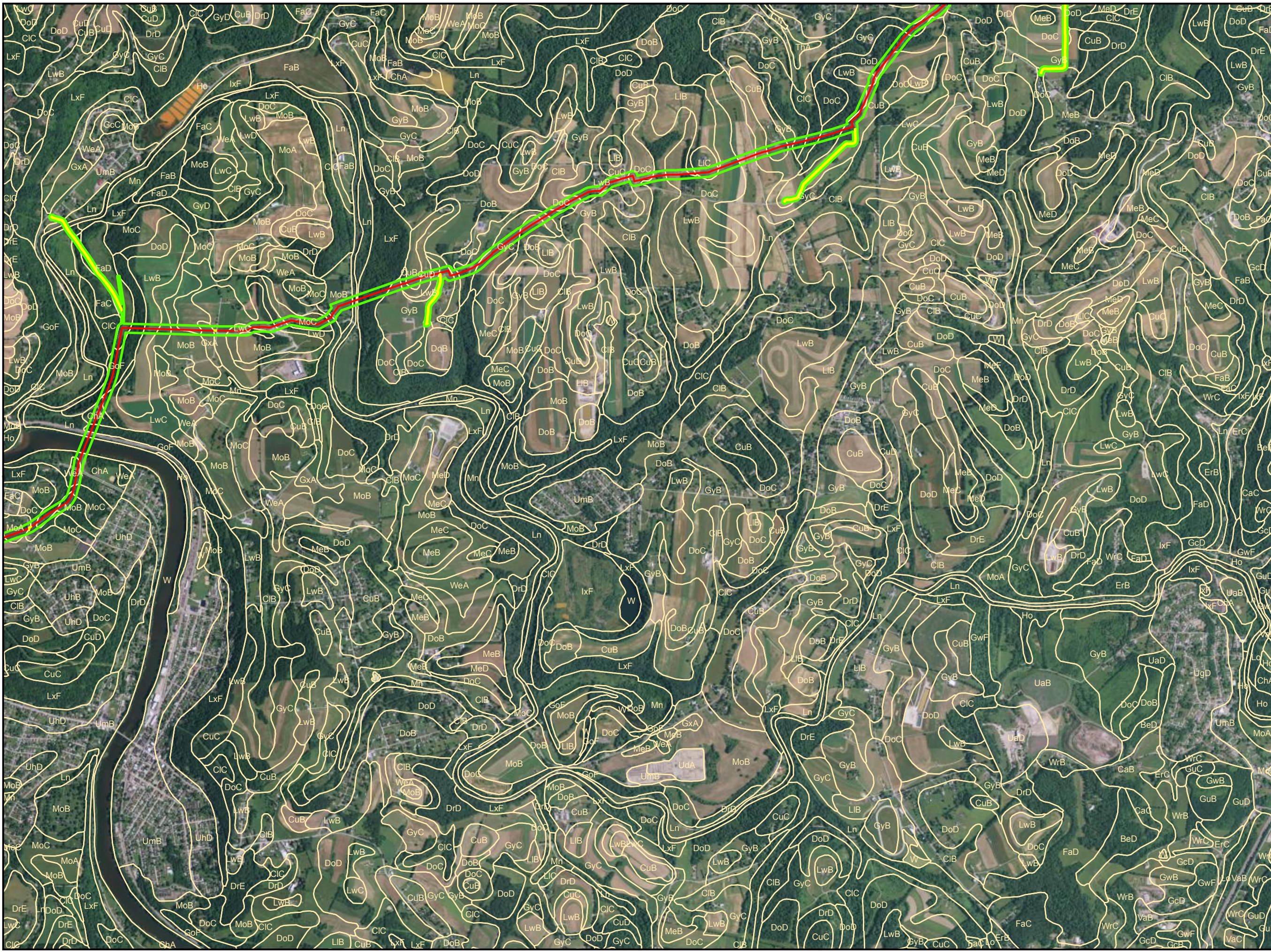


NRCS SOILS MAP
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PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

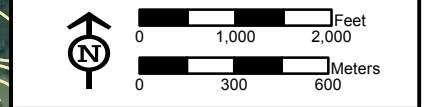
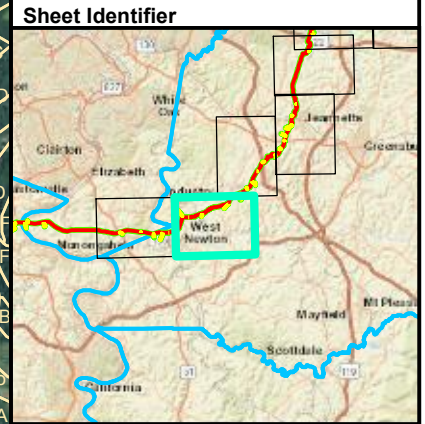


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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

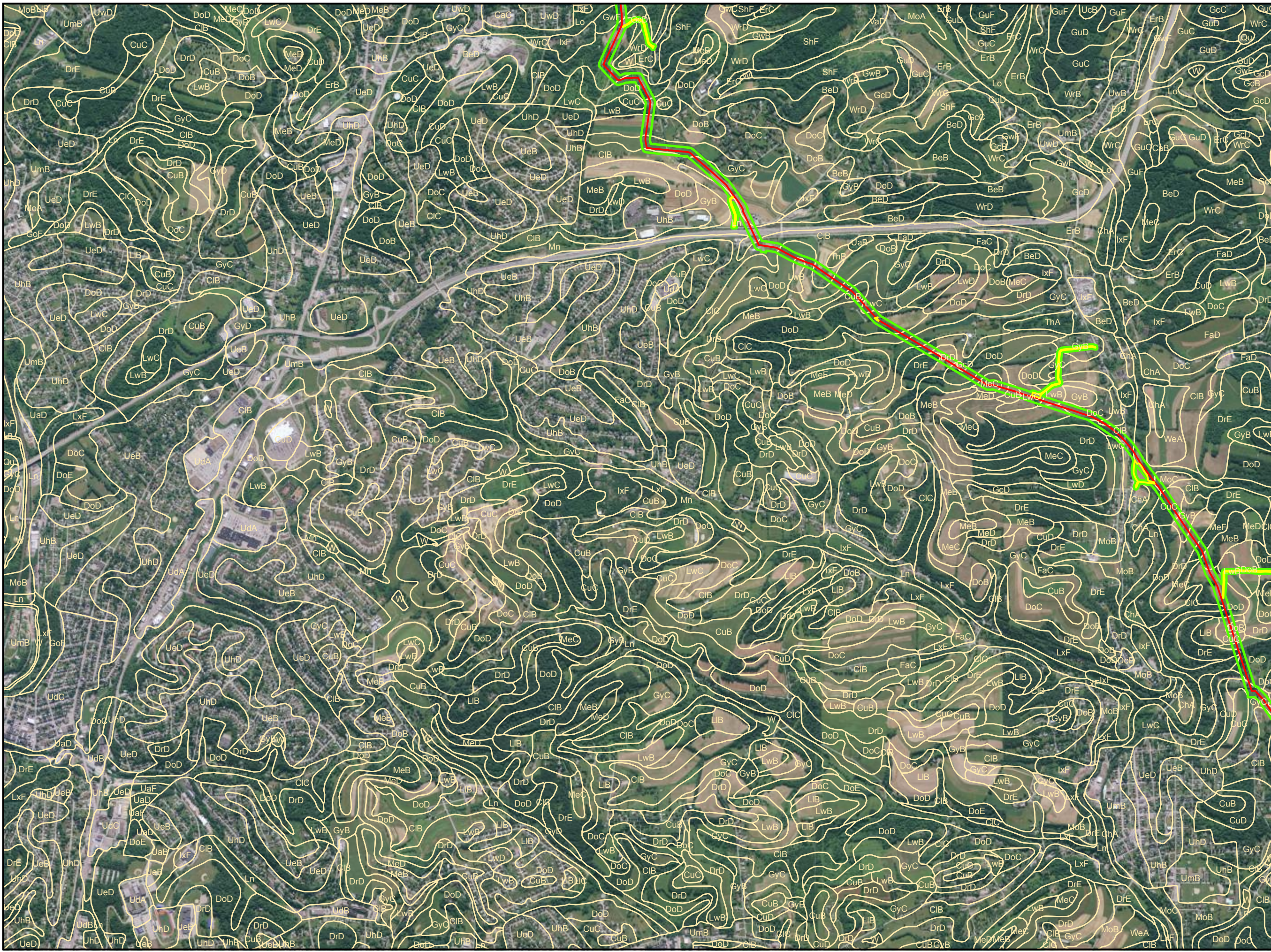


**NRCS SOILS MAP
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PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

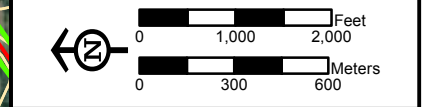
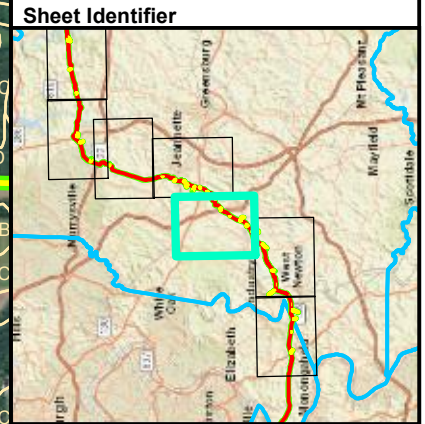


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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

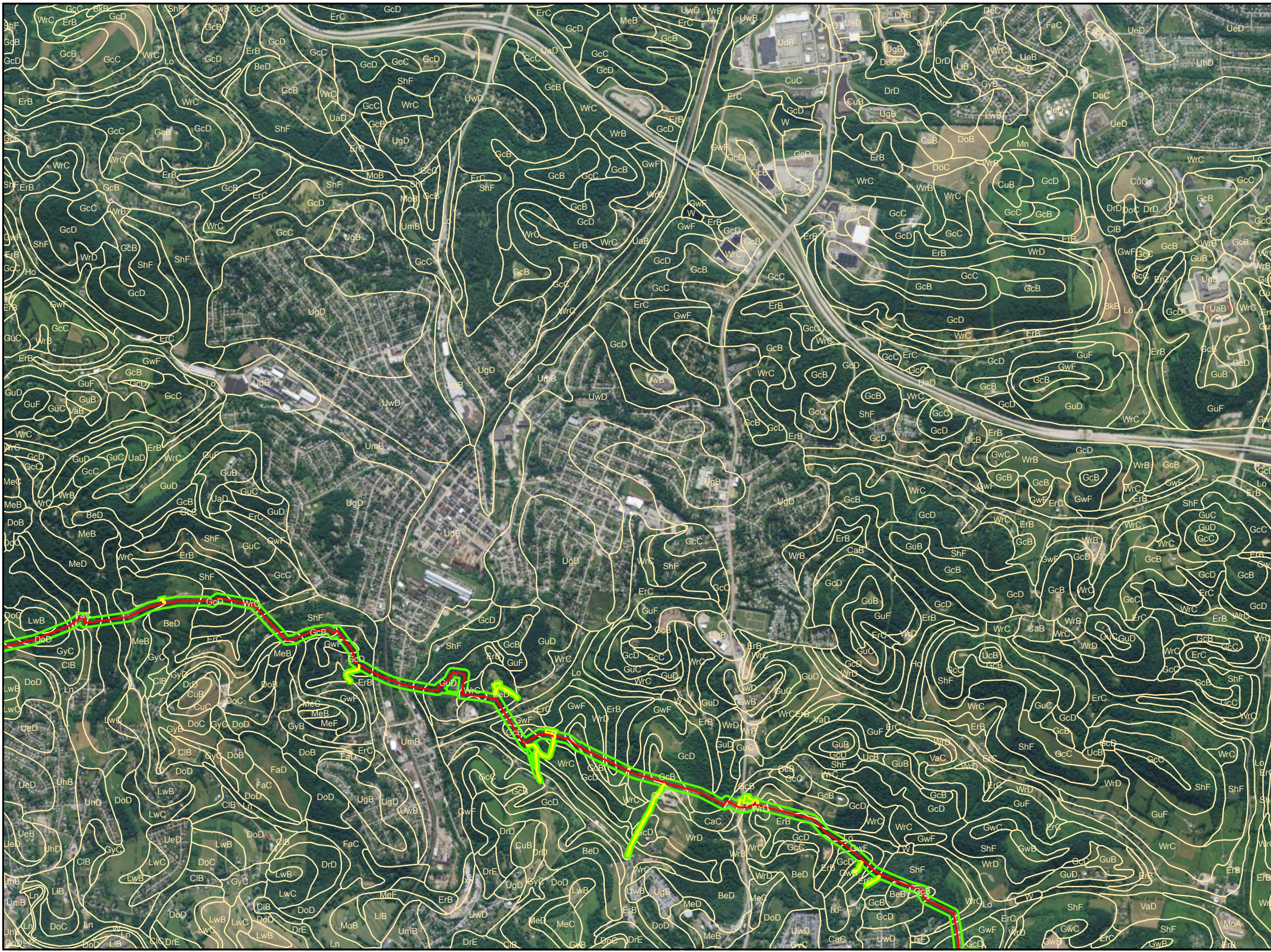


NRCS SOILS MAP
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PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

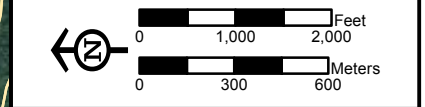
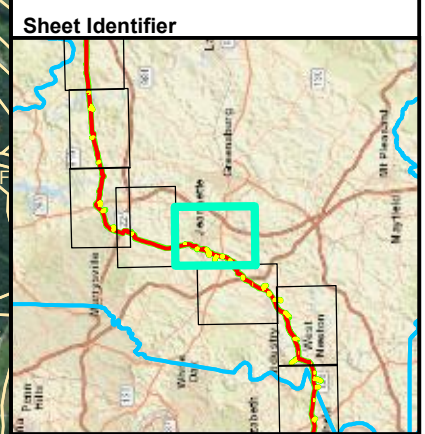


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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

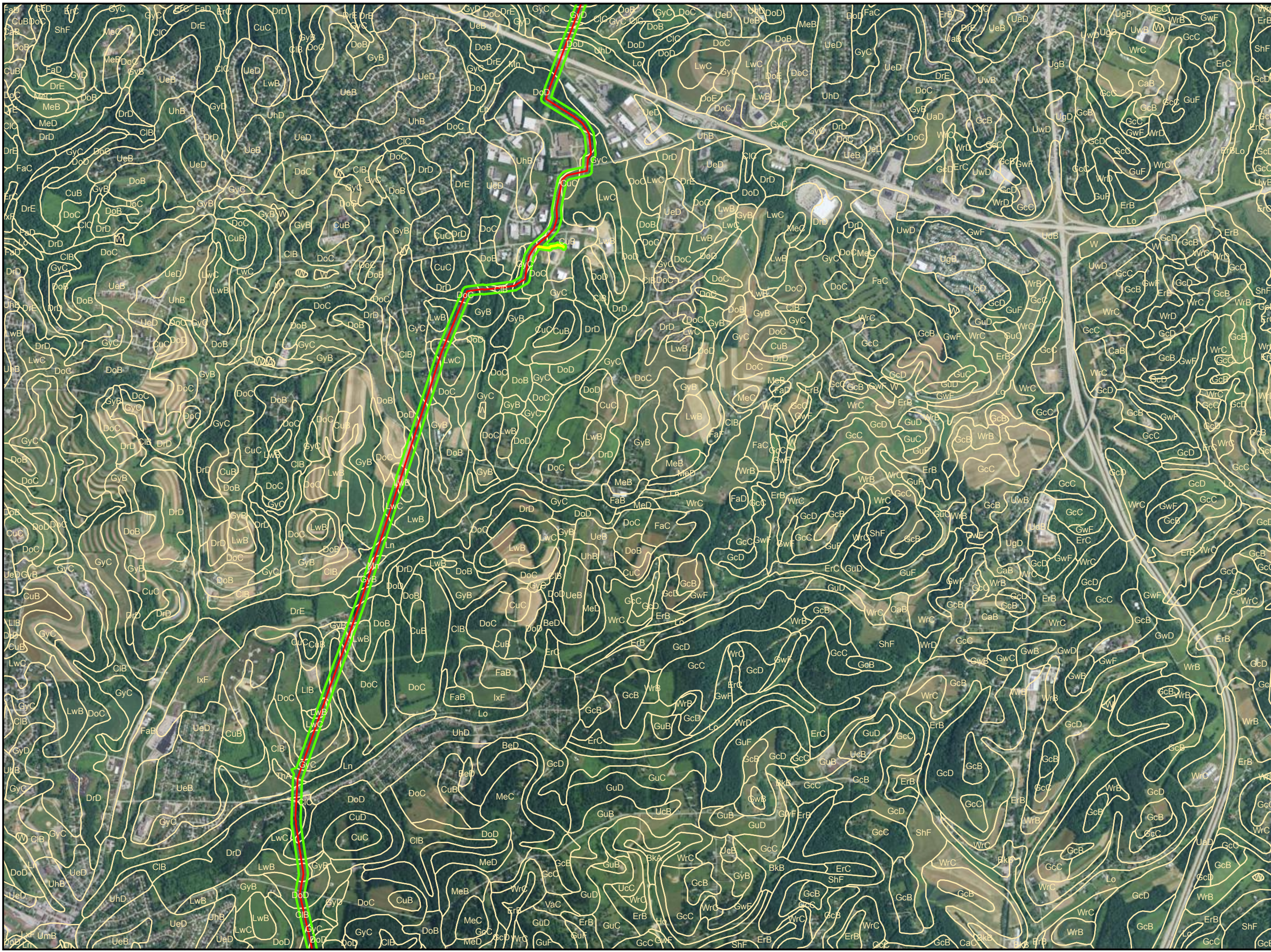


NRCS SOILS MAP
FIGURE 2-4
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

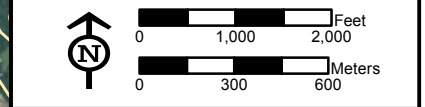
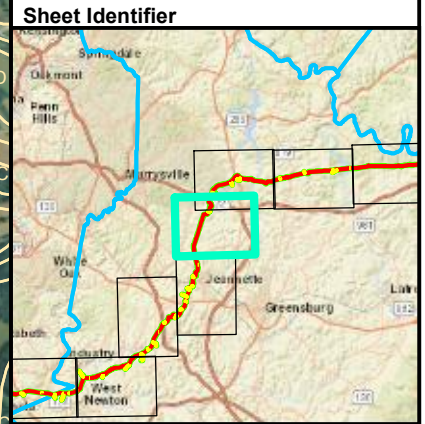


Notes:
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 ArcGIS Online World Imagery map service
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P:\GIS\SUNOCO\MARINER EAST 2\MD\PPP_WETLANDS\SWMPEN\PIPELINE_SOUTHWEST_SOILS_WESTMORELAND\MXD 03/21/16 SP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes



**NRCS SOILS MAP
FIGURE 2-5
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



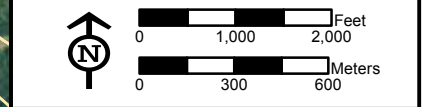
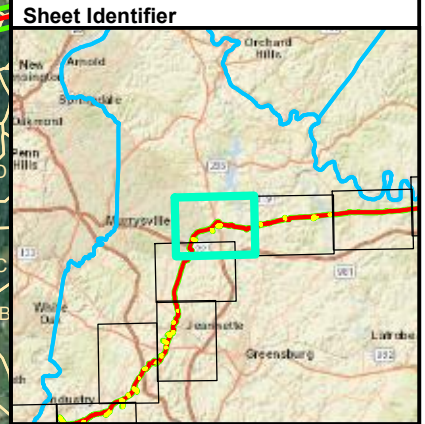
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Aerial photograph provided by ESRI's
ArcGIS Online World Imagery map service
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FGH:PA015UNOCO/MARINER_EAST_2MXP/PPP_WETLANDS_SWMPEN/PIPELINE_SOUTHWEST_SOILS_WESTMORELANDCO.MXD 03/21/16 SP



Start
 Lat: 40° 25' 49.520" N
 Lon: 79° 34' 28.945" W

- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

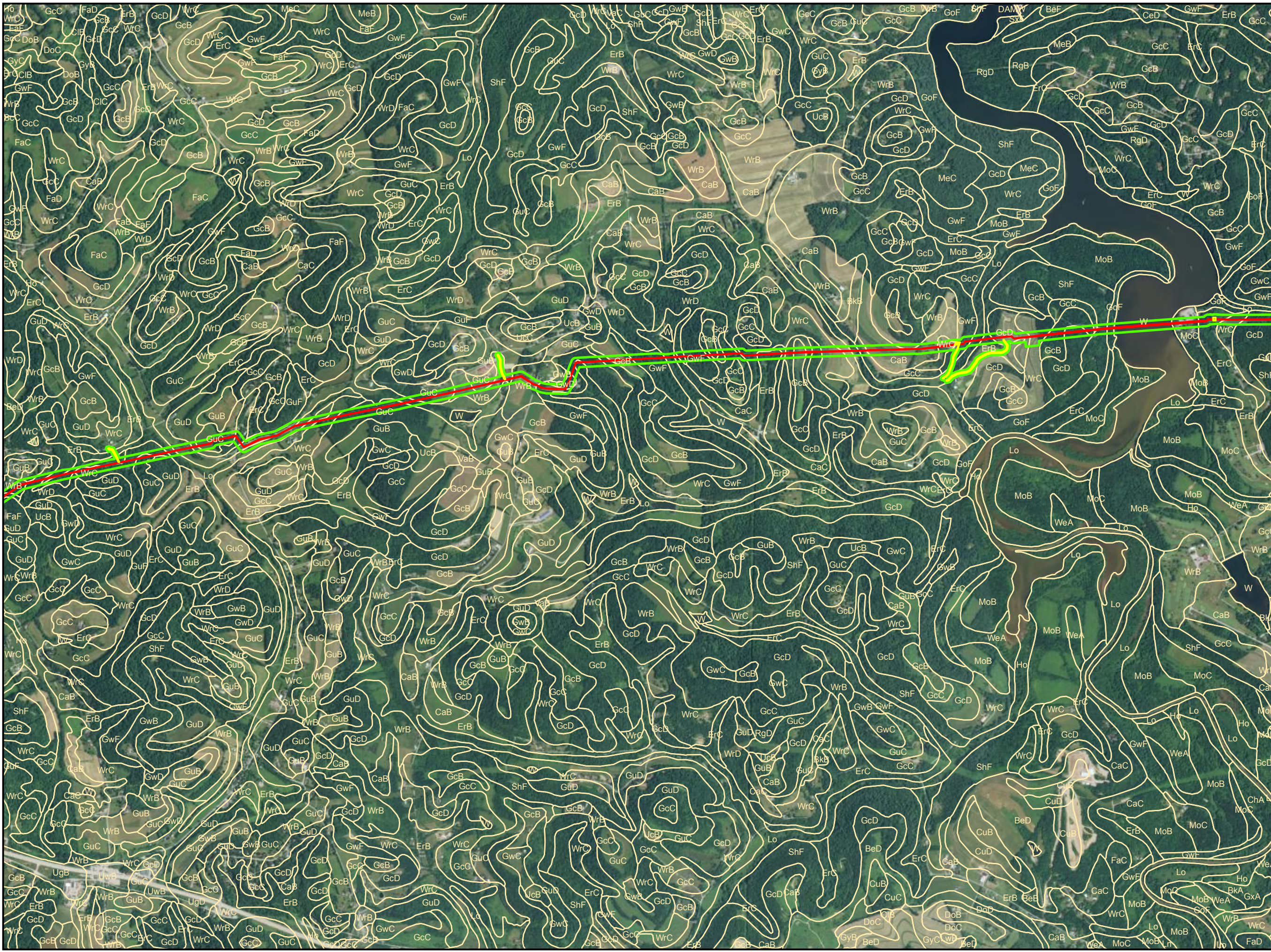


**NRCS SOILS MAP
 FIGURE 2-6
 PENNSYLVANIA PIPELINE PROJECT
 FEBRUARY 25, 2016 ALIGNMENT
 SUNOCO LOGISTICS, L.P.
 WESTMORELAND COUNTY, PA**

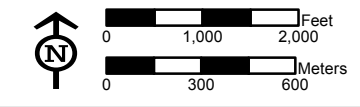
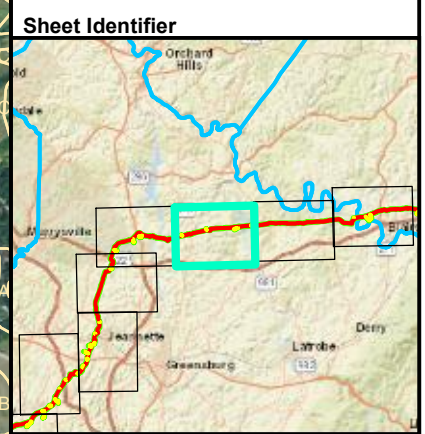


Notes:
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FGH:PA015UNOCO/MARINER EAST 2MXDPPP/WETLANDS/SWPN/PEN/PIPELINE_SOUTHWEST_SOILS_WESTMORELANDCO.MXD 03/21/16 SP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

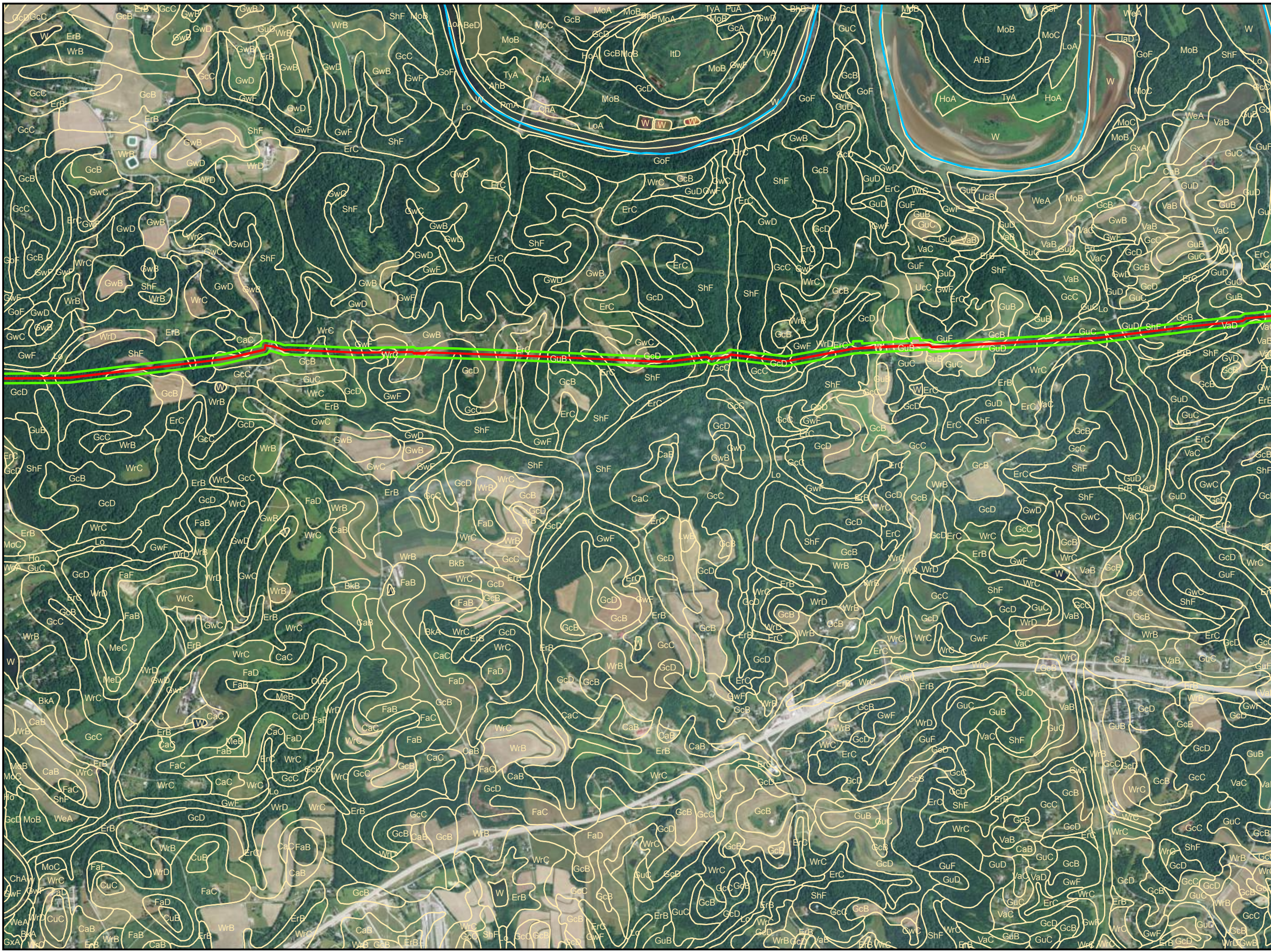


**NRCS SOILS MAP
FIGURE 2-7
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

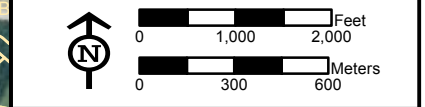
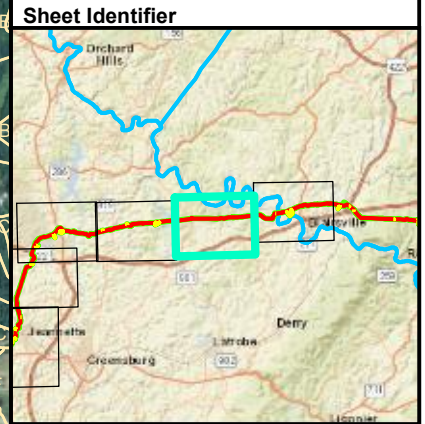


Notes:
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FGH:PA\SUNOCO\MARINER EAST 2\MOXDPPP\WETLANDS\SWMPEN\PIPELINE_SOUTHWEST_SOILS_WESTMORELAND\MOXD 03/21/16 SP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

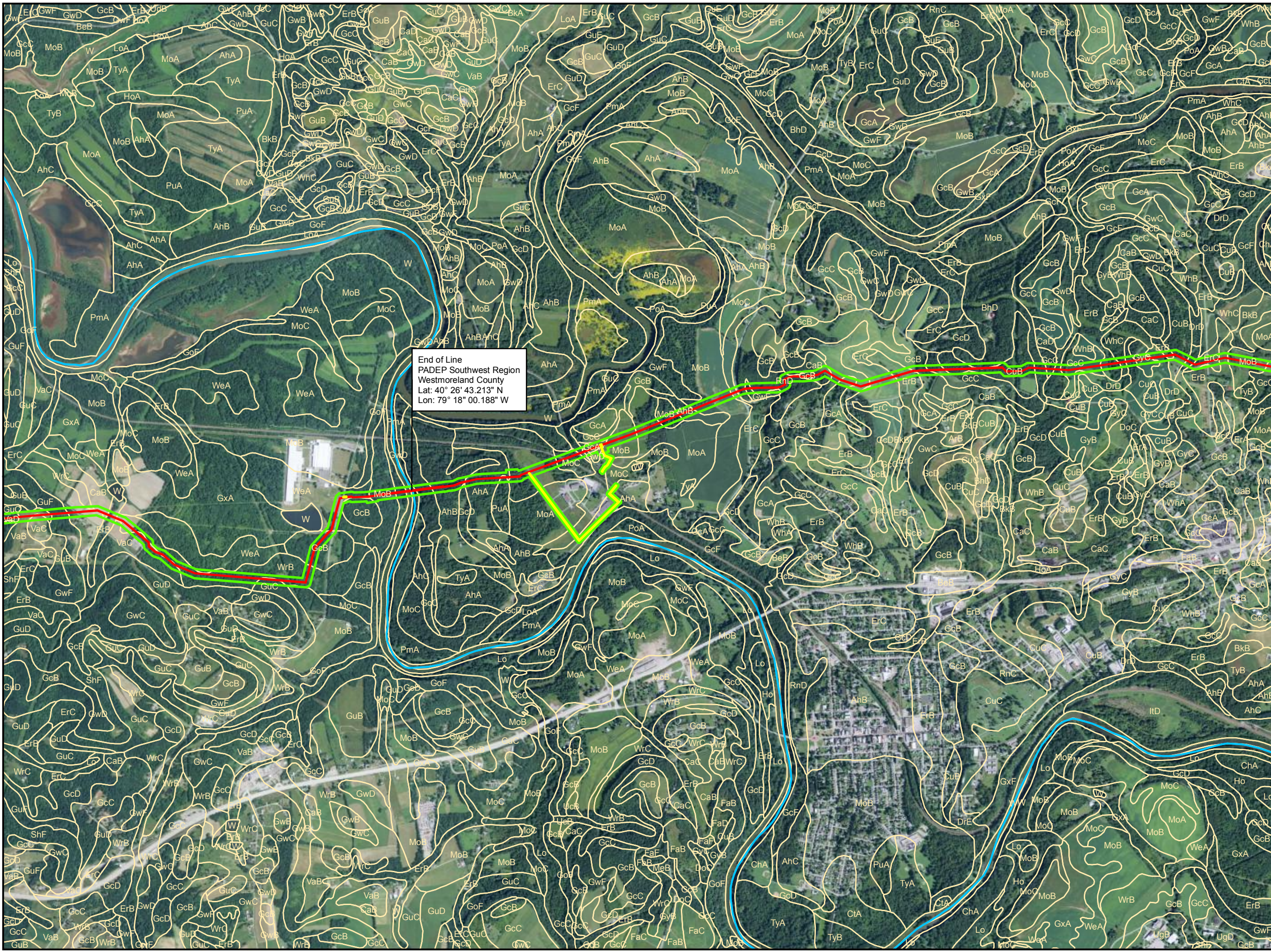


NRCS SOILS MAP
FIGURE 2-8
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



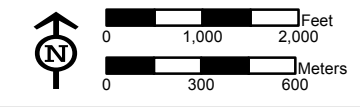
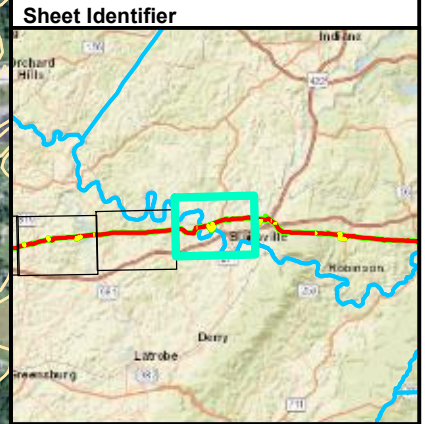
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 Aerial photograph provided by ESRI's
 ArcGIS Online World Imagery map service
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P:\GIS\SUNOCO\MARINER EAST 2\MD\PPP\WETLANDS\SWMPEN\PIPELINE_SOUTHWEST_SOILS_WESTMORELAND\MXD\032116.SP



End of Line
 PADEP Southwest Region
 Westmoreland County
 Lat: 40° 26' 43.213" N
 Lon: 79° 18' 00.188" W

- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NRCS Soils and Codes

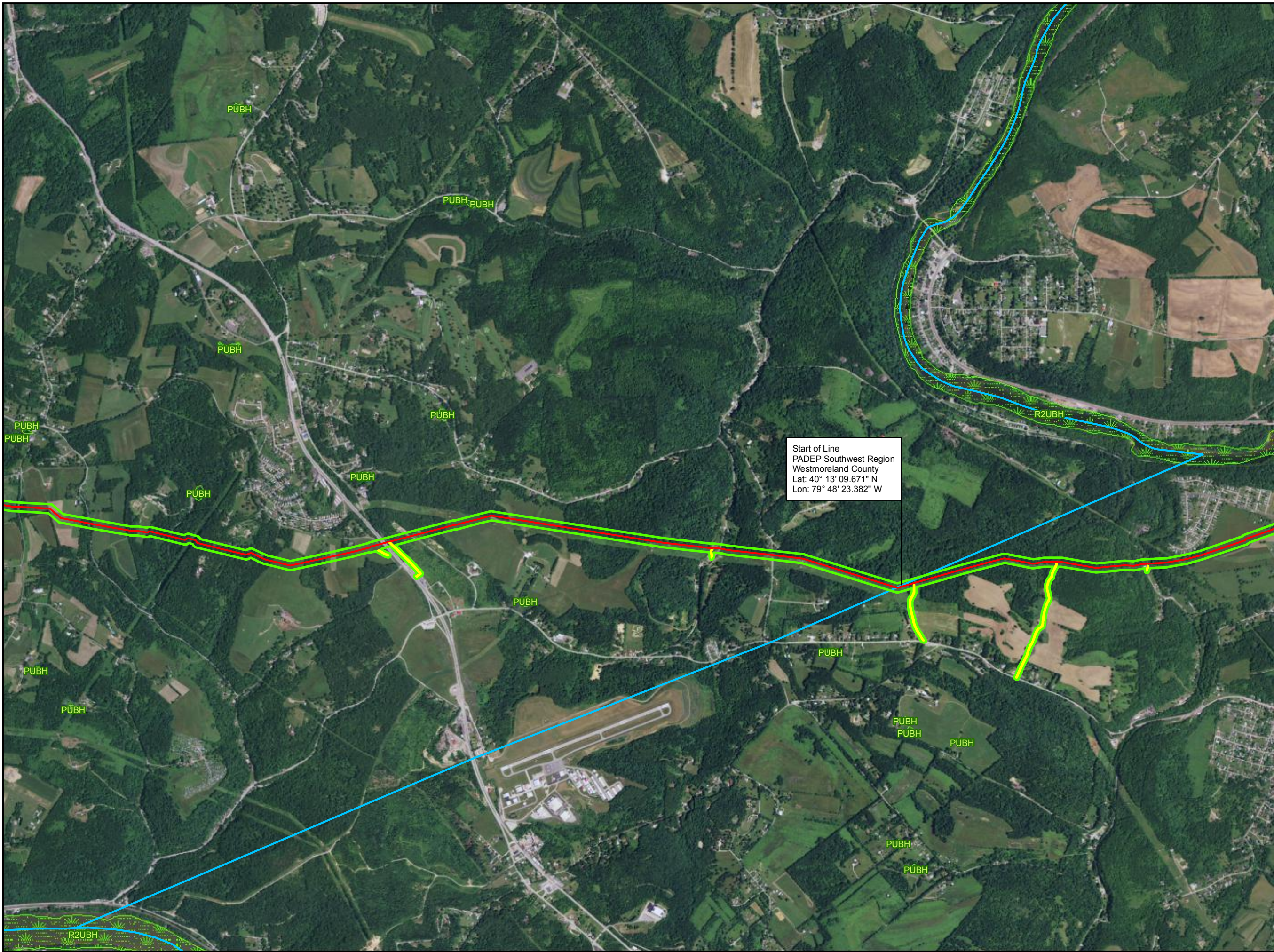


NRCS SOILS MAP
FIGURE 2-9
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



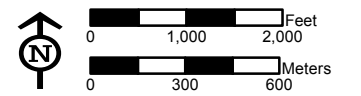
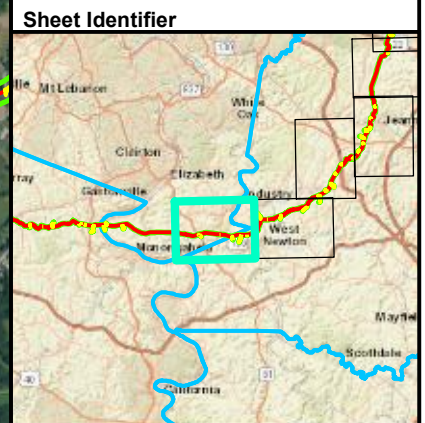
Notes:
 Aerial photograph provided by ESRI's
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P:\GIS\SUNOCO\MARINER EAST 2\MOXDPPP\WETLANDS SWMPEN\PIPELINE_SOUTHWEST_SOILS_WESTMORELAND\MXD 03/21/16 SP



Start of Line
 PADEP Southwest Region
 Westmoreland County
 Lat: 40° 13' 09.671" N
 Lon: 79° 48' 23.382" W

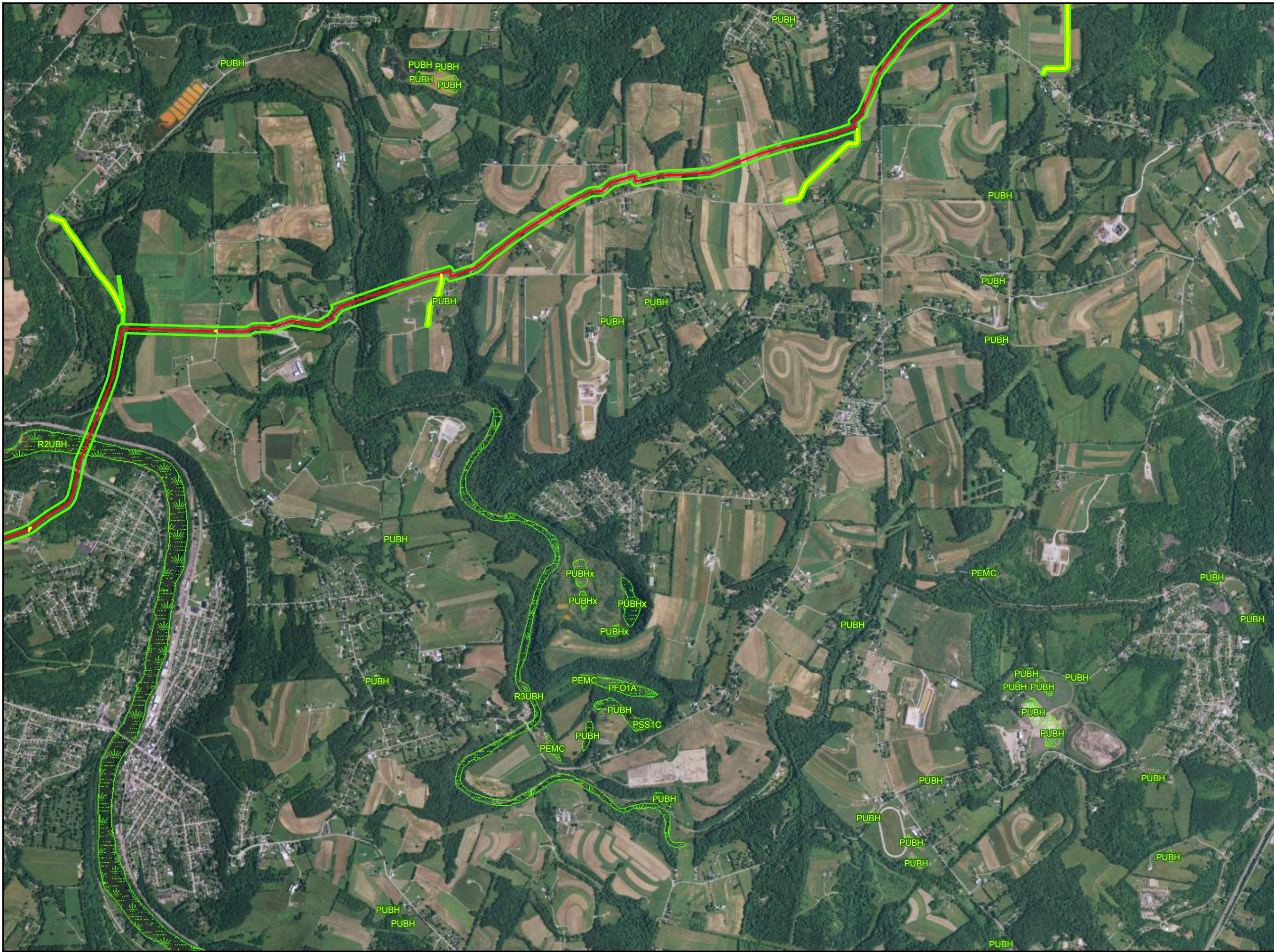
- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes



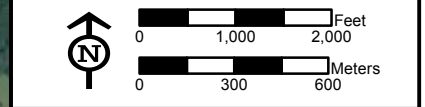
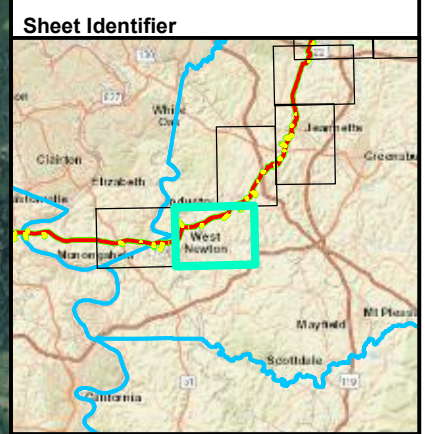
**NWI WETLANDS MAP
 FIGURE 3-1
 PENNSYLVANIA PIPELINE PROJECT
 FEBRUARY 25, 2016 ALIGNMENT
 SUNOCO LOGISTICS, L.P.
 WESTMORELAND COUNTY, PA**



Notes:
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes

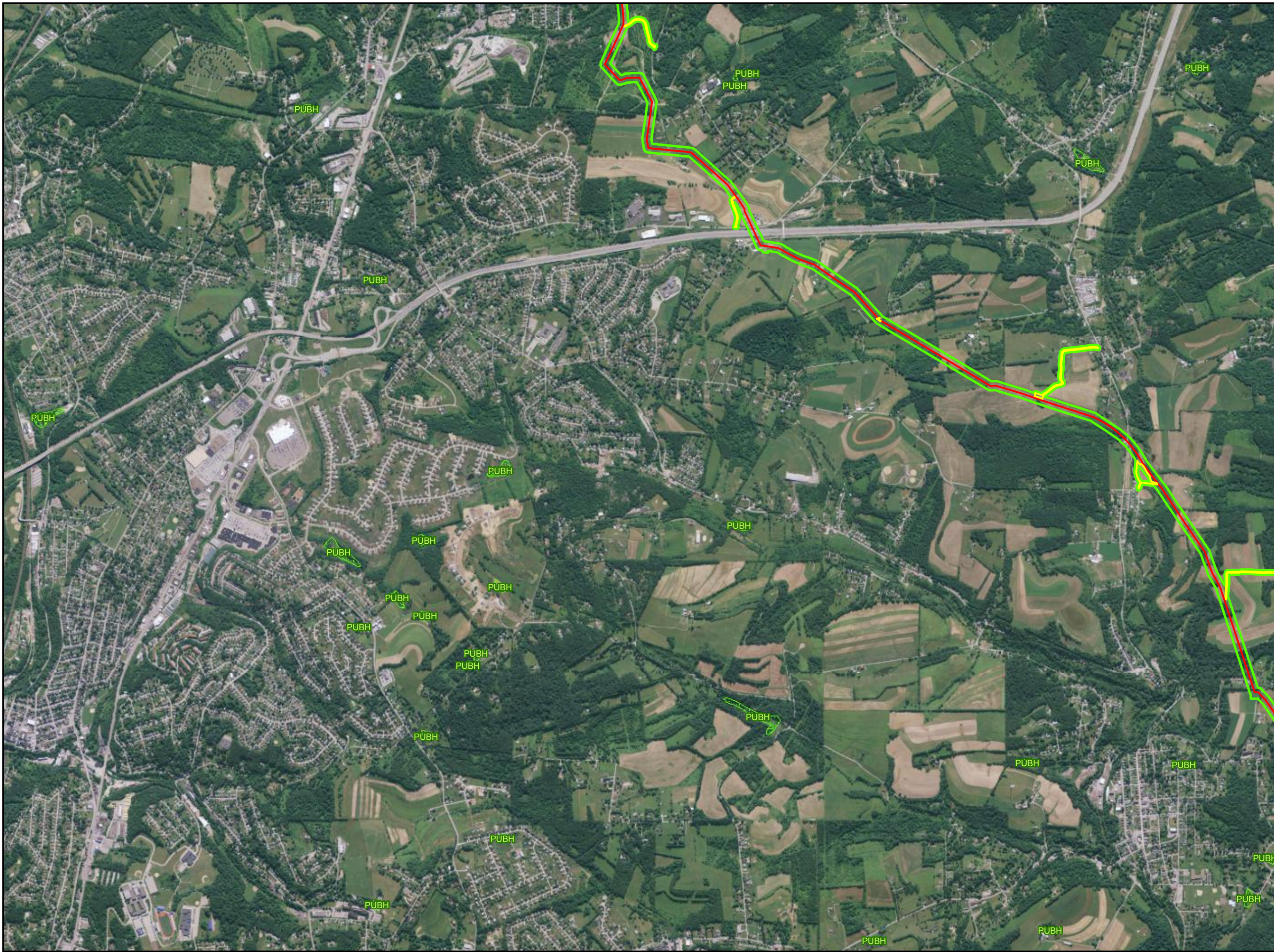


NWI WETLANDS MAP
FIGURE 3-2
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

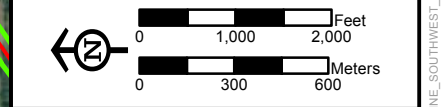
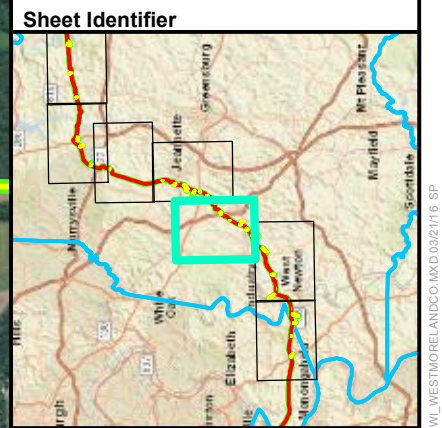


Notes:
 Aerial photograph provided by ESRI's
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PGH_P\GIS\SUNOCO\MARINER_EAST_2\MXD\PPP_WETLANDS_SWPEN\PIPELINE_SOUTHWEST_NWI_WESTMORELANDCO_MXD_032116.SP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes



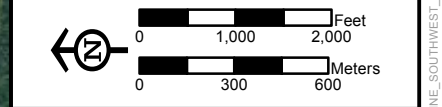
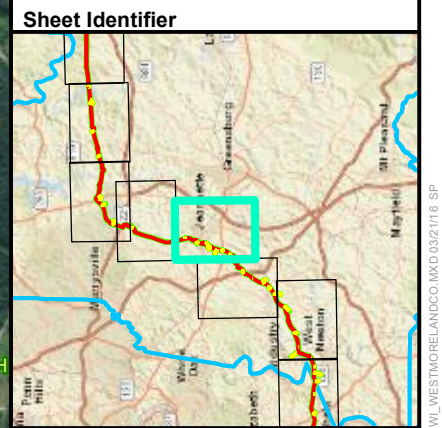
**NWI WETLANDS MAP
FIGURE 3-3
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



Notes:
Aerial photograph provided by ESRI's
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes



NWI WETLANDS MAP
FIGURE 3-4
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

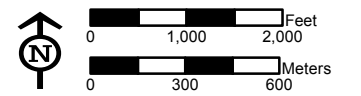
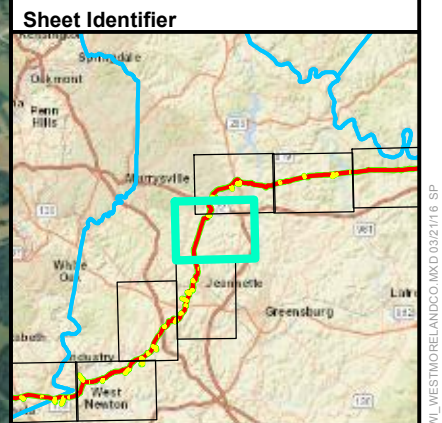


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 Aerial photograph provided by ESRI's
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes



**NWI WETLANDS MAP
FIGURE 3-5
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



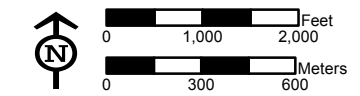
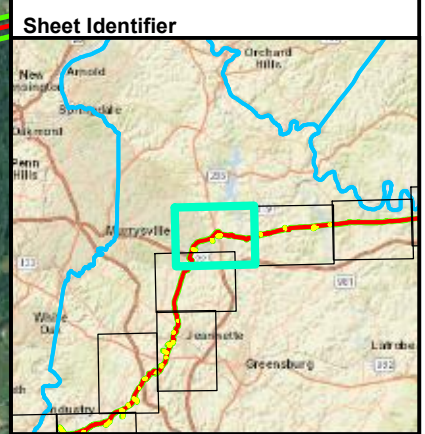
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ArcGIS Online World Imagery map service
(© 2011 ESRI and its data suppliers).

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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes

Start
 Lat: 40° 25' 49.520" N
 Lon: 79° 34' 28.945" W

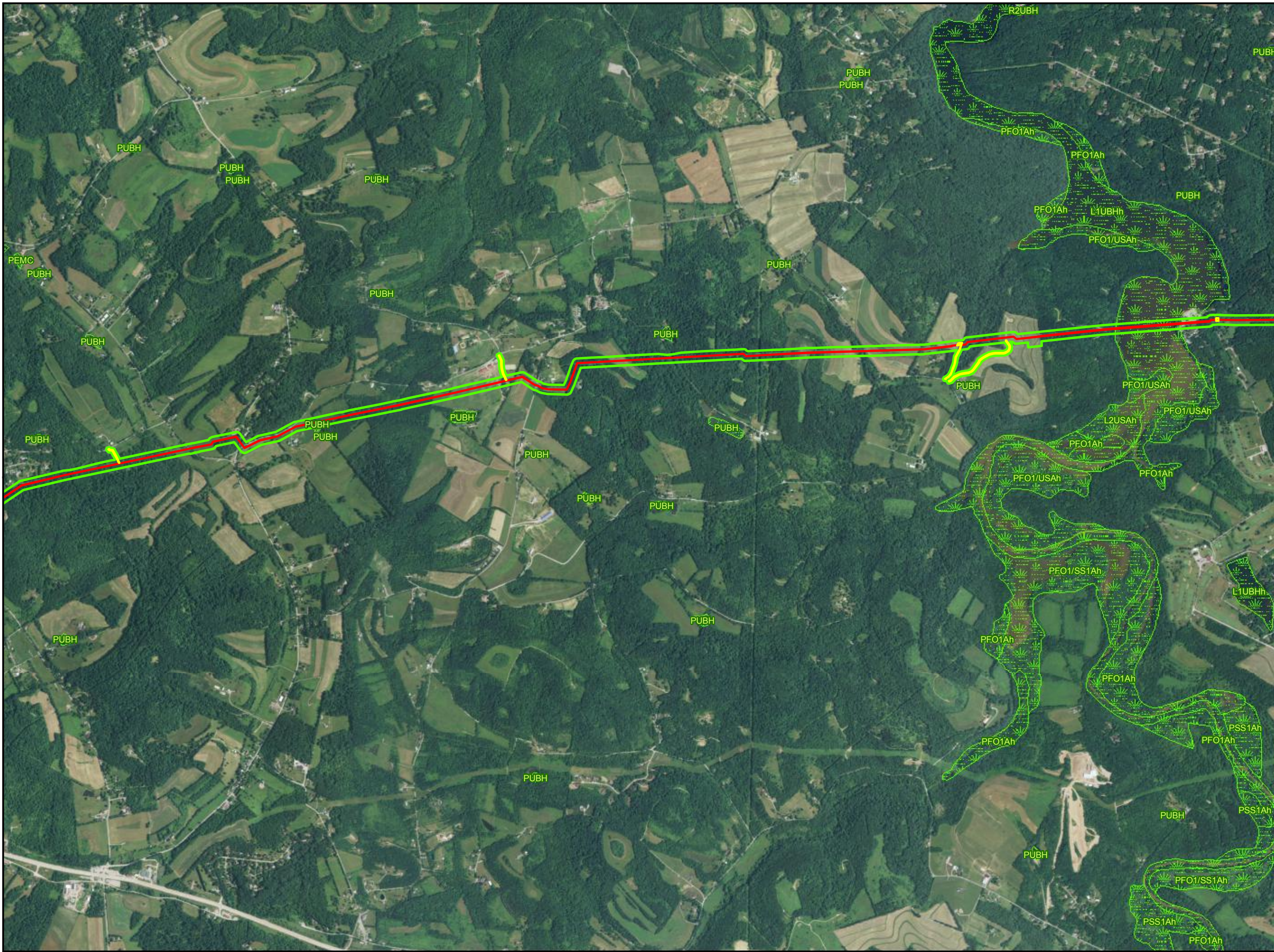


NWI WETLANDS MAP
FIGURE 3-6
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

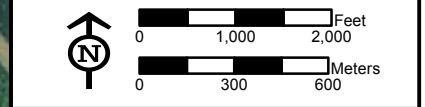
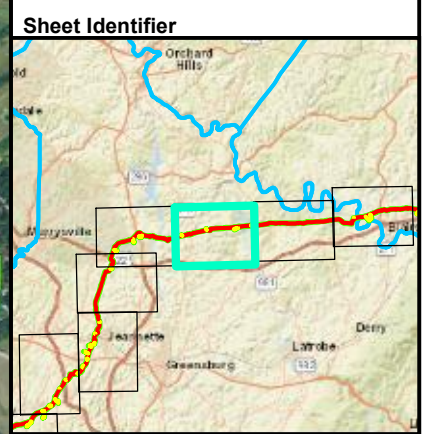


Notes:
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PGH-P\GIS\SUNOCO\MARINER EAST 2\MDX\PPP-WETLANDS\SWPEN\PIPELINE_SOUTHWEST_NWI_WESTMORELANDCO.MXD 03/21/16 SP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes

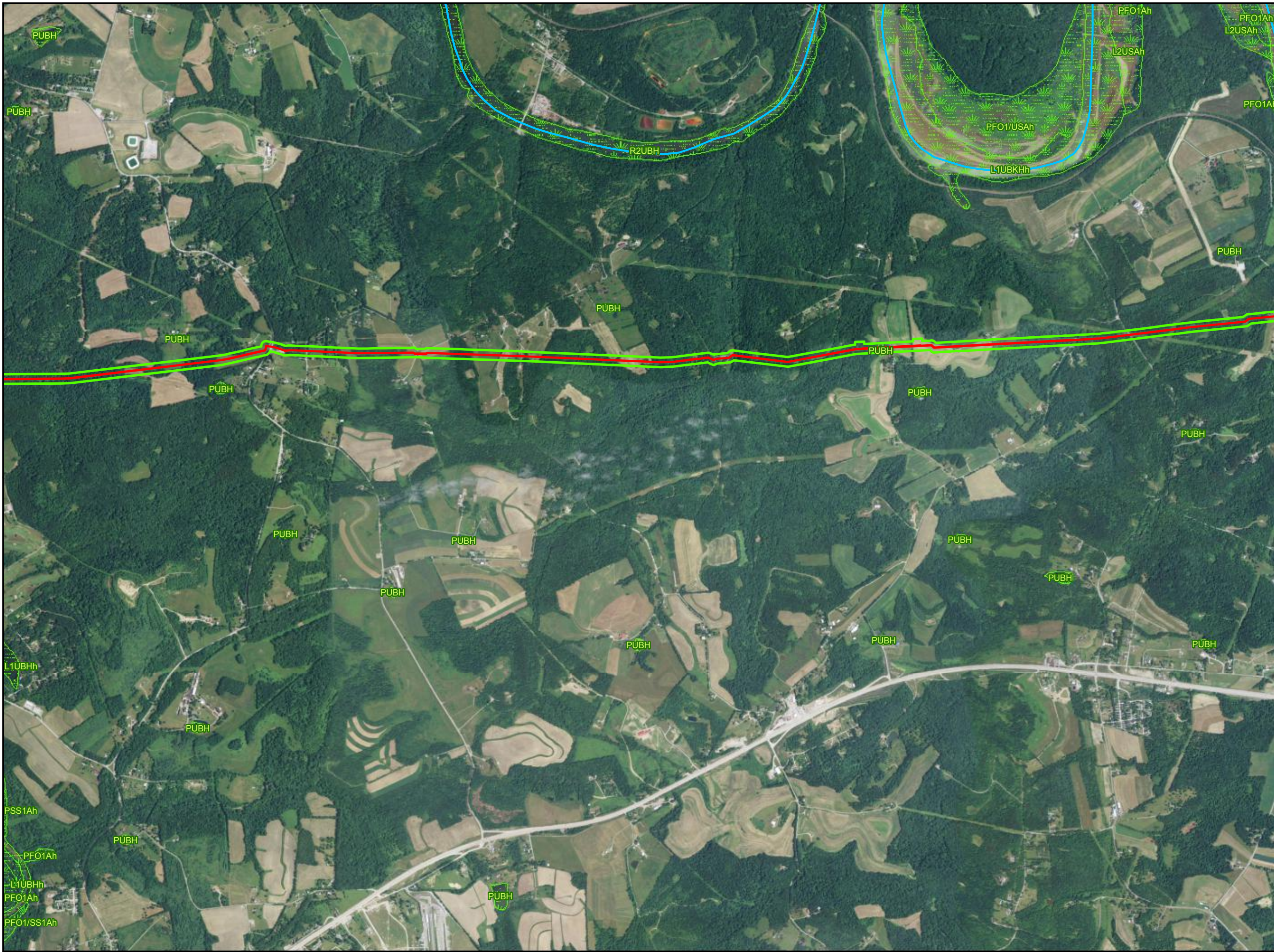


**NWI WETLANDS MAP
FIGURE 3-7
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

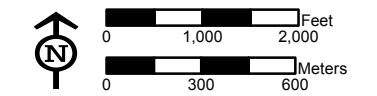
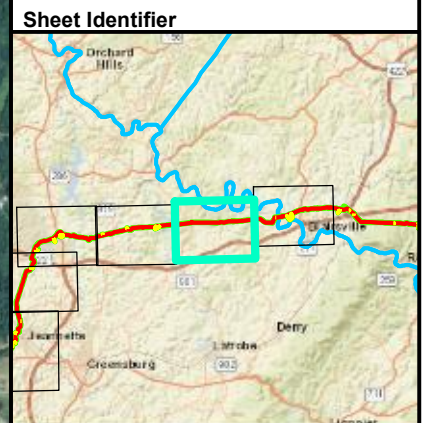


Notes:
Aerial photograph provided by ESRI's
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes

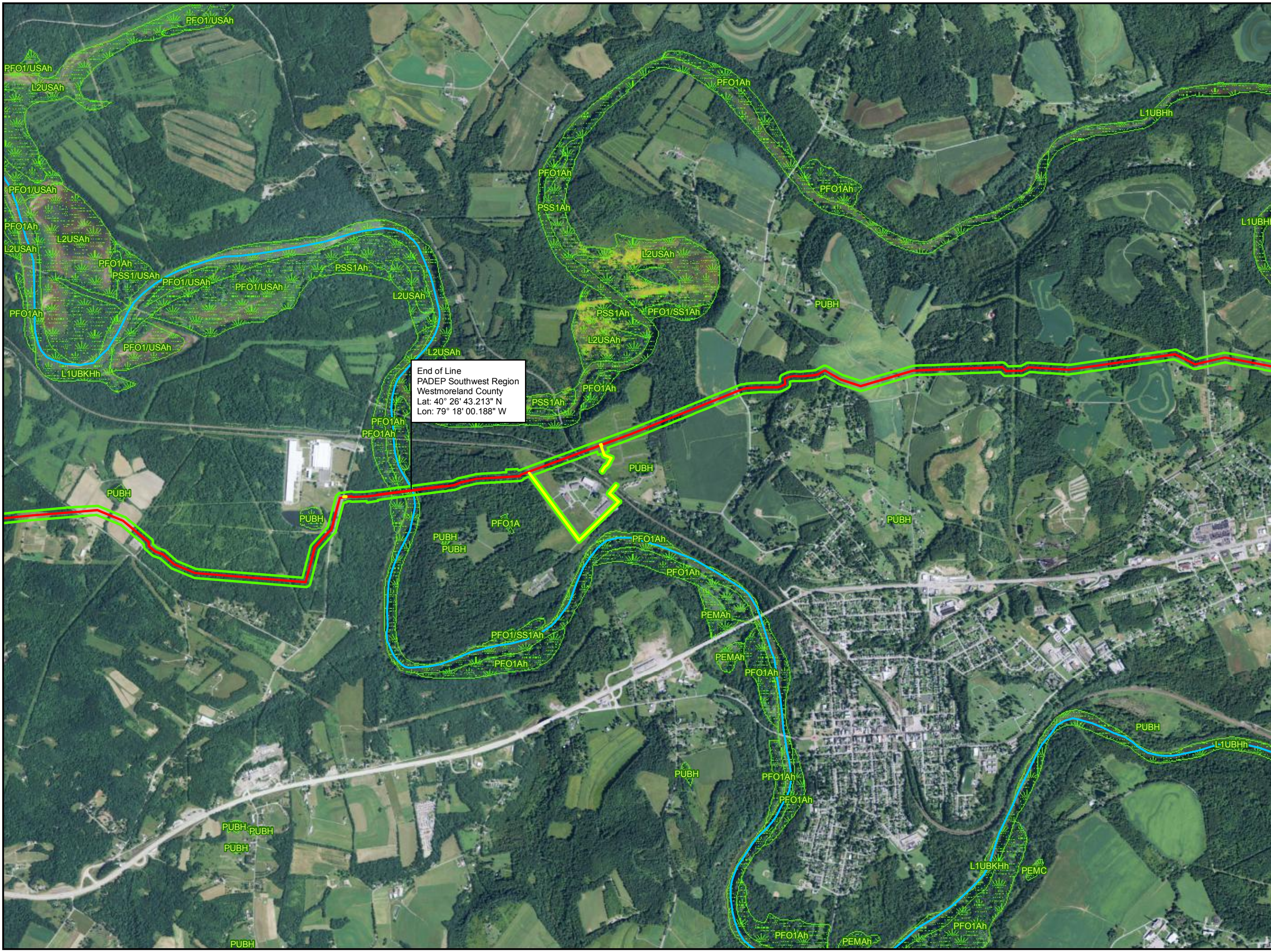


**NWI WETLANDS MAP
FIGURE 3-8
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



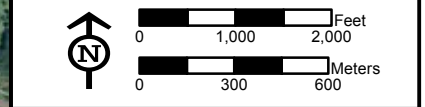
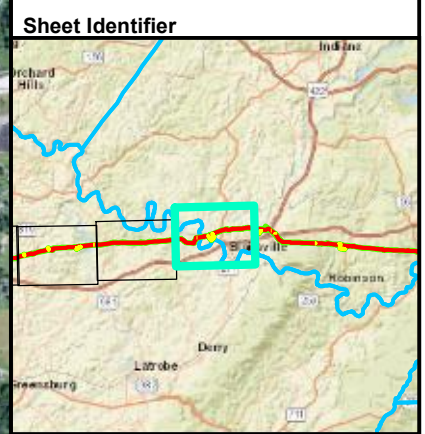
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- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - NWI Wetlands and Codes

End of Line
 PADEP Southwest Region
 Westmoreland County
 Lat: 40° 26' 43.213" N
 Lon: 79° 18' 00.188" W

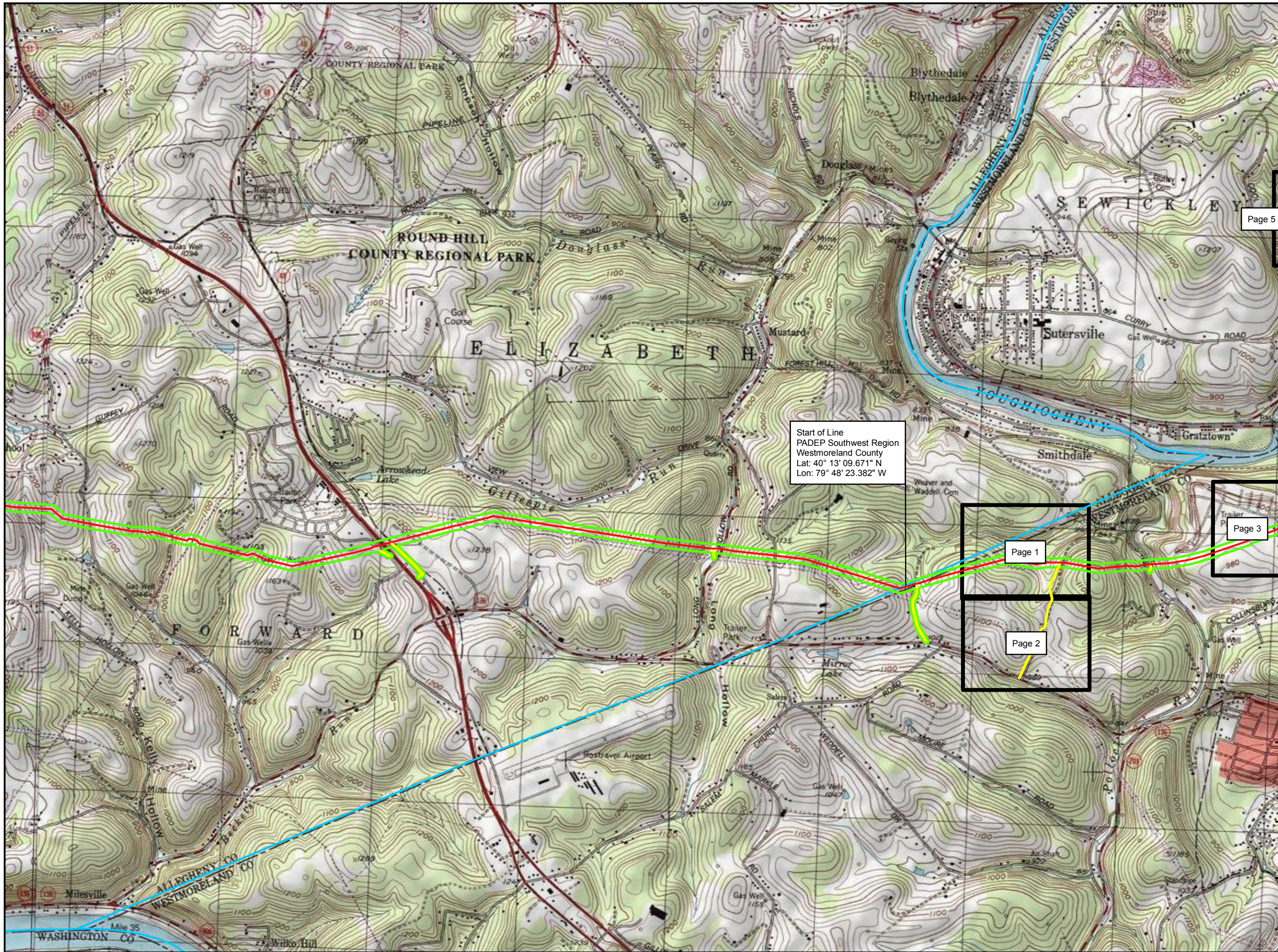


NWI WETLANDS MAP
FIGURE 3-9
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



Notes:
 Aerial photograph provided by ESRI's
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PGH_P\GIS\SUNOCO\MARINER_EAST_2\MXD\PPP_WETLANDS_SW\PEN\PIPELINE_SOUTHWEST_NWI_WESTMORELANDCO_MXD_032116_16_SIP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - Map Book Index

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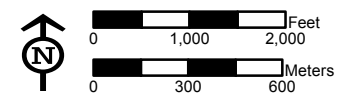
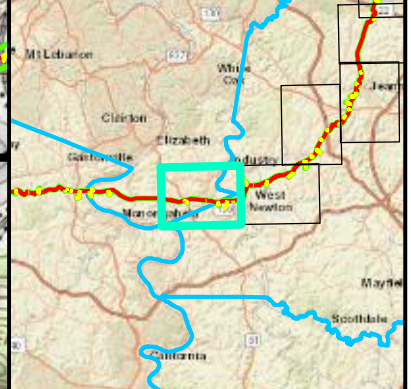
Start of Line
PADEP Southwest Region
Westmoreland County
Lat: 40° 13' 09.671" N
Lon: 79° 48' 23.382" W

Page 1

Page 2

Page 3

Sheet Identifier

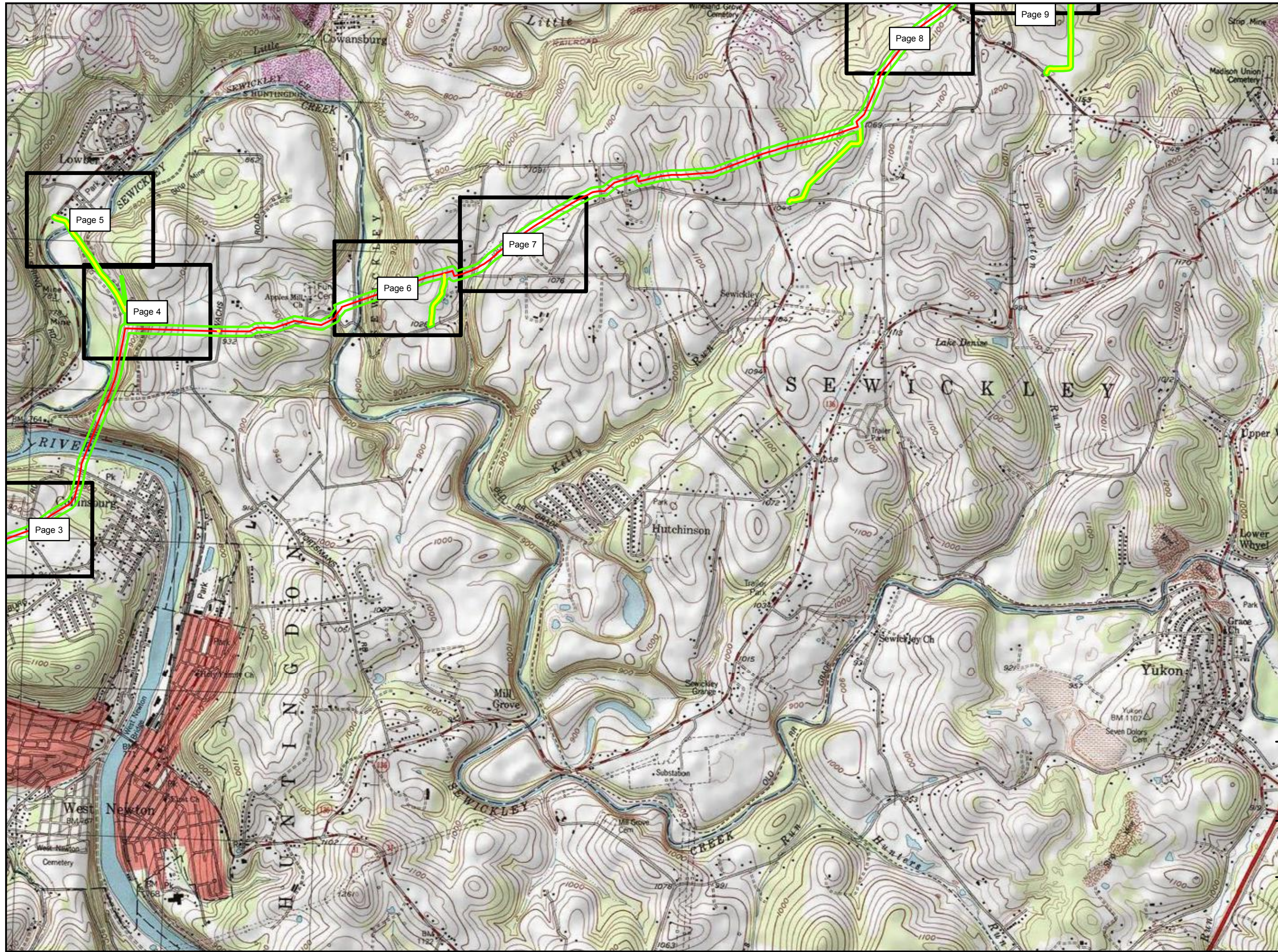


INDEX MAP
FIGURE 4 - INDEX-1
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

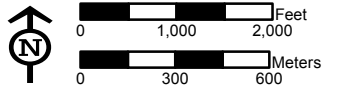
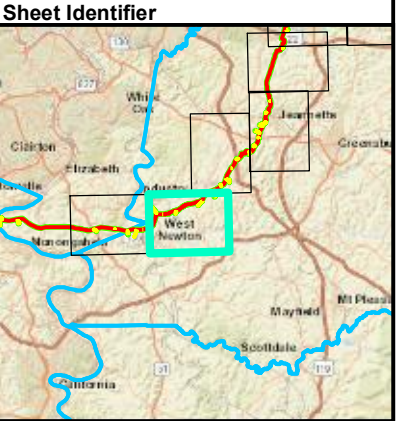


Notes:
1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
2) Quadrangles being displayed are Donora, McKeesport, Monongahela

FGH-P\GIS\SUNOCO\MARINER_EAST_2MXD\PPP_WETLANDS_SWMPEN\PIPELINE_WESTMORELAND\INDEX_MAP\032116.SP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - Map Book Index

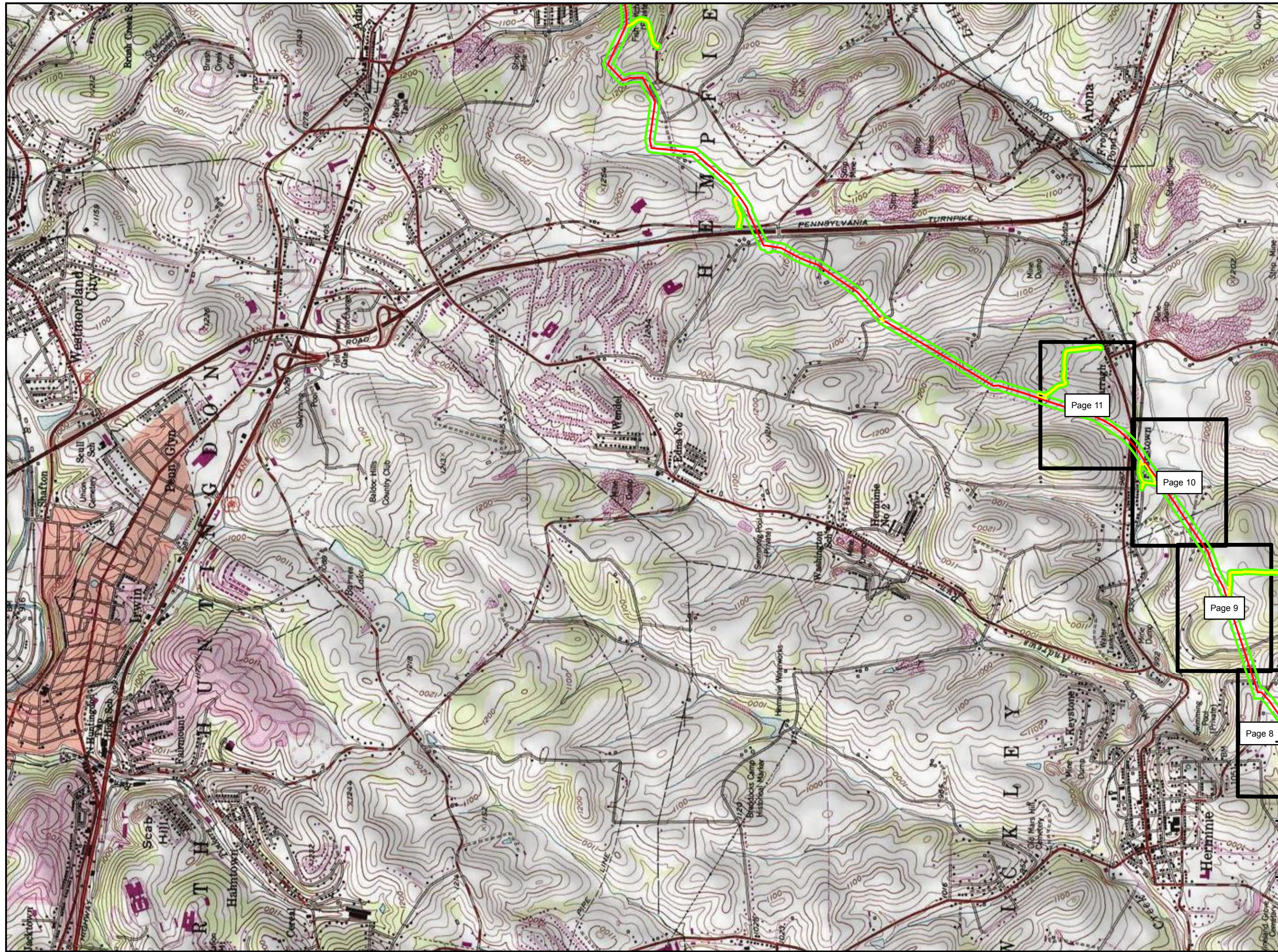







INDEX MAP
FIGURE 4 - INDEX-2
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Quadrangles being displayed are Donora, Irwin, McKeesport, Smithton

FGH P:\GIS\SUNOCO\MARINER EAST 2\MXD\PPP_WETLANDS\SWPEN\PIPELINE_WESTMORELAND\INDEX_MXD\032116.SP



- Legend**
-  Access Road
 -  Alignment Centerline
 -  Study Area
 -  County Boundary
 -  Map Book Index

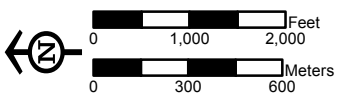
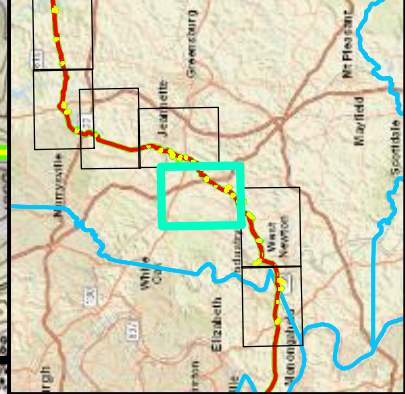
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Page 10

Page 9

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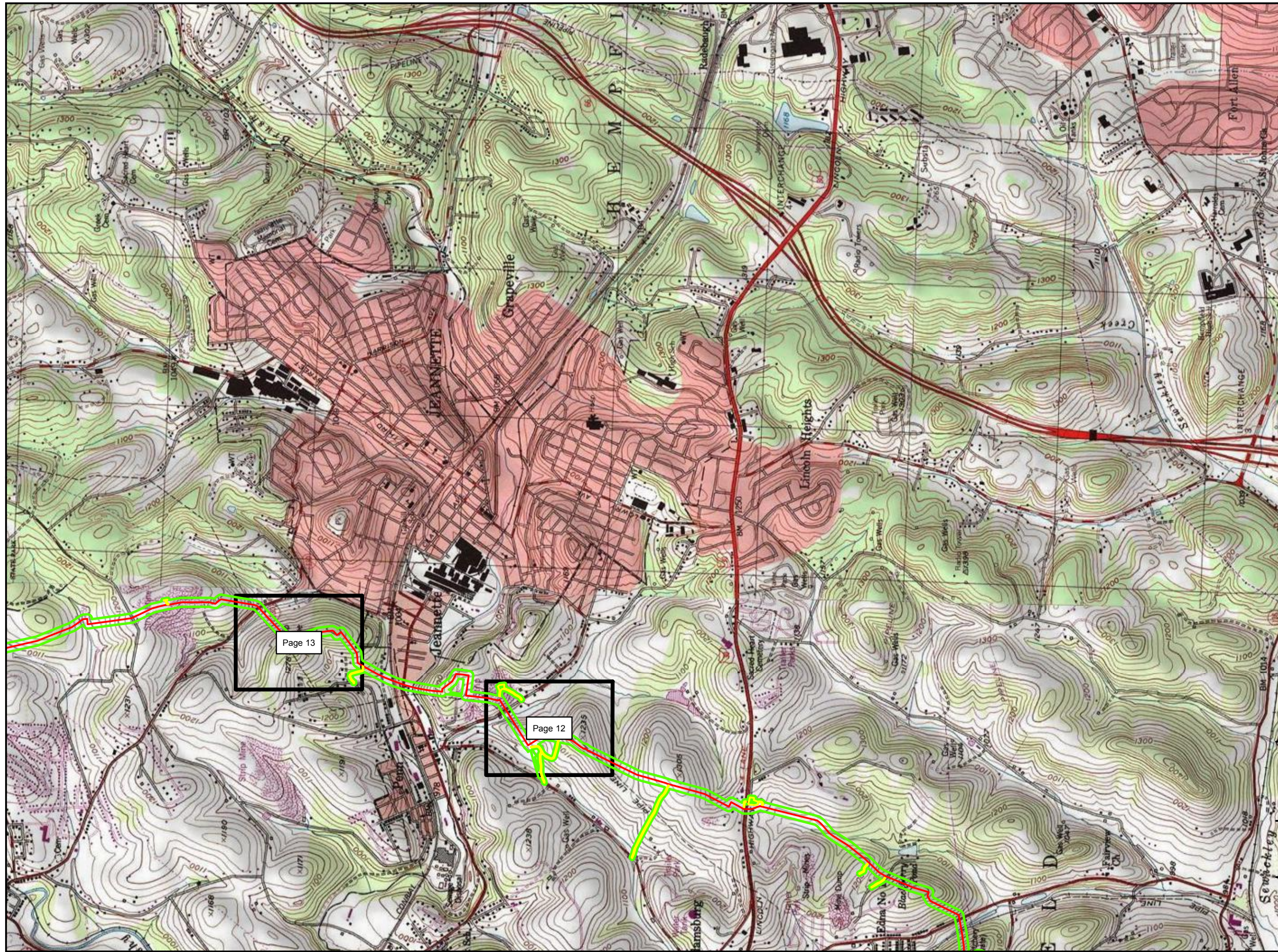







INDEX MAP
FIGURE 4 - INDEX-3
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



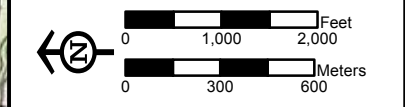
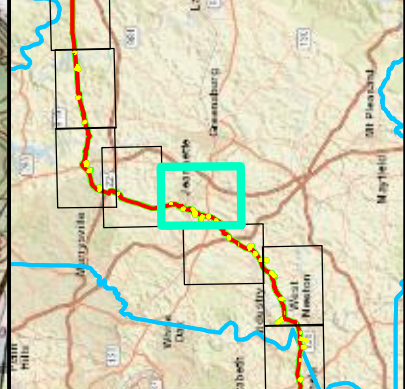
Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Quadrangles being displayed are Irwin

FGH-P\GIS\SUNOCO\MARINER_EAST_2MXD\PPP_WETLANDS_SWP\PIPELINE_INDEX\MXD\INDEX-3\116.SP



- Legend**
-  Access Road
 -  Alignment Centerline
 -  Study Area
 -  County Boundary
 -  Map Book Index

Sheet Identifier

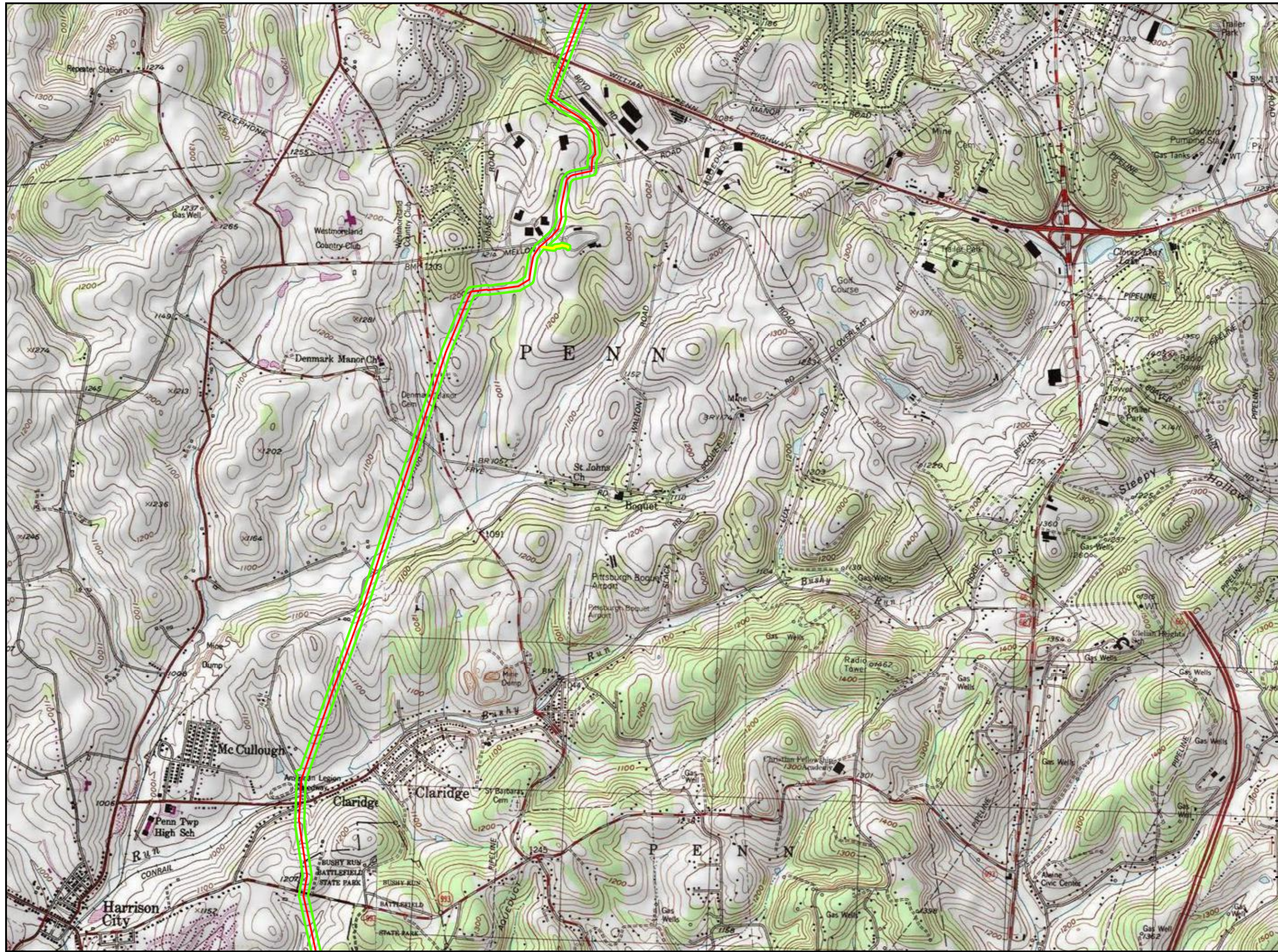


INDEX MAP
FIGURE 4 - INDEX-4
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

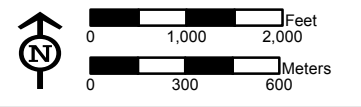
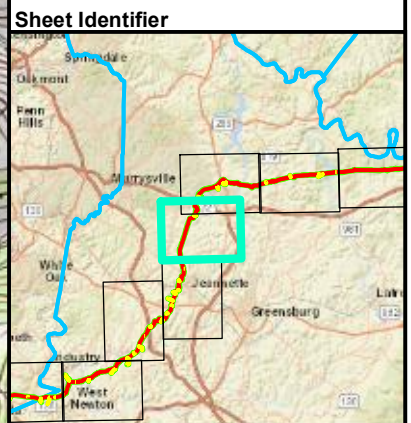


Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Quadrangles being displayed are Greensburg, Irwin

P:\GIS\SUNOCO\MARINER EAST 2\MXD\PPP_WETLANDS\SWPEN\PIPELINE_INDEX\MXD\032116.SP



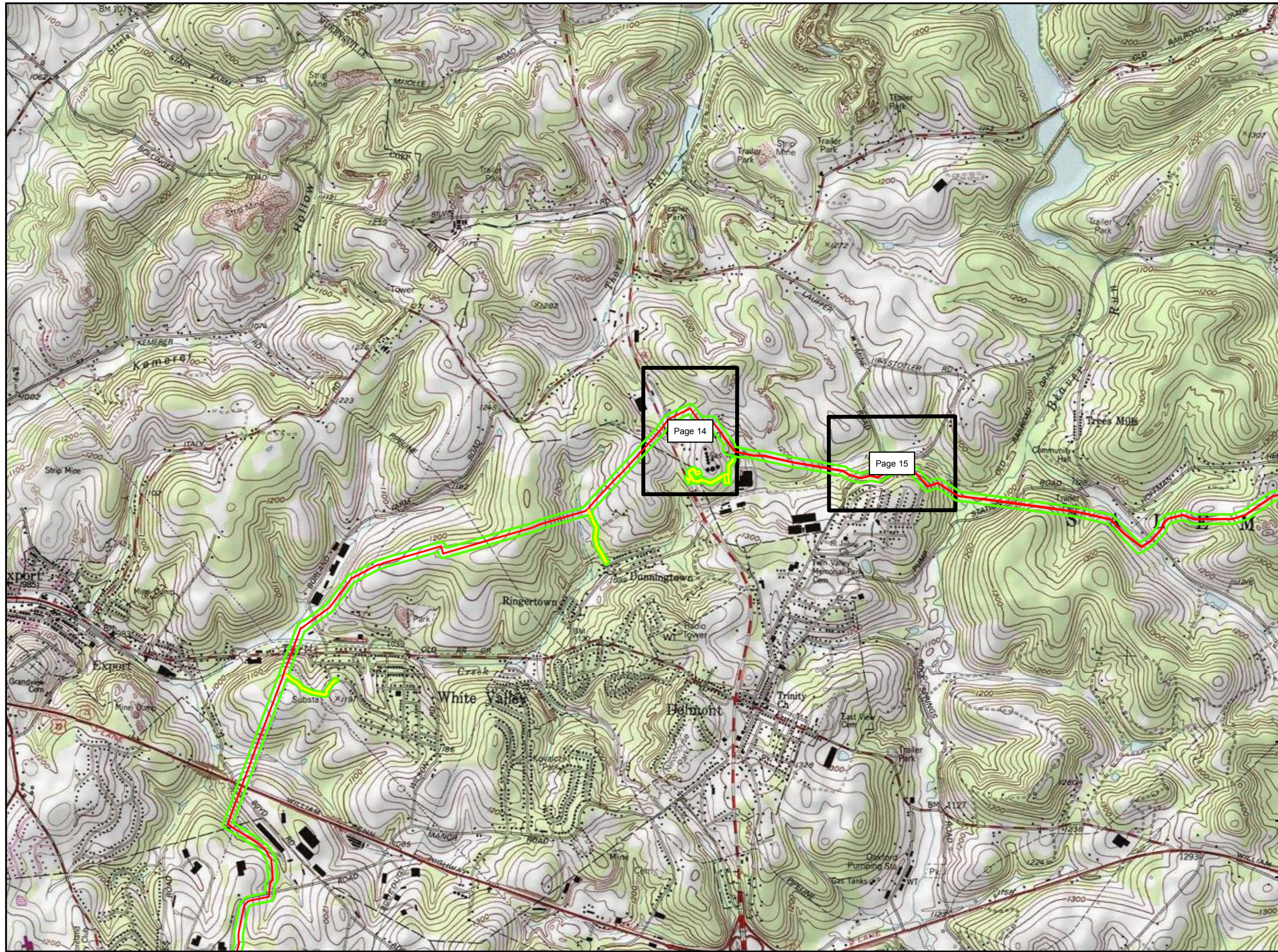
- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - Map Book Index



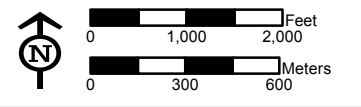
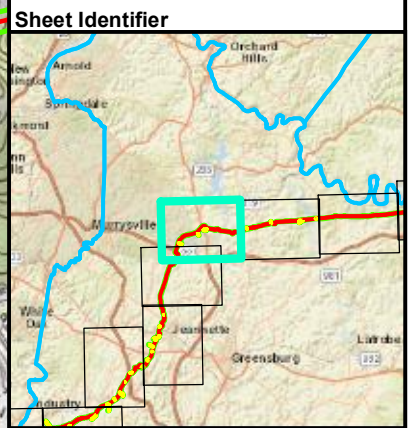
INDEX MAP
FIGURE 4 - INDEX-5
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Quadrangles being displayed are Greensburg, Irwin, Murrysville, Slickville



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - Map Book Index



INDEX MAP
FIGURE 4 - INDEX-6
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Quadrangles being displayed are Murrysville, Slickville

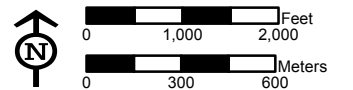
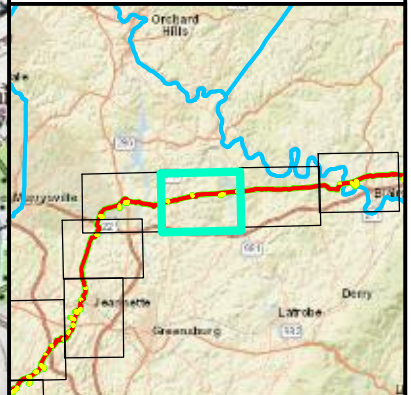
P:\GIS\SUNOCO\MARINER EAST 2\MXD\PPP_WETLANDS\SWMPEN\PIPELINE_INDEX\MXD\INDEX-6.MXD 03/21/16 SP



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - Map Book Index

Page 15

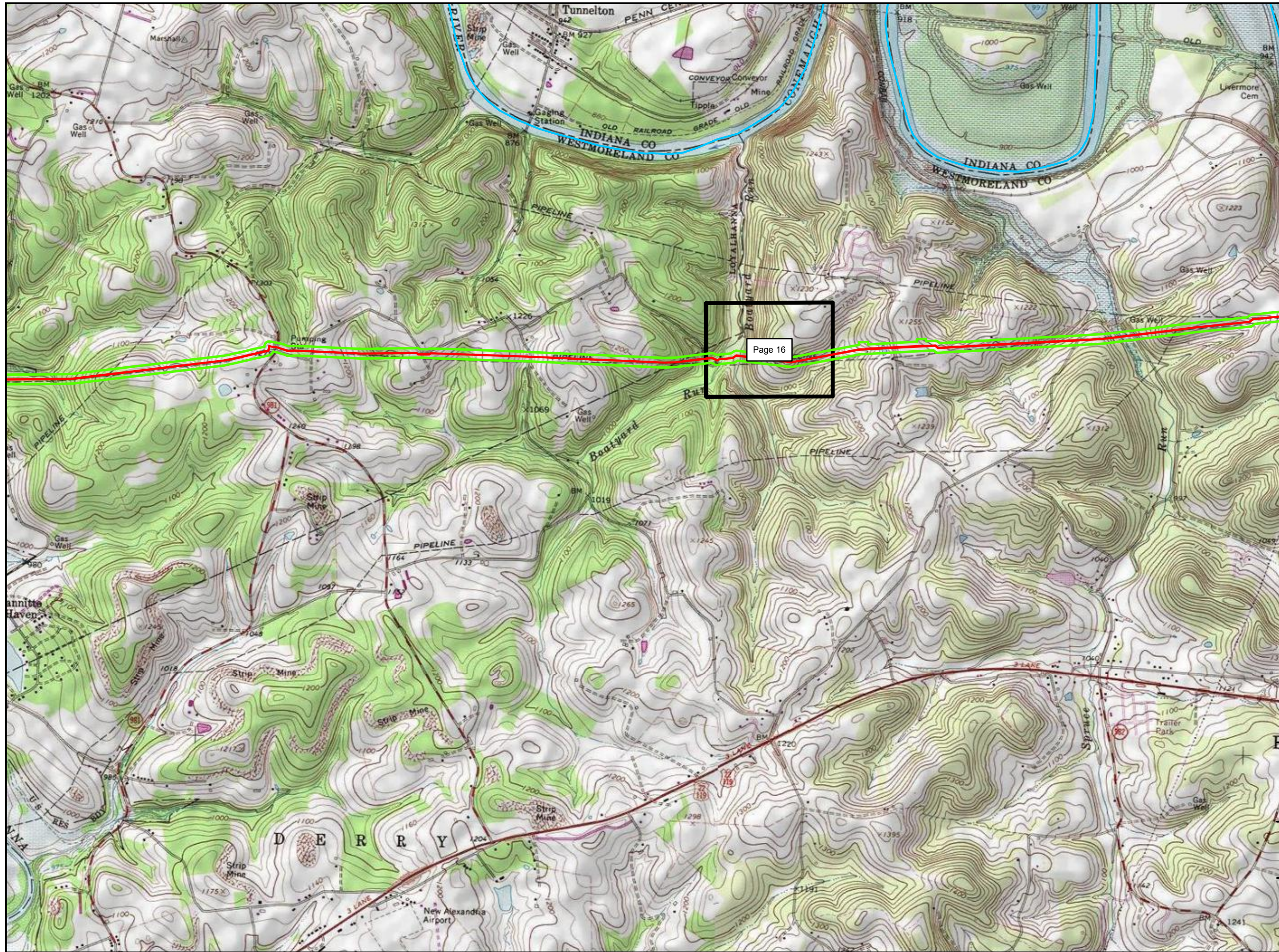
Sheet Identifier



**INDEX MAP
FIGURE 4 - INDEX-7
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



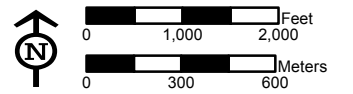
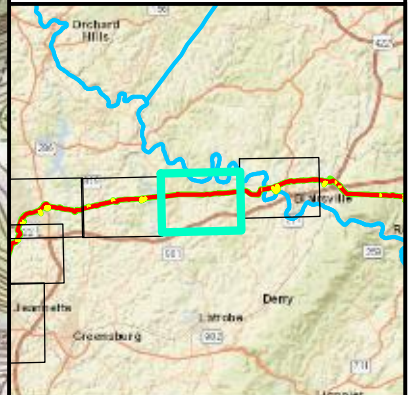
Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Quadrangles being displayed are Saltsburg, Slickville



- Legend**
- Access Road
 - Alignment Centerline
 - Study Area
 - County Boundary
 - Map Book Index

Page 16

Sheet Identifier

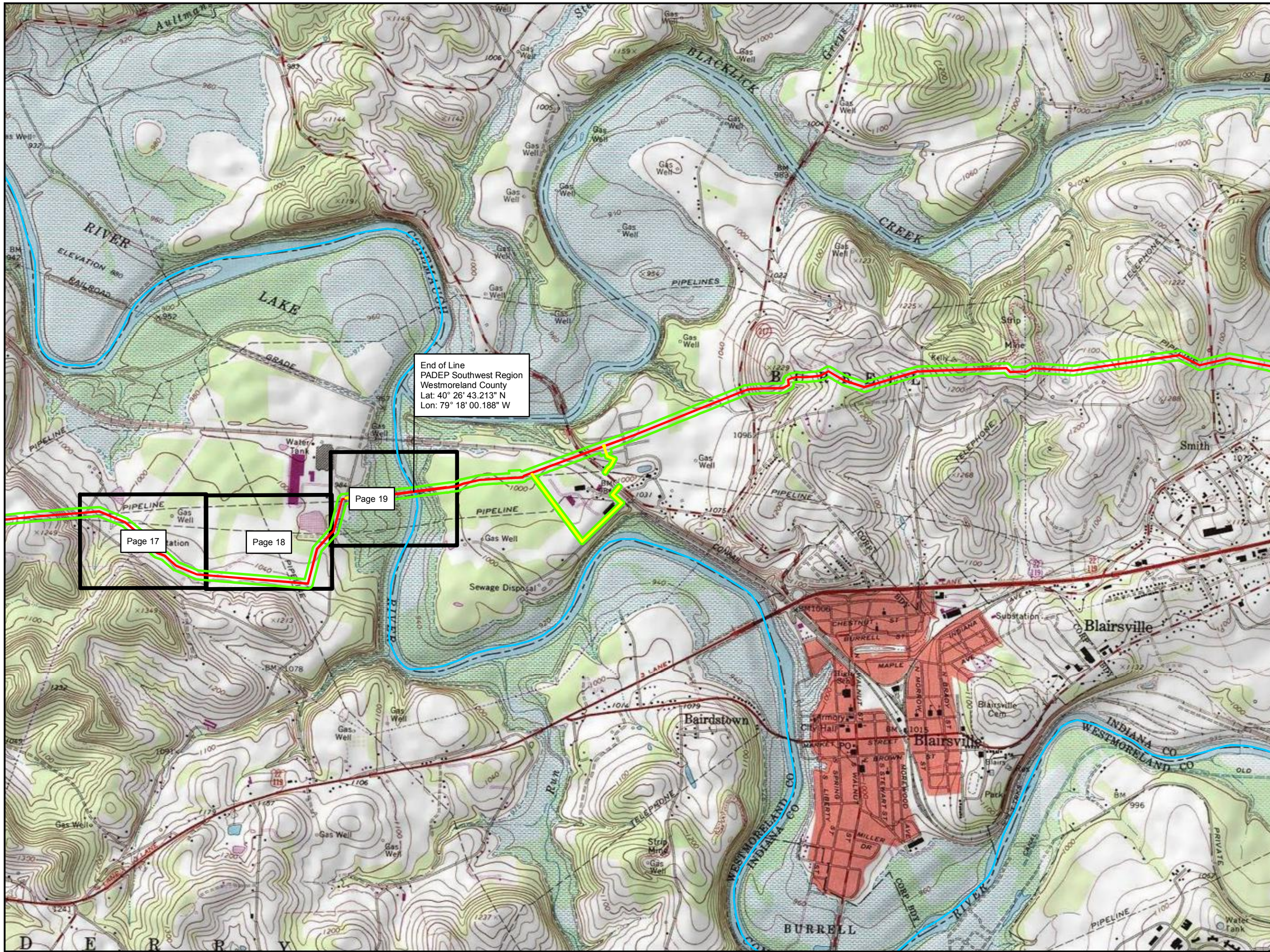


**INDEX MAP
FIGURE 4 - INDEX-8
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



Notes:
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 2) Quadrangles being displayed are Blairsville, Saltburg

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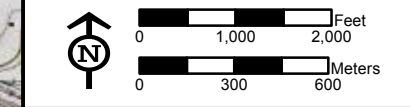
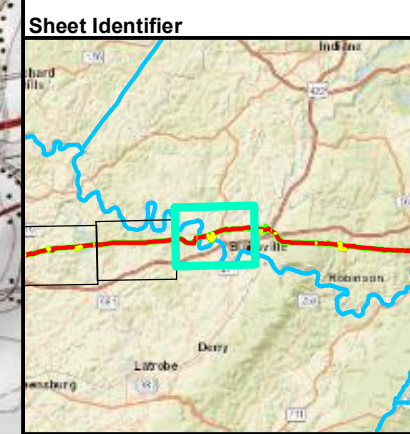
Legend

- Access Road
- Alignment Centerline
- Study Area
- County Boundary
- Map Book Index

End of Line
PADEP Southwest Region
Westmoreland County
Lat: 40° 26' 43.213" N
Lon: 79° 18' 00.188" W

Map Book Index boxes labeled:

- Page 17
- Page 18
- Page 19

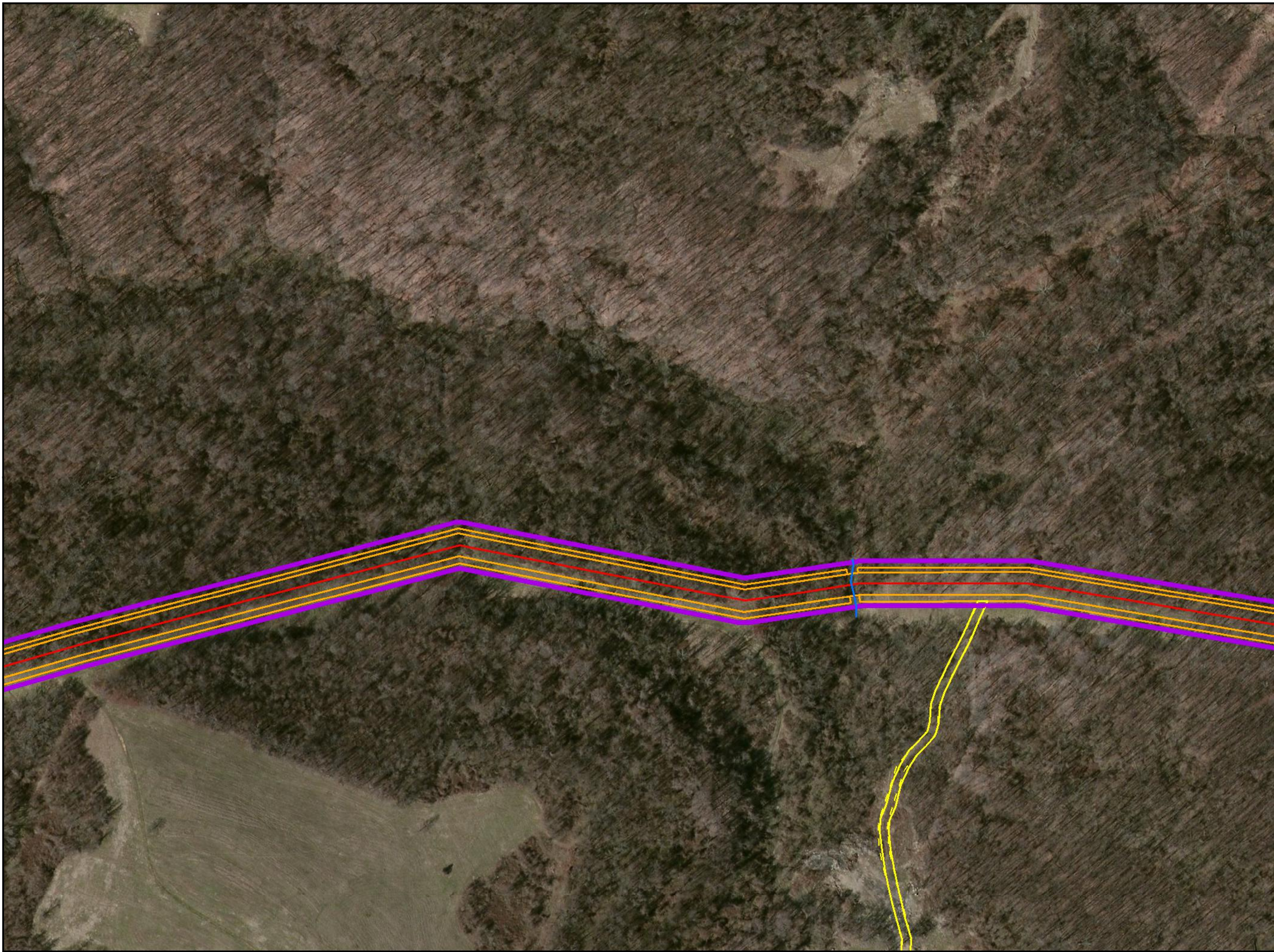


INDEX MAP
FIGURE 4 - INDEX-9
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



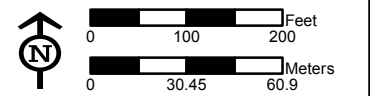
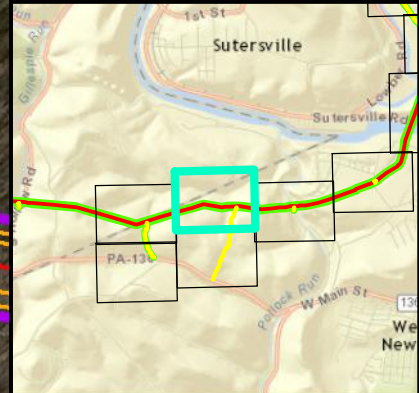
Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Quadrangles being displayed are Blairsville, Bolivar

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- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
 - Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - New Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - - Access Road (7/1/15)
 - - Alignment Centerline (7/1/15)
 - ▭ Survey Area (7/9/13)

Sheet Identifier



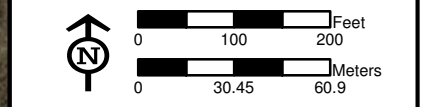
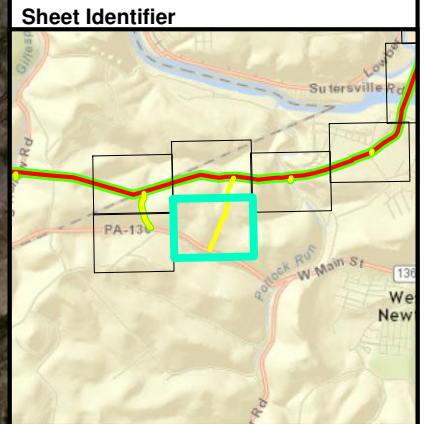
**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-1
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



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2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.



- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
 - Wetland**
 - PEM
 - PFO
 - PSS
 - PuB
 - New Wetland**
 - PEM
 - PFO
 - PSS
 - PuB
 - Access Road
 - Alignment Centerline
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - Survey Area (7/9/13)

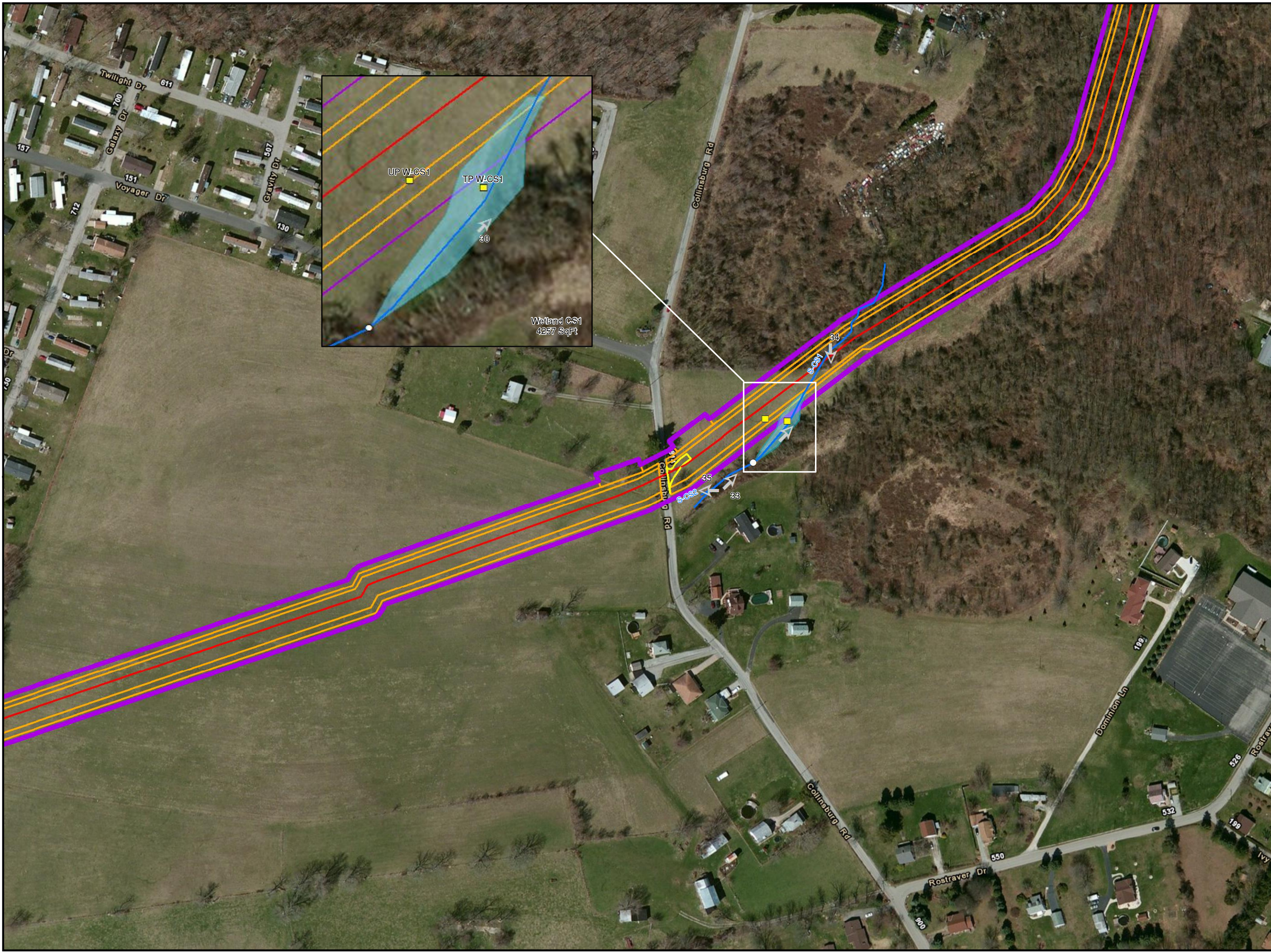


ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-2
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

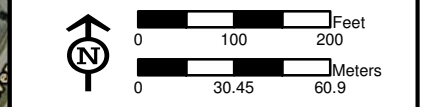
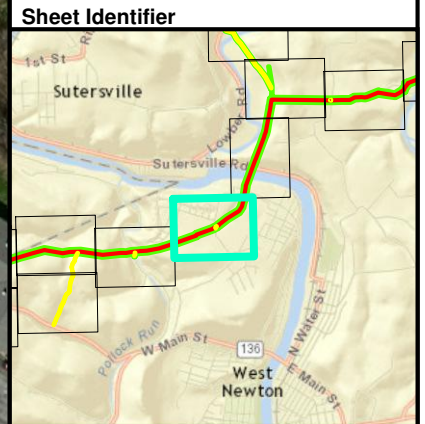


Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
 - Wetland**
 - PEM
 - PFO
 - PSS
 - PuB
 - New Wetland**
 - PEM
 - PFO
 - PSS
 - PuB
 - Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - Survey Area (7/9/13)



ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-3
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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Legend

- Photo Location
- Culvert
- Sample Location
- Drainage Feature
- Stream

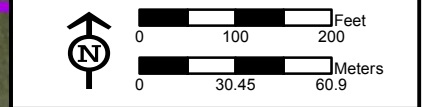
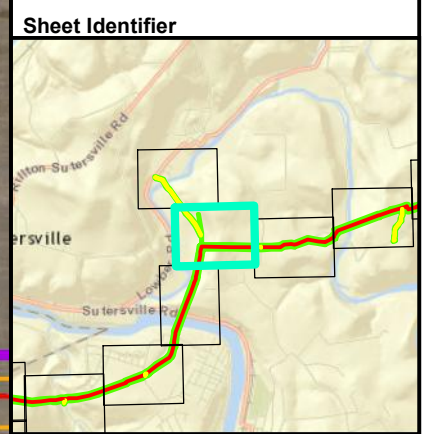
Wetland

- PEM
- PFO
- PSS
- PuB

New Wetland

- PEM
- PFO
- PSS
- PuB

- Access Road
- Alignment Centerline
- Limit of Disturbance
- Access Road (7/1/15)
- Alignment Centerline (7/1/15)
- Survey Area (7/9/13)



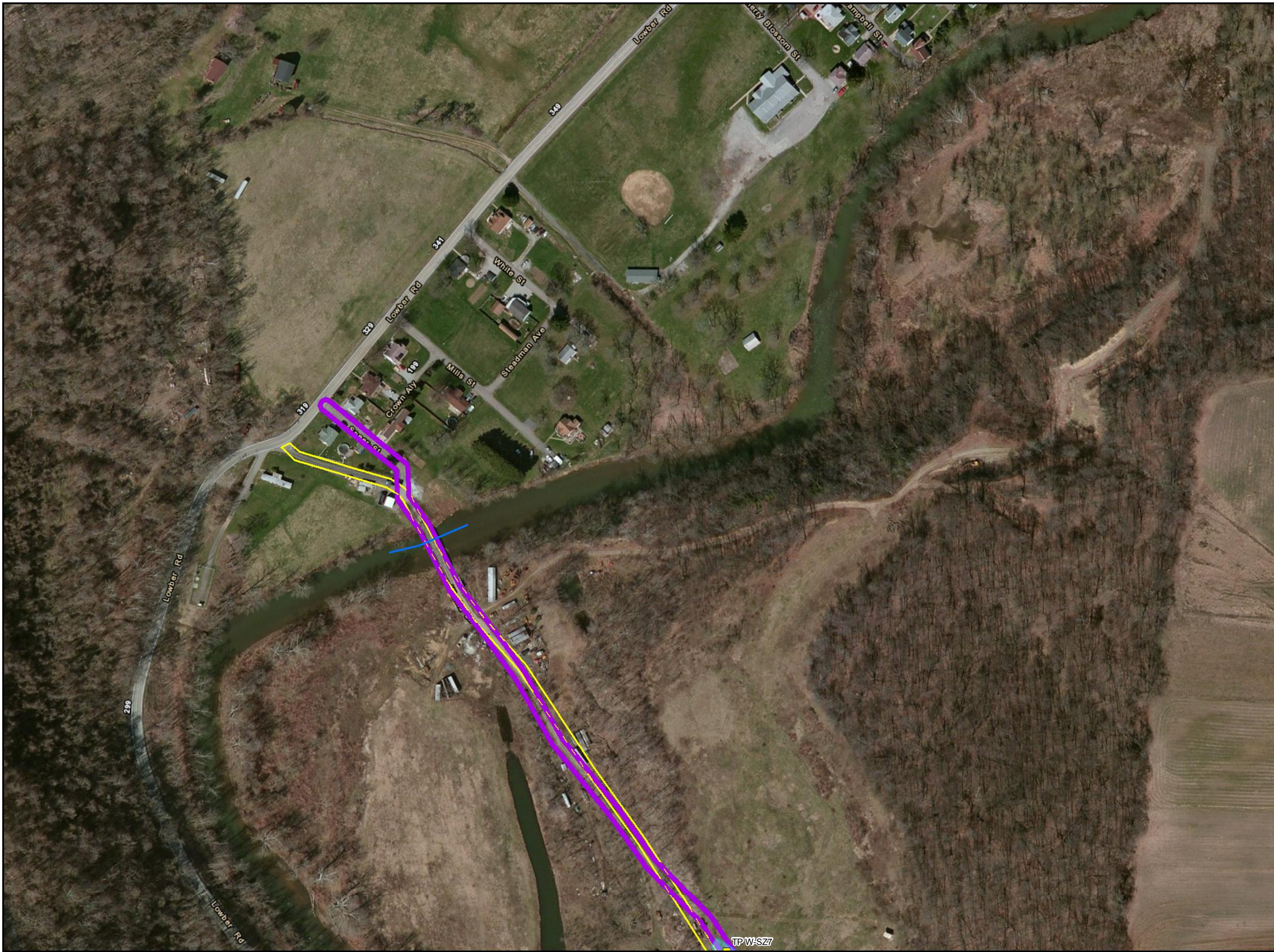
**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-4
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



Notes:

- 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
- 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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Legend

- Photo Location
- Culvert
- Sample Location
- Drainage Feature
- Stream

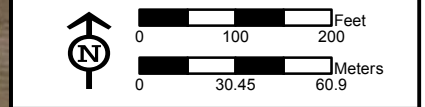
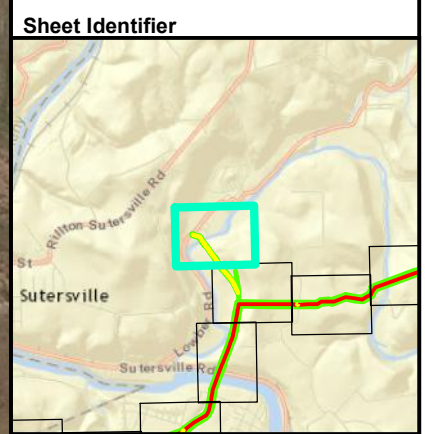
Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

New Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

- Access Road
- Alignment Centerline
- Limit of Disturbance
- Access Road (7/1/15)
- Alignment Centerline (7/1/15)
- ▭ Survey Area (7/9/13)



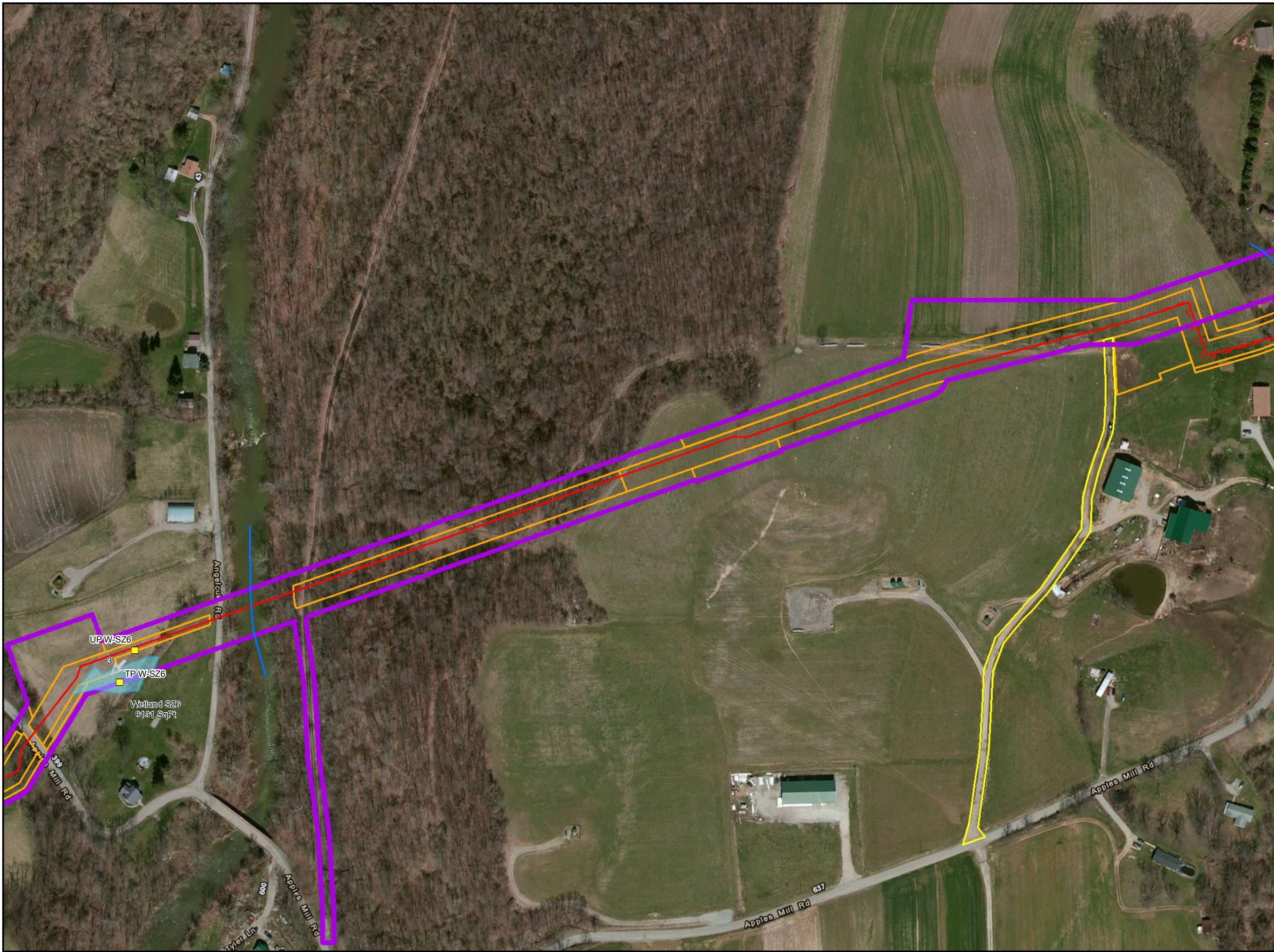
**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-5
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



Notes:
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

TPW-SZ7

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Legend

- Photo Location
- Culvert
- Sample Location
- Drainage Feature
- Stream

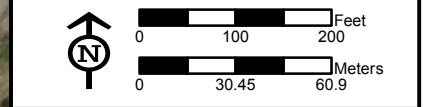
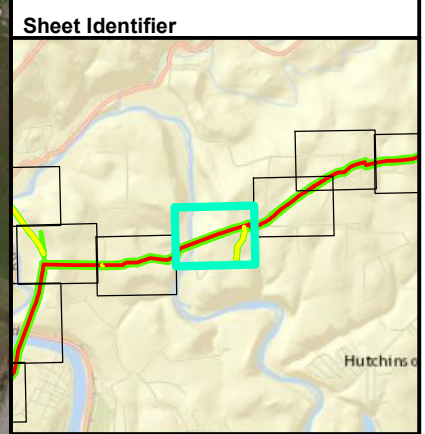
Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

New Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

- Access Road
- Alignment Centerline
- Limit of Disturbance
- Access Road (7/1/15)
- Alignment Centerline (7/1/15)
- Survey Area (7/9/13)



**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-6
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

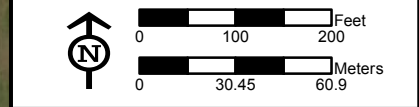
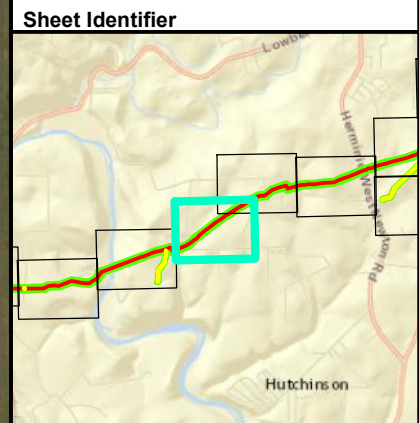


Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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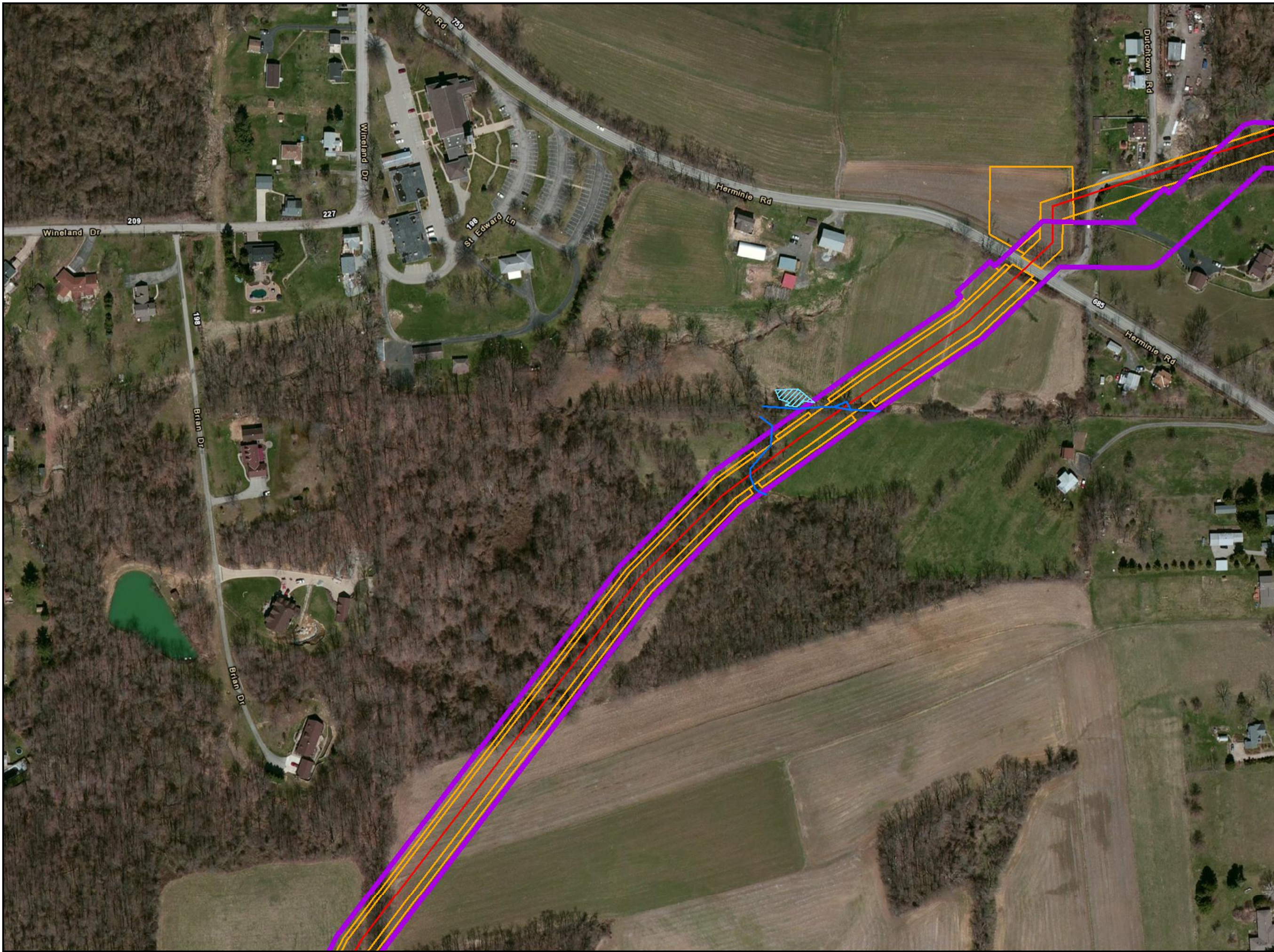
- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
 - Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - New Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - ▭ Survey Area (7/9/13)



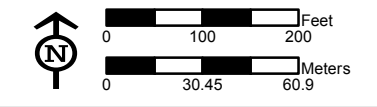
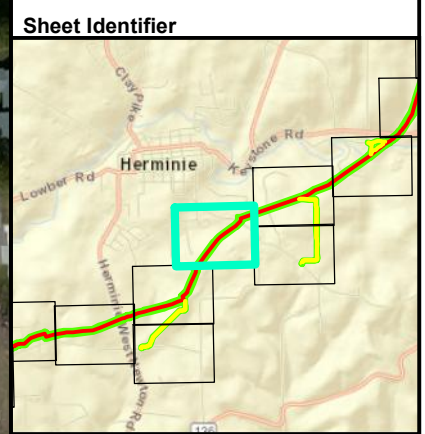
**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-7
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



Notes:
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.



- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
 - Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - New Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - ▭ Survey Area (7/9/13)

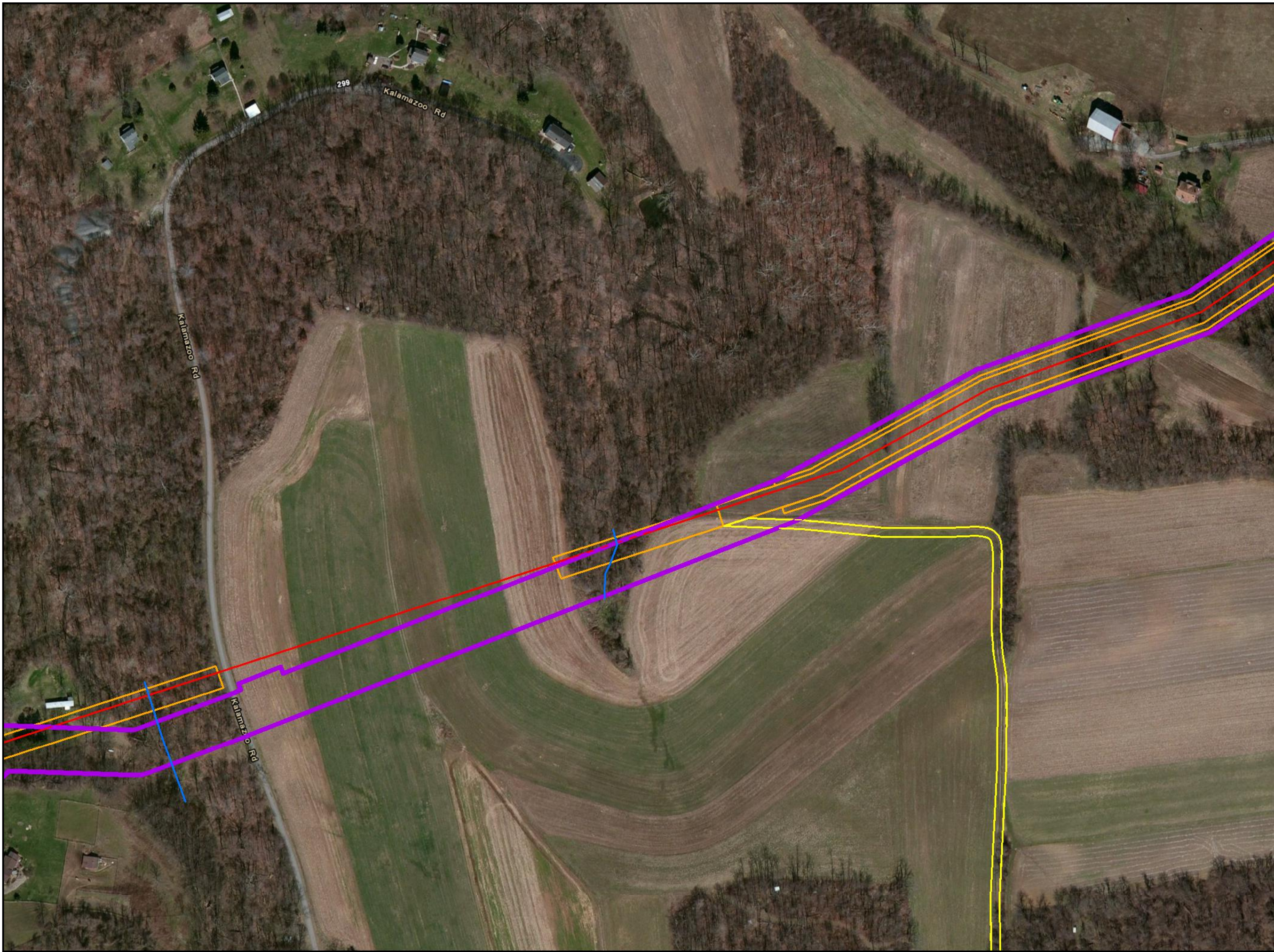


**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-8
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

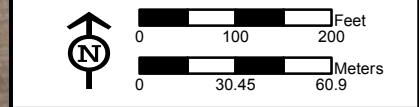
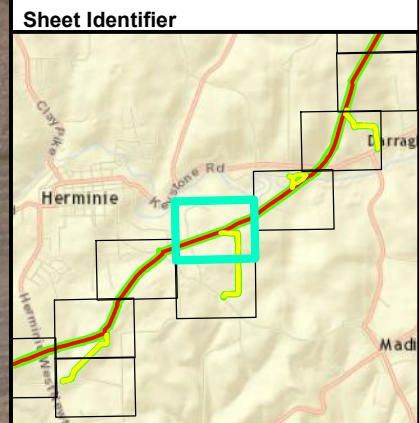


Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

PGH_P:\GIS\SUNOCO\MARINER EAST 2\MXD\PPP_WETLANDS\SWPEN\PIPELINE_WESTMORLANDCO_ADDENDUMDETAIL.MXD 03/23/16 JN



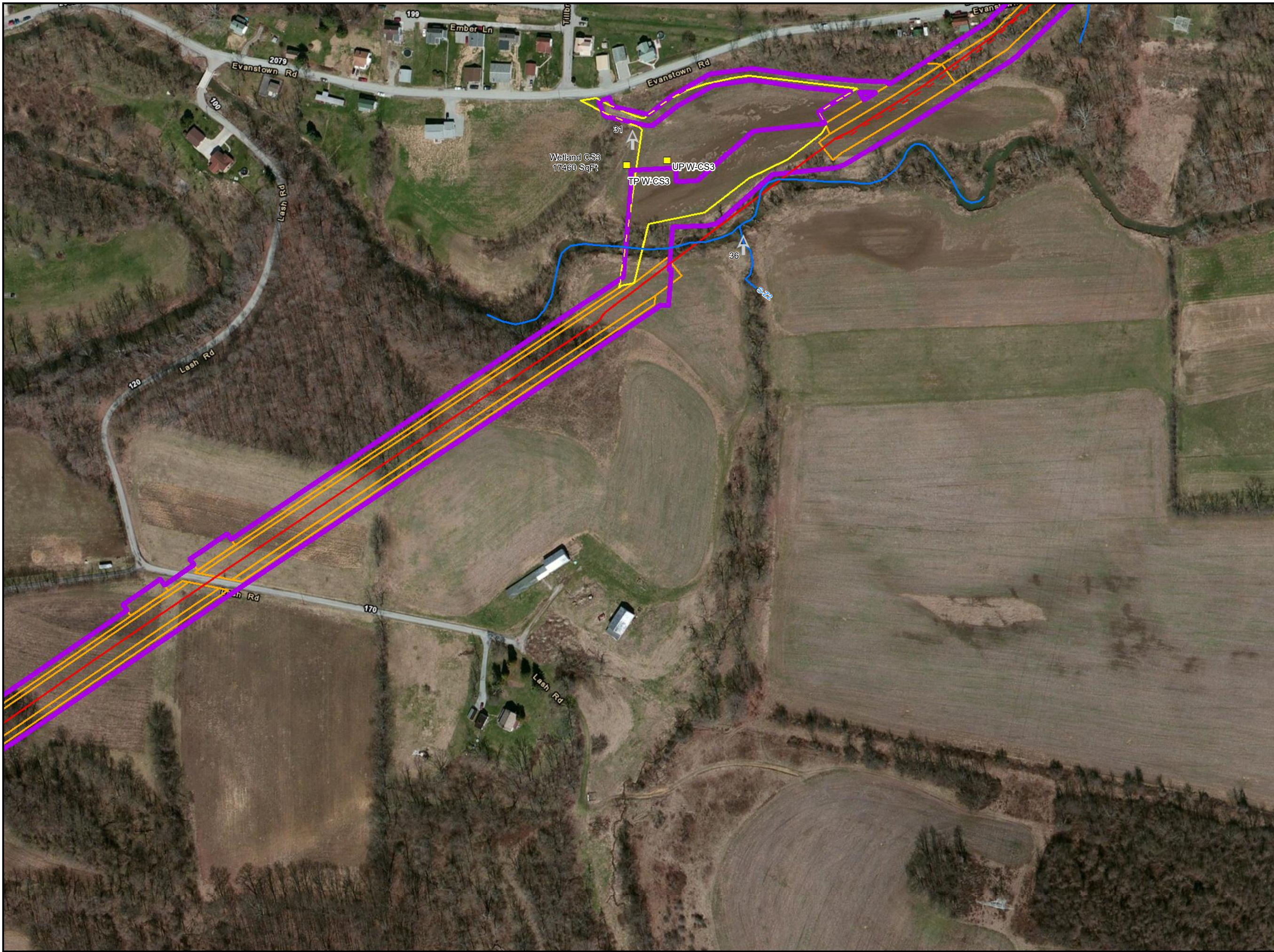
- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
- Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- New Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - ▭ Survey Area (7/9/13)



ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-9
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA



Notes:
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.



Legend

- Photo Location
- Culvert
- Sample Location
- Drainage Feature
- Stream

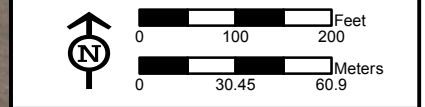
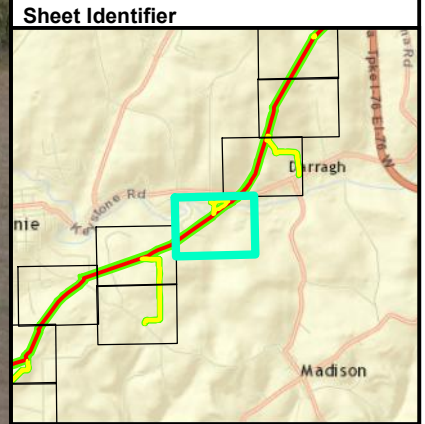
Wetland

- PEM
- PFO
- PSS
- PuB

New Wetland

- PEM
- PFO
- PSS
- PuB

- Access Road
- Alignment Centerline
- Limit of Disturbance
- Access Road (7/1/15)
- Alignment Centerline (7/1/15)
- Survey Area (7/9/13)

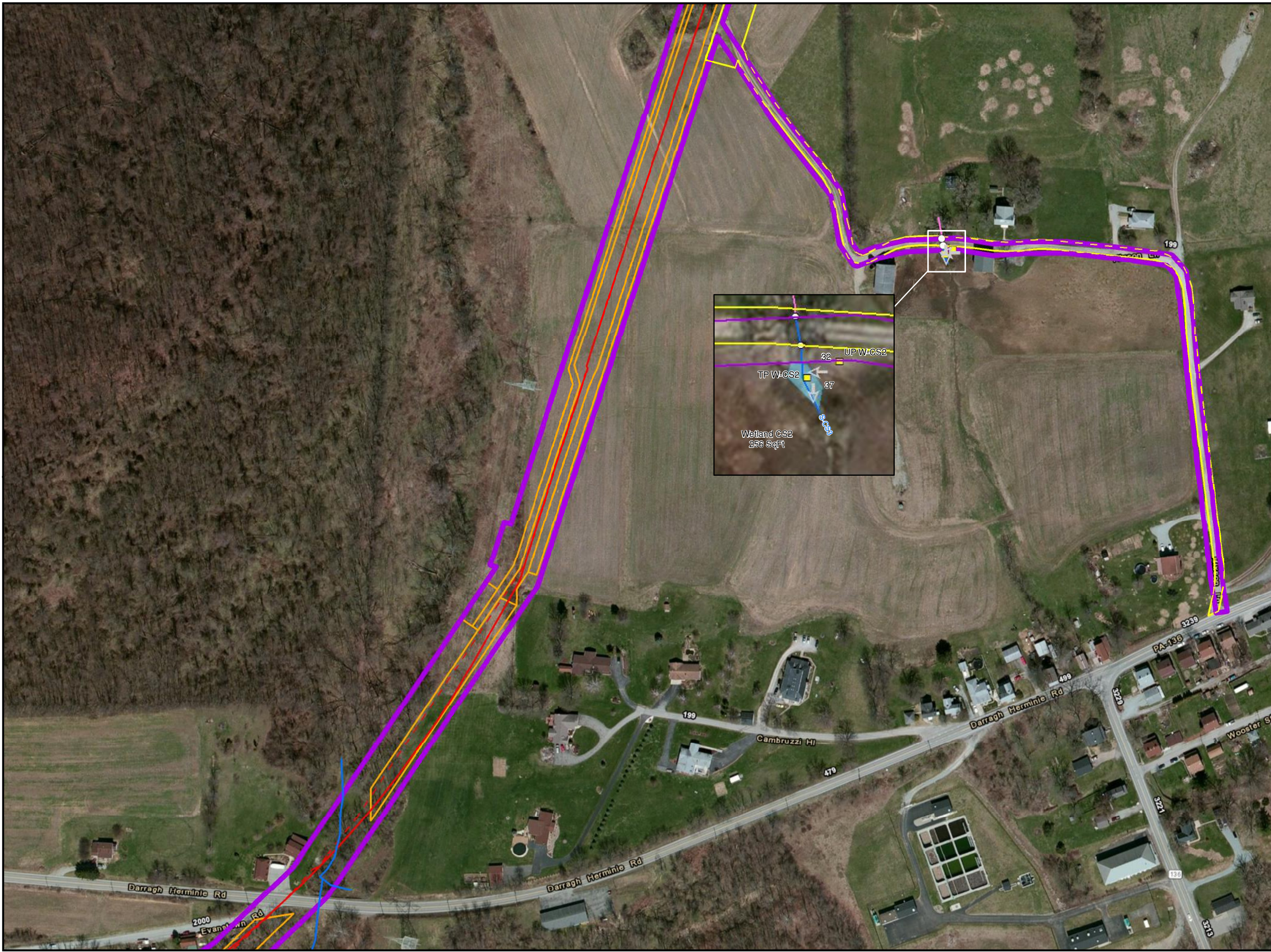


**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-10
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

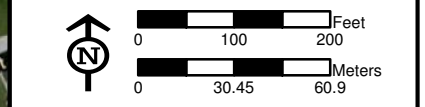
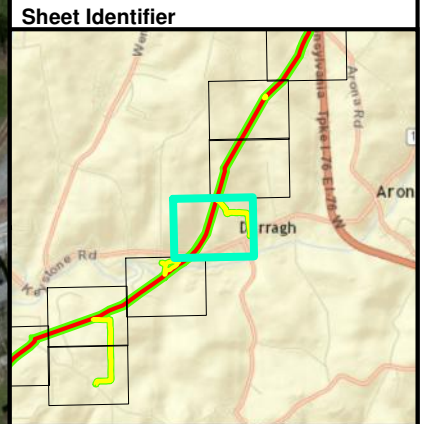


Notes:
 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
 - Wetland**
 - PEM
 - PFO
 - PSS
 - PuB
 - New Wetland**
 - PEM
 - PFO
 - PSS
 - PuB
 - Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - Survey Area (7/9/13)

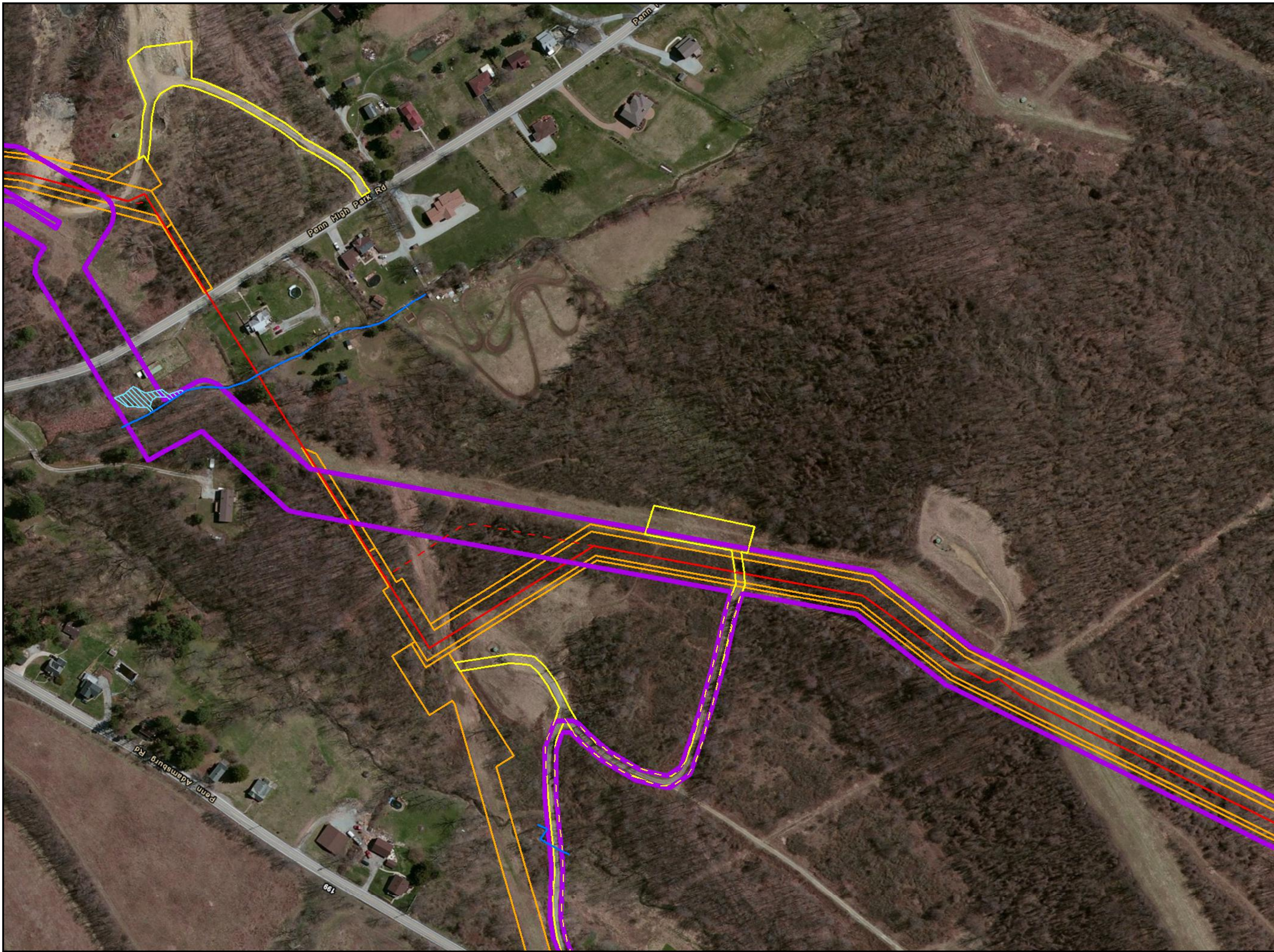


ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-11
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

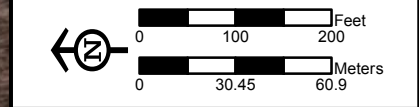
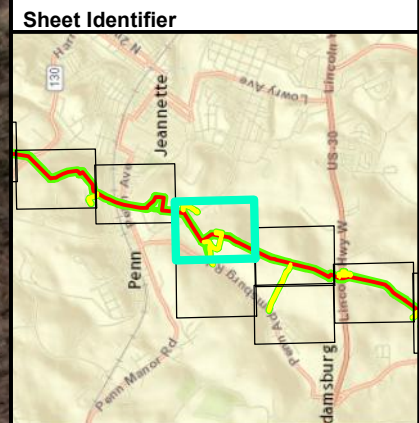


Notes:
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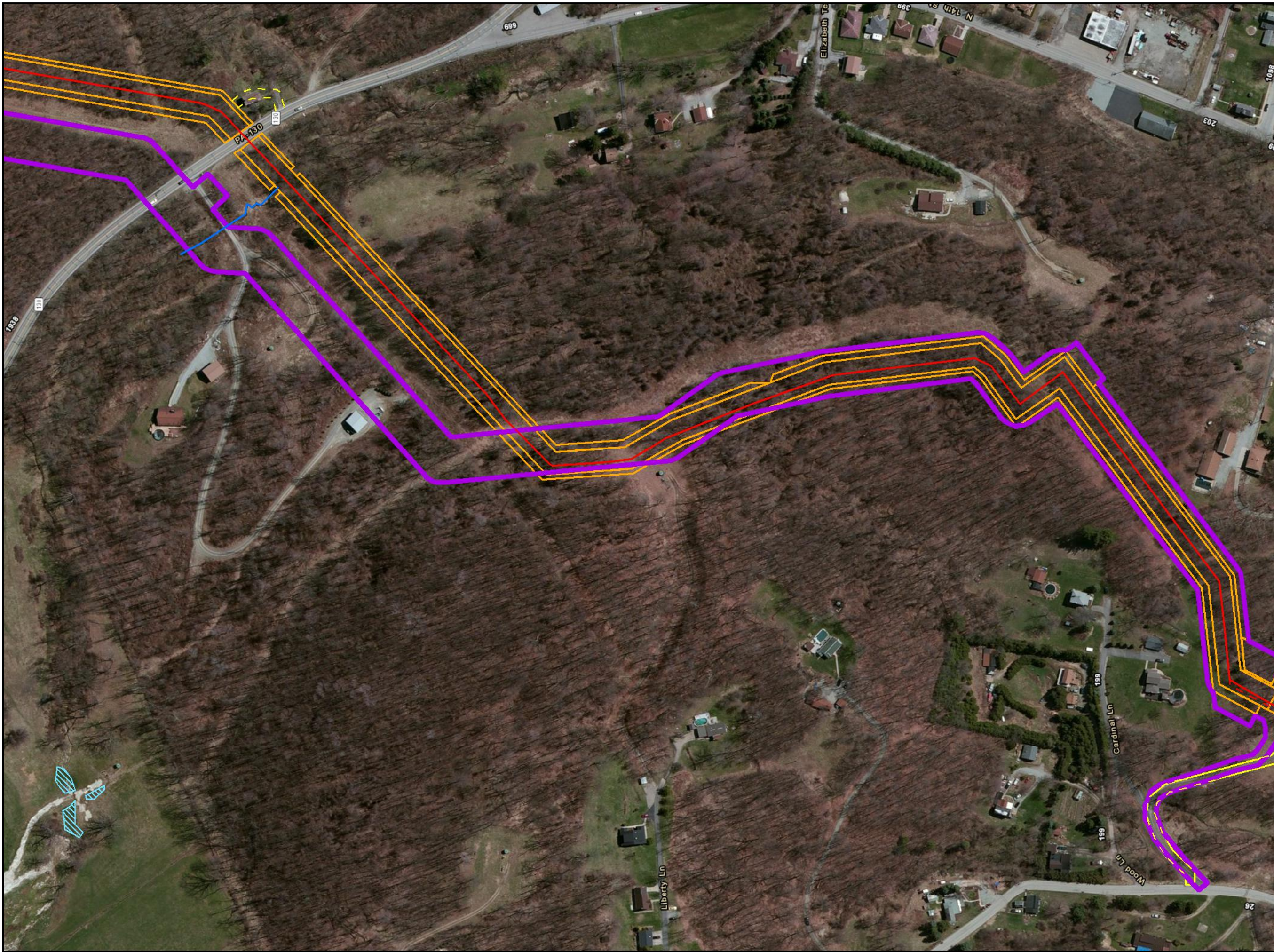
- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
 - Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - New Wetland**
 - ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
 - Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - - Access Road (7/1/15)
 - - Alignment Centerline (7/1/15)
 - ▭ Survey Area (7/9/13)



**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-12
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



Notes:
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.



Legend

- Photo Location
- Culvert
- Sample Location
- Drainage Feature
- Stream

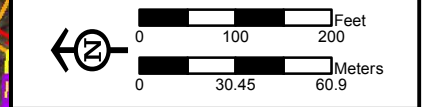
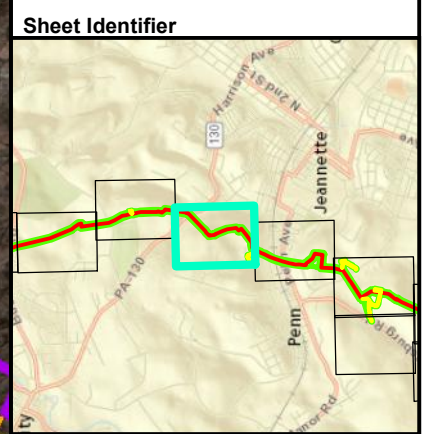
Wetland

- PEM
- PFO
- PSS
- PuB

New Wetland

- PEM
- PFO
- PSS
- PuB

- Access Road
- Alignment Centerline
- Limit of Disturbance
- Access Road (7/1/15)
- Alignment Centerline (7/1/15)
- Survey Area (7/9/13)

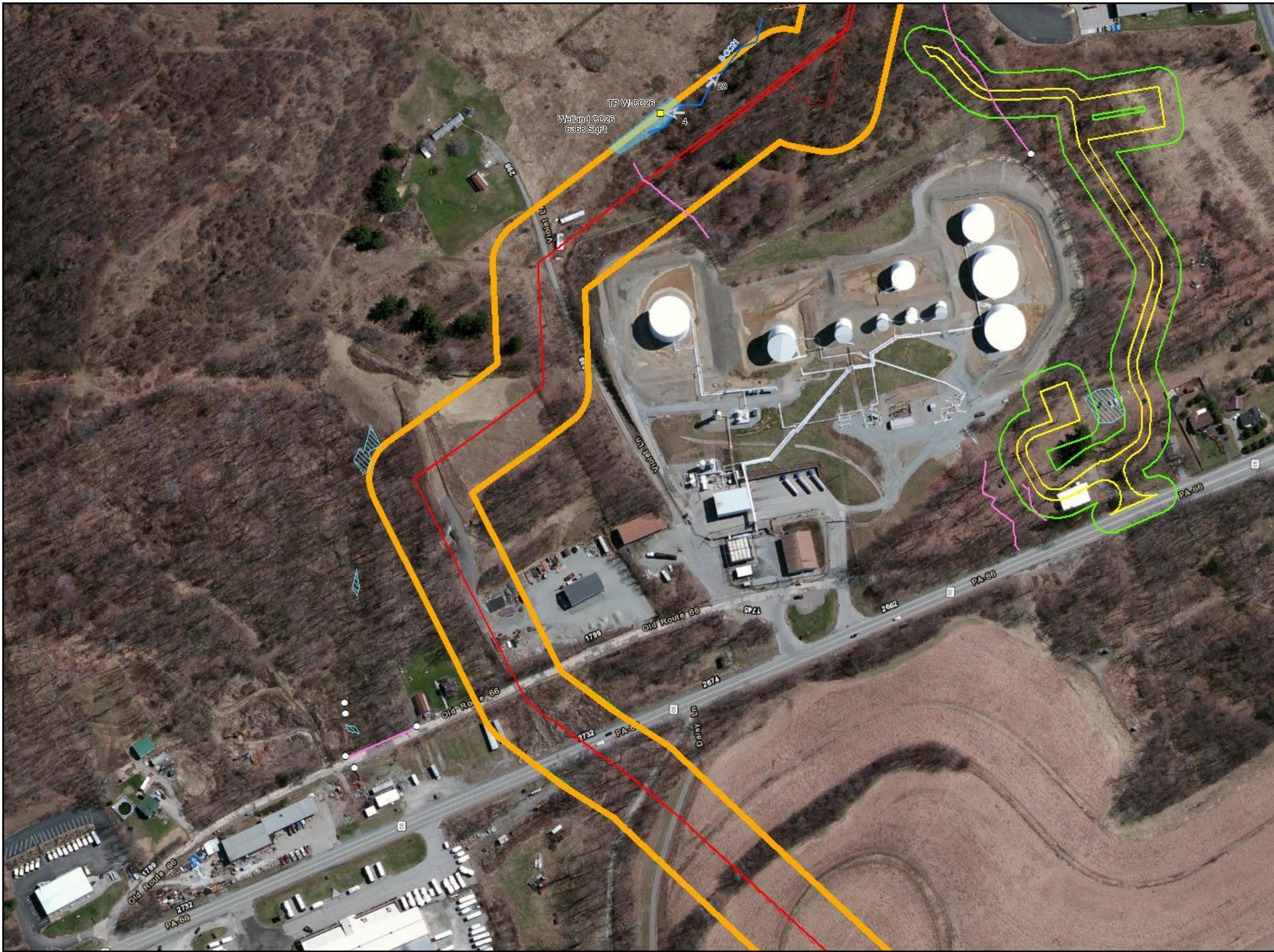


**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-13
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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WESTMORELAND COUNTY, PA**



Notes:
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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Legend

- Photo Location
- Culvert
- Sample Location
- Drainage Feature
- Stream

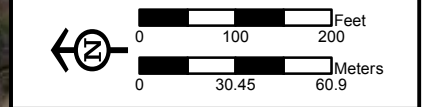
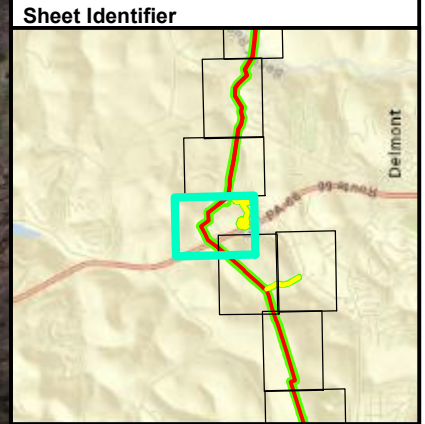
Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

New Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

- Access Road
- Alignment Centerline
- Study Area
- Access Road (7/1/15)
- Alignment Centerline (7/1/15)
- Study Area (7/1/15)

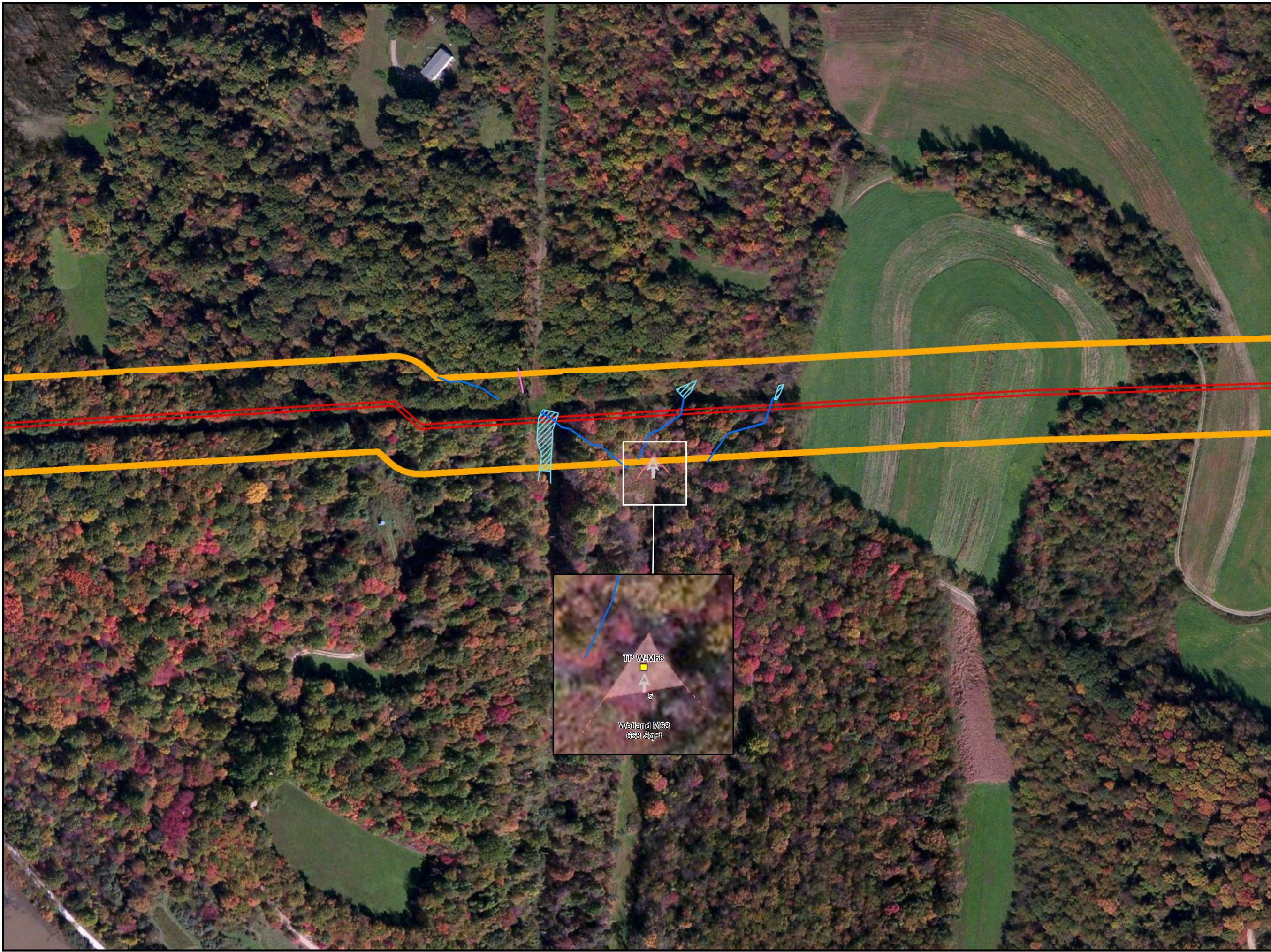


ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-14
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA

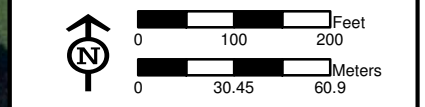
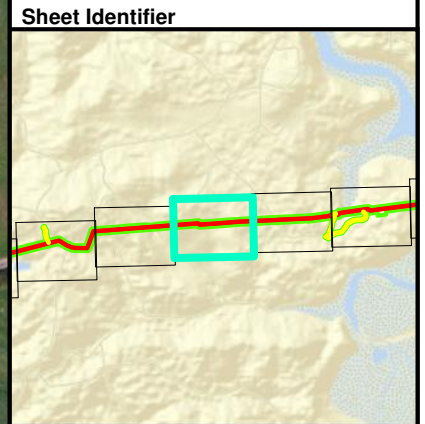


Notes:
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
- Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- New Wetland**
- PEM
 - PFO
 - PSS
 - PuB
- Access Road
 - Alignment Centerline
 - Study Area
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - Study Area (7/1/15)

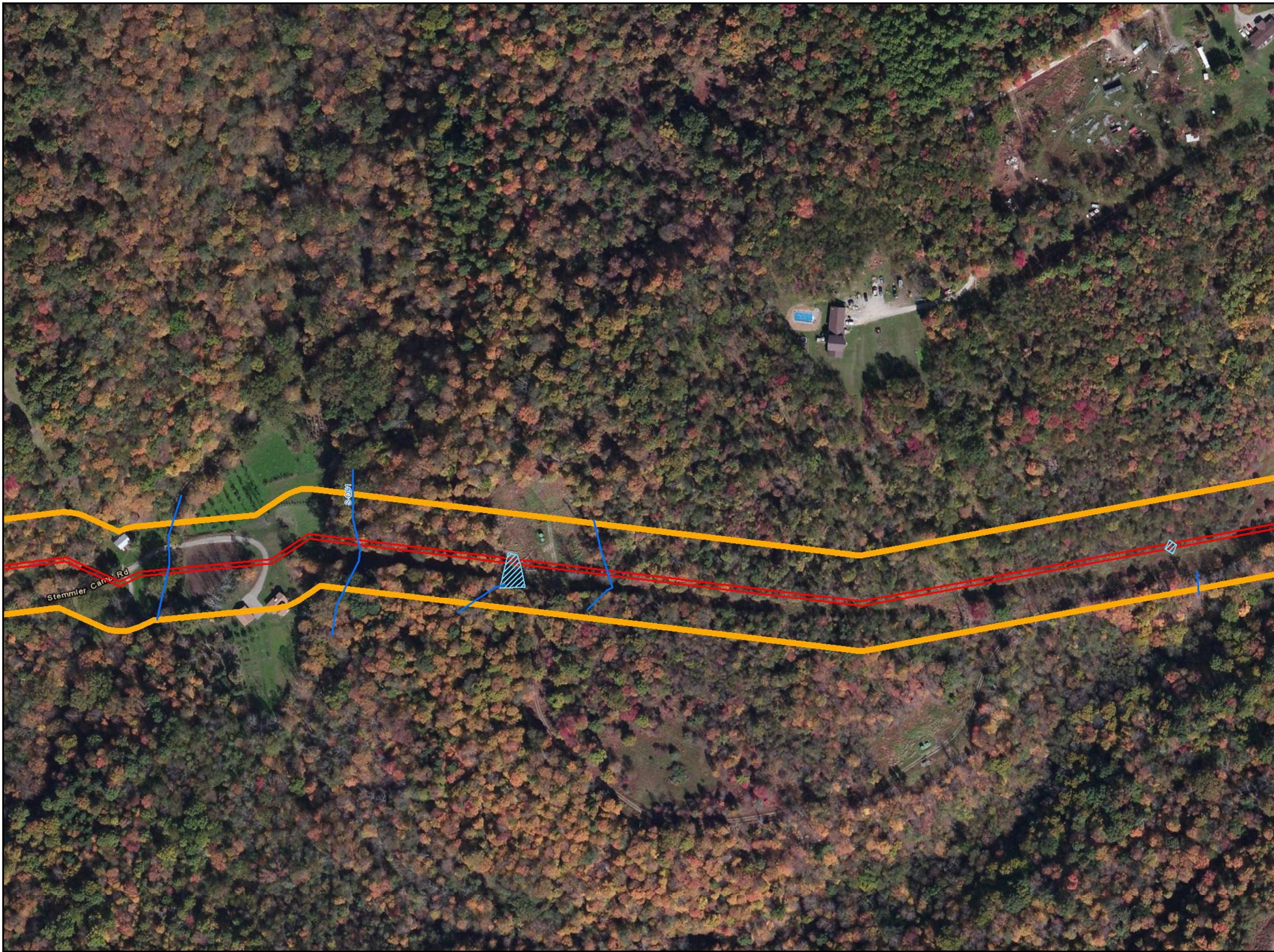


ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-15
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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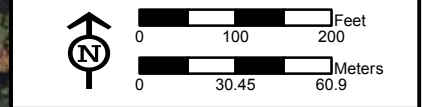
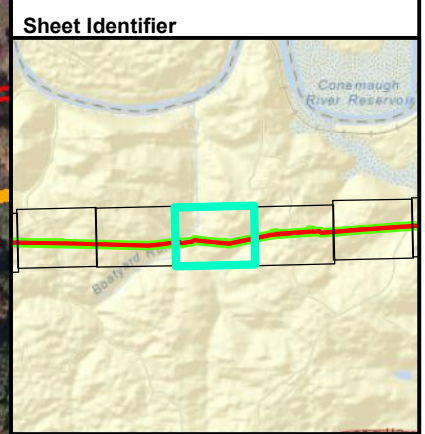


Notes:
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
- Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- New Wetland**
- PEM
 - PFO
 - PSS
 - PuB
- Access Road
 - Alignment Centerline
 - Study Area
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - Study Area (7/1/15)

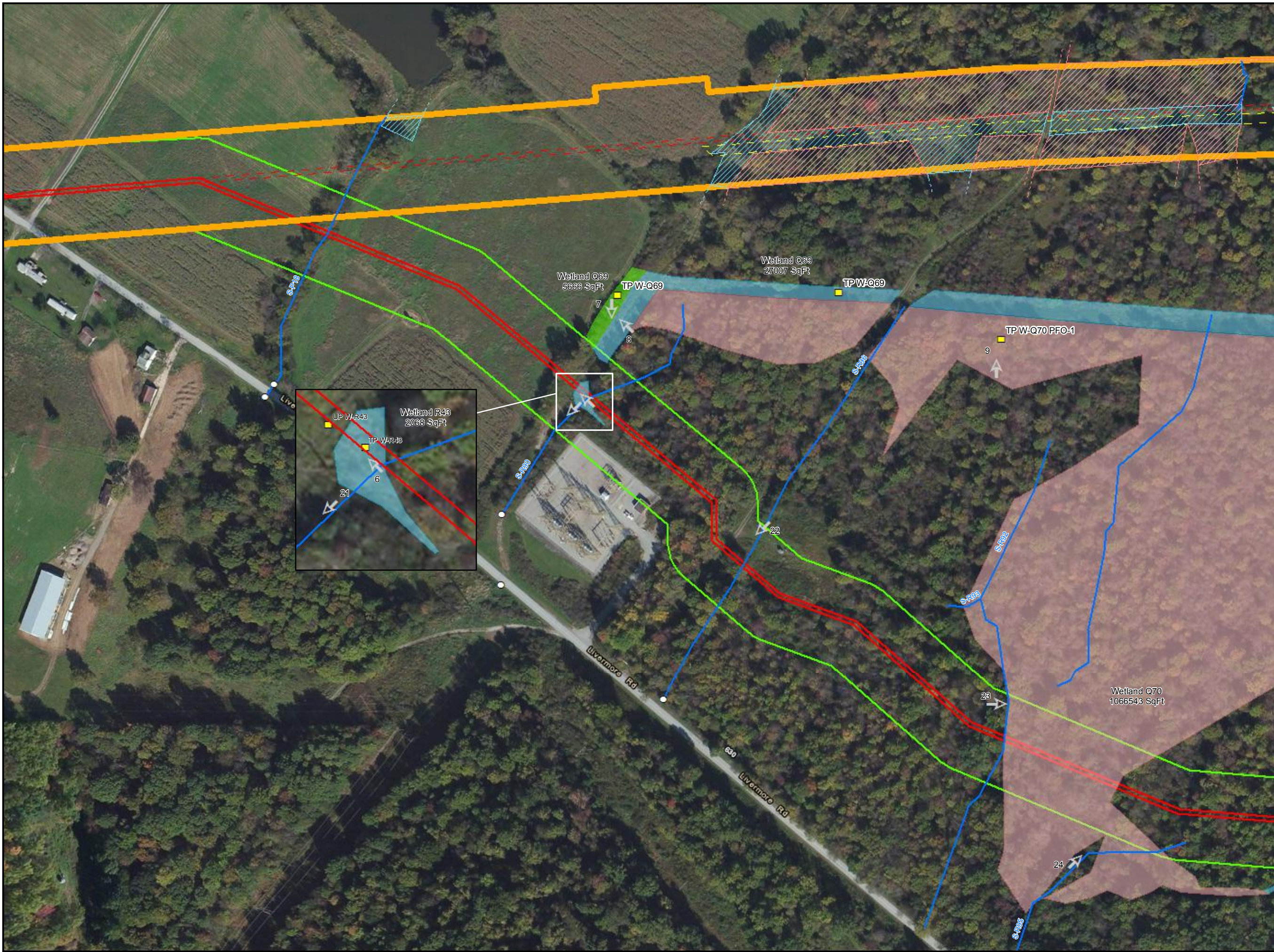


ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-16
PENNSYLVANIA PIPELINE PROJECT
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 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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Legend

- ↖ Photo Location
- Culvert
- Sample Location
- Drainage Feature
- Stream

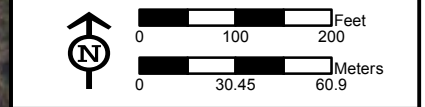
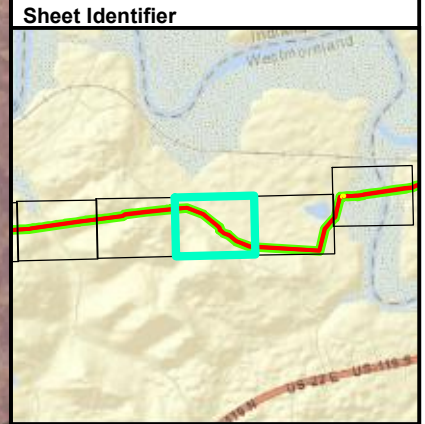
Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

New Wetland

- ▨ PEM
- ▨ PFO
- ▨ PSS
- ▨ PuB

- Access Road
- Alignment Centerline
- Study Area
- Access Road (7/1/15)
- Alignment Centerline (7/1/15)
- Study Area (7/1/15)



**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-17
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**

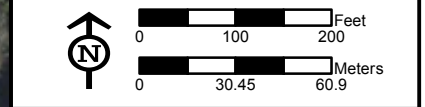
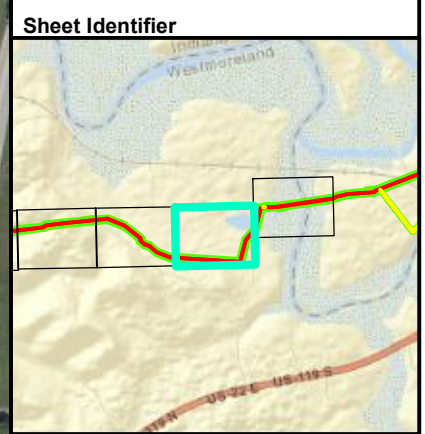


Notes:
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- Legend**
- ↖ Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
- Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- New Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- Access Road
 - Alignment Centerline
 - Study Area
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - Study Area (7/1/15)



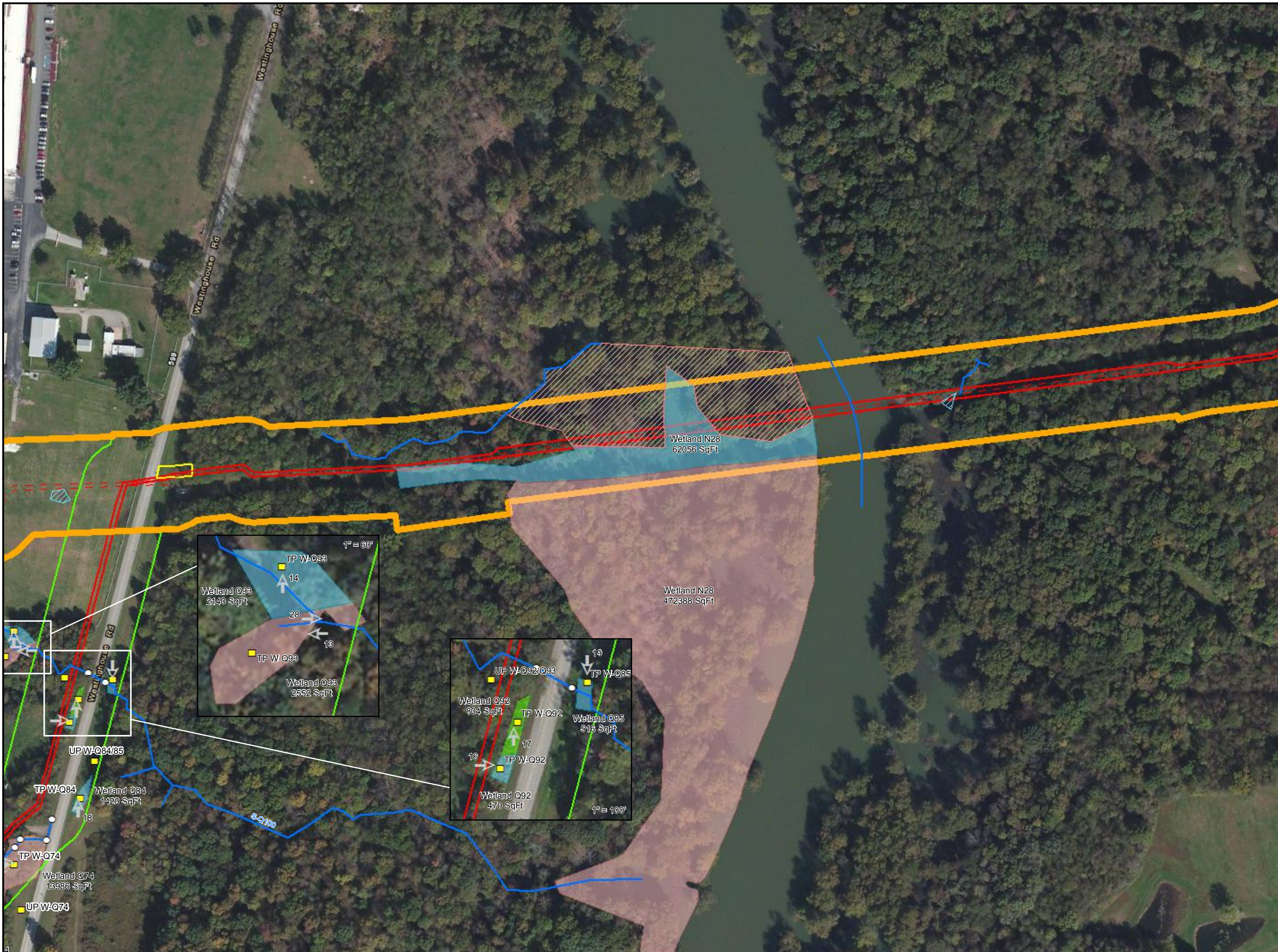
**ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-18
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
WESTMORELAND COUNTY, PA**



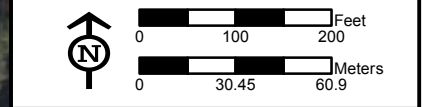
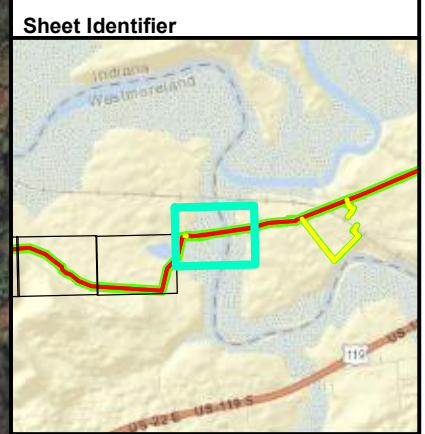
Notes:

- 1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
- 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

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- Legend**
- Photo Location
 - Culvert
 - Sample Location
 - Drainage Feature
 - Stream
- Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- New Wetland**
- ▨ PEM
 - ▨ PFO
 - ▨ PSS
 - ▨ PuB
- Access Road
 - Alignment Centerline
 - Study Area
 - Access Road (7/1/15)
 - Alignment Centerline (7/1/15)
 - Study Area (7/1/15)



ADDENDUM WETLANDS DETAIL MAP
FIGURE 4-19
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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WESTMORELAND COUNTY, PA



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- 2) Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.