

WETLAND IDENTIFICATION &
DELINEATION REPORT

FOR

Turn lane addition and roadway improvements

SR 174, SECTION 008
SHIPPENSBURG AND SOUTHAMPTON TOWNSHIPS
SHIPPENSBURG BOROUGH
CUMBERLAND COUNTY, PA
MPMS #47462

OCTOBER 2003

FEDERAL HIGHWAY ADMINISTRATION
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 8-0

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I. INTRODUCTION

A. PROJECT LOCATION AND DESCRIPTION

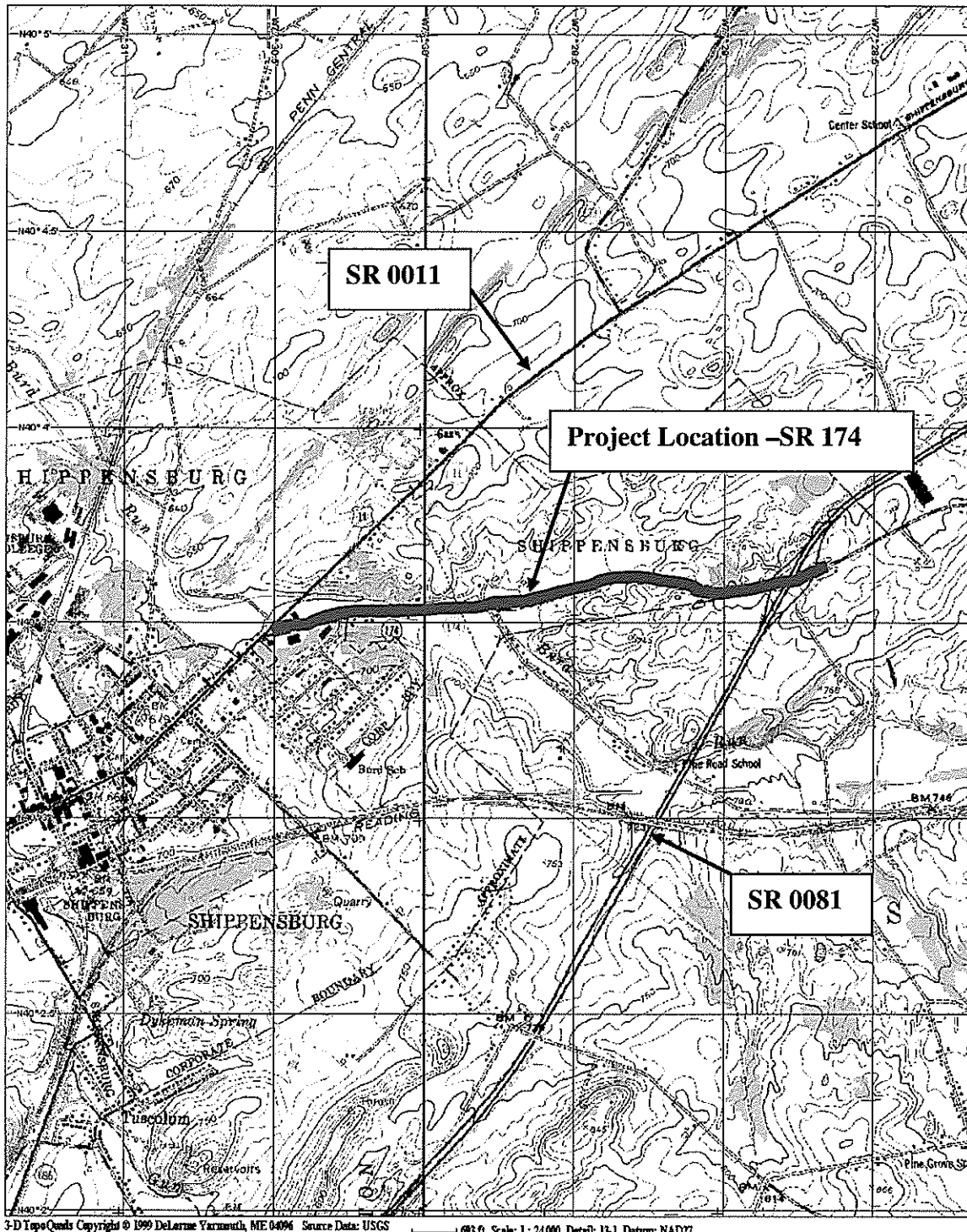
This Wetland Identification and Delineation Report has been prepared for engineering and environmental studies being performed for the addition of a middle turn lane with drainage and guiderail improvements on SR 0174, Section 008. This section of SR 174 is located in Shippensburg and Southampton Townships and in Shippensburg Borough, Cumberland County, PA. The project is proposed by the Pennsylvania Department of Transportation (PENNDOT) Engineering District 8-0. Specifically, the project consists of the widening of SR 174 to accommodate a center turn lane. The work spans a 1.7 mile stretch of roadway from the interchange of I-81 and SR 174 on the east, up to the intersection of SR 174 and SR 11 on the west end. Work also involves bituminous overlay, updates to guiderail and improvement to the drainage system where necessary.

Investigations were conducted on August 8, 2003 for the SR 174 roadway improvements by Johnson, Mirmiran & Thompson (JMT) to identify and delineate the extent and location of jurisdictional waters and wetlands within the project study area pursuant to the federal Clean Water Act (Section 404), the PA Clean Streams Law, the PA Dam Safety and Encroachments Act, and the PA Flood Plain Management Act. The Code of Federal Regulations (33 CFR Parts 320-330) and Chapter 105 of Title 25, PA Code, Dam Safety and Waterway Management Rules and Regulations define wetlands and watercourses and provide regulatory jurisdictional guidance on water obstructions and encroachments. Jurisdictional wetlands are defined as those areas satisfying the technical criteria contained in the *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, United States Waterway Experiment Station, Vicksburg, Mississippi 1987 (Delineation Manual). Professional qualifications of the individuals involved in the preparation of this report are provided in Appendix A.

B. DESCRIPTION OF THE STUDY AREA

The study area begins at, but not including, the interchange of routes 81 and 174 in Southampton Township, and extends west along SR 174 up to the intersection of SR 174 and route 11. The entire study area spans approximately 1.7 miles (2.7 kilometers) along SR 174 and approximately 50 feet on each side of the roadway. Figure 1 shows the location of the project on the Shippensburg and Walnut Bottom-PA Quadrangles.

Land cover/land use within the study area consists of mowed grasses and paved surfaces within the highway right-of-way. One agricultural field was located adjacent to SR 174. The remainder of the adjacent properties was either commercial or residential, with landscaped and mowed frontage. Some undeveloped lots were also noted and were vegetated with unmowed grasses and forbs.



SR 174, Section 008 – Roadway Widening

Shippensburg and Southampton Townships
 Shippensburg Borough, Cumberland County
 Pennsylvania

Shippensburg and Walnut Bottom-PA Quadrangle
 Lat: 40° 3' 32" Long: 77° 29' 43"

Figure 1



II. METHODOLOGY

A. RECORDS RESEARCH

Prior to conducting the field investigations, JMT requested a search of the Pennsylvania Natural Diversity Inventory (PNDI) from the PA Department of Environmental Protection (PADEP), South-central Regional Office, Water Management Program. This database compiles threatened and endangered species information from the Department of Conservation & Natural Resources (DCNR), Bureau of Forestry, the PA Fish & Boat Commission (PFBC), and the PA Game Commission (PGC). The PNDI is a U.S.G.S. topographic map-based file which denotes habitats critical to the survival of threatened and/or endangered species. JMT also requested threatened and endangered species data from the US Fish and Wildlife Service (USFWS), the PFBC, and the PGC for the project area.

In addition to habitat information and in accordance with the Delineation Manual, the 7.5' U.S.G.S. Shippensburg-PA and Walnut Bottom-PA topographic quadrangles, the National Wetlands Inventory (NWI) web-based Interactive Mapper, and the *Soil Survey of Cumberland County, Pennsylvania* (USDA, 1986) were reviewed to identify areas with topographical configurations, mapped wetlands and/or hydric soils which may suggest the presence of wetlands. Figure 2 shows the location of the study site on the Soil Survey and Figure 3 details the location on the NWI map.

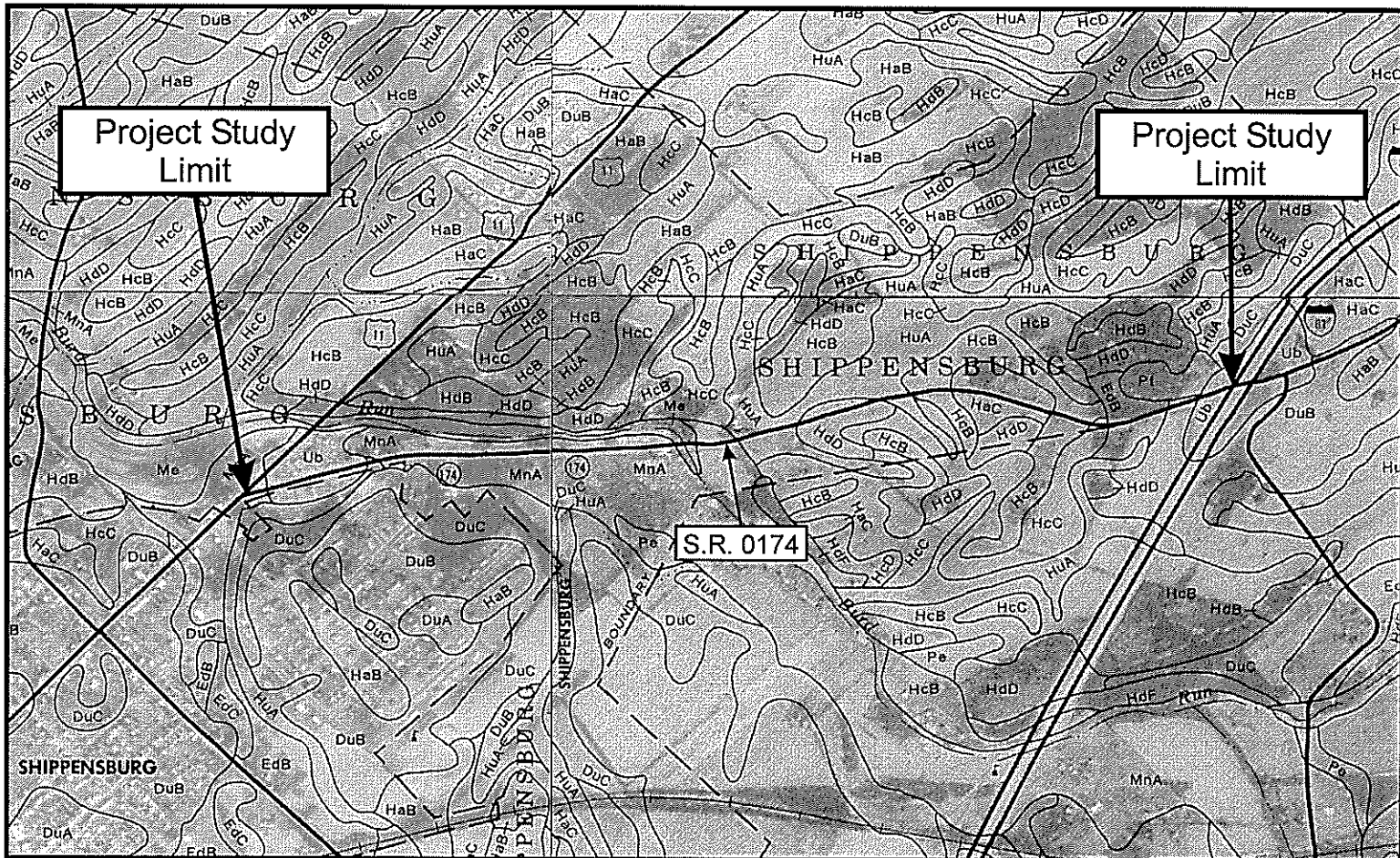
The PADEP Scenic Rivers Program and PA Code Title 25, Chapter 93 Water Quality Standards were also investigated. The PENNDOT Design Manual Part 2 - Highway Design (1994) was also searched regarding the stream's designation as a Stockable Warm Water Fishery and Trout Stream.

B. FIELD INVESTIGATIONS

The on-site, "routine" level, wetland identification and delineation methodology contained in the US Army Corps of Engineers (USACE) Delineation Manual was followed (USACE, 1987). The on-site field investigation involved inspection of the study area to identify areas that satisfy the three wetland criteria: a predominance of hydrophytic (wetland) vegetation, wetland hydrology, and hydric soils. In order to make a determination that an area is a wetland, the Delineation Manual requires that, under natural (typical) conditions, a minimum of one primary wetland indicator be confirmed for each of the three wetland parameters. A failure to confirm all three parameters must result in a finding that the area under evaluation is a non-wetland under typical conditions. In accordance with the Delineation Manual, the following wetland delineation criteria and primary field indicators were used.

Sampling was conducted along the gradient between uplands and wetlands to identify the location of the wetland boundary. One sample plot was placed in a representative wetland area and adjacent upland for the collection of data pertinent to assessment of the mandatory technical criteria. Data were recorded on wetland sample data forms appropriate for application of the 1987 Delineation Manual "routine" method. Copies of the data forms are included in Appendix B. Sample points (data points) were selected at locations along wetland boundaries to identify important, defining characteristics and to resolve obscure transitions between wetlands and uplands.

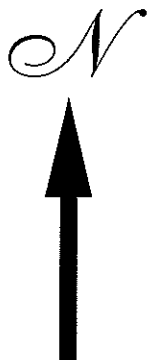
S.R. 0174 Widening and Roadway Improvements Soils Map



Cumberland and Perry County Soil Survey
Sheets 40, 41, & 44

not to scale

Figure 2

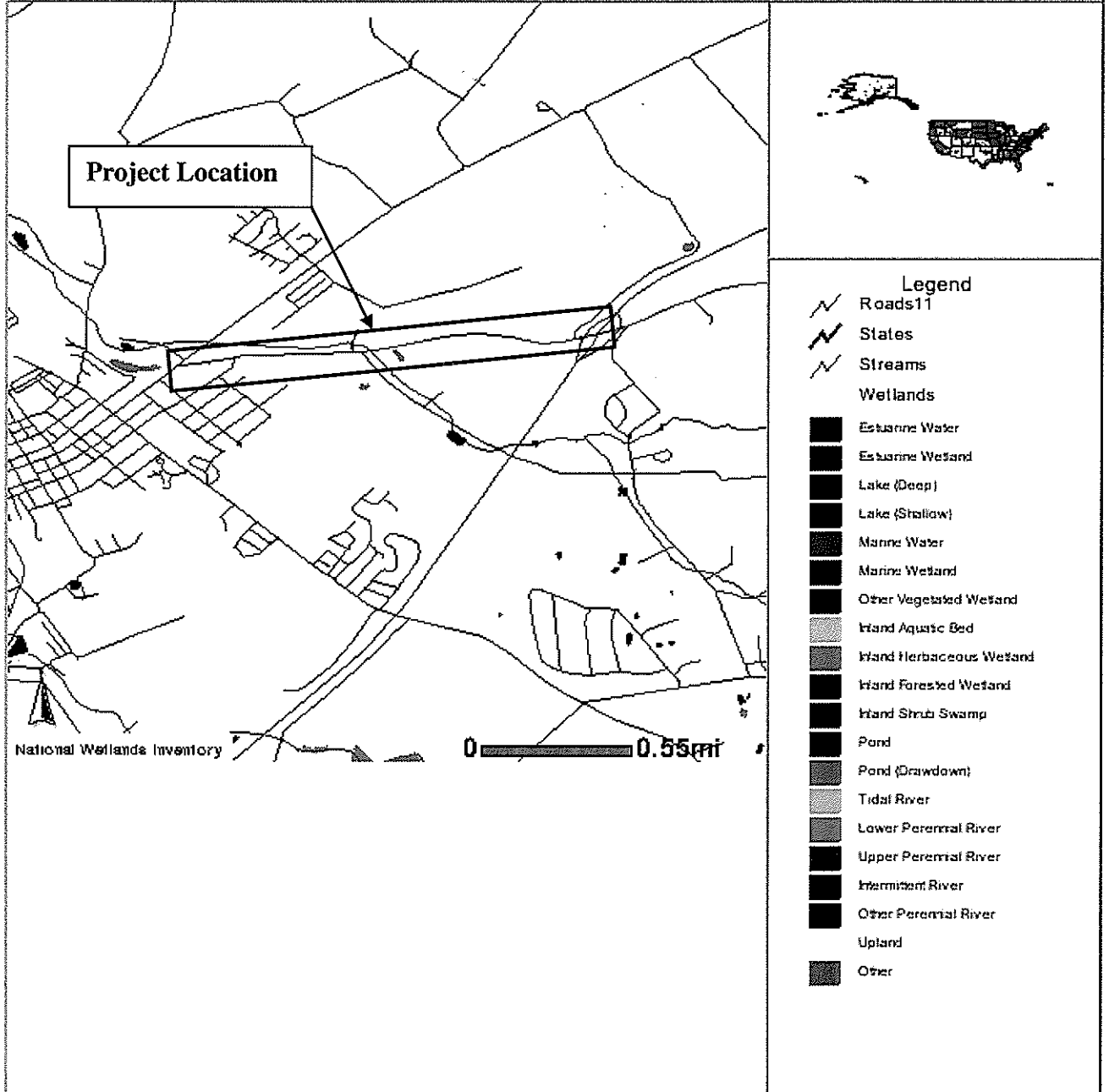


SOILS MAP
S.R. 0174 Roadway Improvements

Shippensburg Borough
Shippensburg and Southampton Townships

Cumberland County,
Pennsylvania

Figure 3 SR 174, Section 008 - National Wetlands Inventory Map



1. Hydrophytic Vegetation

Vegetation on the property was initially characterized to plant community type. Within a plant community, sample plots were established. When possible, 30-foot radius circular sample plots for the tree layer, 10-foot radius circular plots for shrub and vine layers and 1.64-foot radius circular plots for the herbaceous layers were used. Larger or smaller plot sizes were used as conditions dictated. Only dominant plant species were determined and recorded on sample forms. Dominant plant species were then assigned a wetland indicator classification according to the *U.S. Fish and Wildlife National List of Plant Species that Occur in Wetlands* (Reed, 1988). The indicator status is based on a species frequency of occurrence in wetlands. The wetland indicator rating and the corresponding frequency of occurrence are explained as follows:

OBL	Obligate wetland	Plants that occur almost always (more than 99% of the time) in wetlands under natural conditions.
FACW	Facultative wetland	Plants that occur usually (67%-99% of the time) in wetlands.
FAC	Facultative	Plants with a similar likelihood (34%-66% of the time) of occurring in both wetlands and non-wetlands.
FACU	Facultative upland	Plants that occur sometimes (1%-33% of the time) in wetlands, but occur more often in non-wetlands.
UPL	Obligate upland	Plants that occur rarely (less than 1% of the time) under natural conditions in wetlands.
NL	Not Listed	Indicates plants that are generally only found in uplands.

A positive (+) or negative (-) symbol used in conjunction with one of the facultative indicator classes denotes that the species generally has a greater (+) or lesser (-) estimated probability of occurring in wetlands.

When more than 50 percent of the dominant species in a plant community were determined to have an indicator status of OBL, FACW, and/or FAC, hydrophytic vegetation was determined to be present.

A list of plant species by community type, with indicator status, is provided in Appendix C.

2. Wetland Hydrology

In each plant community, indicators of wetland hydrology and hydric soils were investigated. Wetland hydrology means that water is present at or above the surface for a prolonged period (in consecutive days) during the growing season. Prolonged duration of seasonally inundated or saturated areas is considered to be longer than 12.5% of the growing season. For this site, the growing season data were provided by the USACE for Cumberland County at Shippensburg, PA (Frank Plewa, CENAB-OP-RE, 3/97). The number of days in the growing season in Shippensburg is 200 days. Prolonged duration

therefore corresponds to 200 x 12.5%, or 25 consecutive days. Primary indicators of wetland hydrology include direct observation of inundation or saturation at the surface, recorded stream gage data (where available), water marks or sediment deposits on objects and vegetation (i.e., water-stained leaves), water-carried debris drift lines and wetland drainage patterns. Some vegetation physiological adaptations, such as tree buttressing, shallow rooting, and multiple stems may also indicate wetland hydrology. Any observed wetland hydrologic field indicators were then noted on the data forms. Factors such as the depth of water or the depth to free water in the soil excavation pit were noted.

3. Hydric Soils

In plant communities dominated by OBL plant species, generally with an abrupt boundary, and with no evidence of recent hydrologic alteration, hydric soils were assumed to be present in accordance with the Delineation Manual. In all other circumstances, soils were investigated in the field using a soil probe and/or sharpshooter shovel. The exposed soils were divided into distinct layers on the basis of color, mottling, and structural and textural differences. In accordance with the Delineation Manual, direct observations for hydric soil field indicators were usually made immediately below the "A" horizon or at 25 cm (10 inches), whichever is shallower. In problem areas, such as where the soils were disturbed, the soils were evaluated for hydric indicators to a depth of 61 cm (24 inches). Color (chroma) was determined by comparison with standard soil color chips contained in the *Munsell Soil Color Charts* (GretagMacbeth, 2000).

Since hydric soils are saturated to the surface for periods of sufficient duration during the growing season to create oxygen-free conditions in the upper layer, indicators of oxygen-free conditions develop. Observations were then made for primary field indicators of these conditions, including gleying, chromas of 1 or less in unmottled soils, chromas of 2 or less in mottled soils, a hydrogen sulfide odor, mineral concretions and depletions in upper layers, high organic material content in sandy soils, organic streaking in sandy soils, and/or the observance of an aquic or peraquic moisture regime. Soil characteristics of each layer and any hydrologic indicators were recorded on the data forms provided in Appendix B.

In addition to the above field indicators, soils series which have been classified as hydric according to *Hydric Soils of the United States* (National Technical Committee on Hydric Soils, 1985) and/or the *Hydric Soils List for Pennsylvania* (NRCS, 1997) were also deemed to be hydric when the field sampled soil conformed to that of the profile description of the mapping unit provided in the *Soil Survey of Cumberland County, Pennsylvania* (USDA, 1986).

B. WETLAND BOUNDARY IDENTIFICATION

Sample plots were observed to determine the wetland/upland boundary. Representative observations were recorded as data points. The wetland/upland boundary was marked in the field using pink surveyors ribbon tied to live, woody vegetation nearest the boundary. The flags were spaced at appropriate turning points, or at approximately 15 meter (50 foot) intervals for long, straight stretches, and labeled sequentially using the wetland number as the prefix.

III. RESULTS OF INVESTIGATION

A. RECORDS RESEARCH

The PNDI search was conducted by PADEP. The search revealed no known record of habitats for species of special concern within the Interchanges or reconstruction area. Potential conflicts were noted and are listed in Table 1 and Appendix D. USFWS, PFBC, and PGC records also indicated no known habitat for threatened and endangered species in the immediate project site. Agency correspondence verifying the threatened and endangered species reviews is provided in Appendix D.

The USGS Shippensburg and Walnut Bottom-PA quadrangles indicated a main perennial stream, Burd Run crossing under SR 174 in the project location. Burd Run was researched and confirmed to be an ephemeral stream channel.

The NWI mapped a small inland emergent wetland along SR 174. This location is detailed in the Area 2 description under “Water and Wetland Habitat Descriptions”.

The Soil Survey of Cumberland County (Sheets 40 and 44) shows Burd Run passing under SR 174 near the middle of the project. During field investigation no surface flow was evident, although the size of the channel, size of the bedload, and amount of upstream watershed would suggest that a substantial flow would utilize this channel during an undetermined flow event.

Burd Run is an intermittent headwater of Middle Spring Creek and not individually listed in Chapter 93. Burd Run is a dry channel bed during normal flow periods. Middle Spring Creek basin is designated CWF, Cold Water Fishery, in the Chapter 93 Water Quality Standards in Cumberland and Franklin County. Burd Run is not listed as a Stockable Warm Water and Trout Stream in the PENNDOT Design Manual 2, but Middle Spring Creek is listed. The PFBC also list Middle Spring Creek as an approved trout waters suitable for stocking. Burd Run joins Middle Spring Creek approximately 1.9 miles downstream of the western project limit. Burd Run is considered waters of the U.S. Any impacts to the water of the U.S. within the project area will require permits from the USACE and PADEP.

Table 1. PNDI Findings.

Category	Scientific Name	Common Name	Status
Reptiles and Amphibians	<i>Clemmys muhlenbergii</i>	Bog Turtle	Endangered
Amphipod/Isopods	<i>Caecidotea pricei</i>	Price’s cave isopod	Rare
	<i>Stygobromus biggersi</i>	Biggers’ cave amphipod	Rare
	<i>Crangonyx dearolfi</i>	Pennsylvania cave amphipod	Rare

B. SOIL CHARACTERISTICS

The project study area lies in the Great Valley Section of the Ridge and Valley Physiographic Province of Pennsylvania. The dominant topographic form is long narrow ridges and broad valleys with some karstic terrain. The underlying rock type contains a wide variety of sedimentary rocks, including sandstone, siltstone, shale, conglomerate and limestone. The predominant soils within the study area are described below as obtained from the *Soil Survey of Cumberland County* (USDA, 1986) as shown in Figure 2, and as provided in Table 2.

Table 2. Soils Series Units within the Vicinity of SR 174, Cumberland County, Pennsylvania

Soil Mapping Symbol	Soil Mapping Unit	Hydric Status	Farmland Status *
DuB	Duffield silt loam, 3 to 8 percent slopes	Non-hydric	
EdB	Edom silty clay loam, 3 to 8 percent slopes	Non-hydric	
HaC	Hagerstown silt loam, 8 to 15 percent slopes	Non-hydric	Statewide
HcB	Hagerstown silt loam, rocky, 3 to 8 percent slope	Non-hydric	
HcC	Hagerstown silt loam, rocky, 8 to 15 percent slope	Non-hydric	
HdD	Hagerstown-Rock outcrop complex, 8 to 25 percent slope	Non-hydric	
HuA	Huntington silt loam, 0 to 5 percent slopes	Hydric inclusions	Prime
Me	Melvin silt loam	Hydric	Statewide
MnA	Monogahela silt loam, 0 to 3 percent slopes	Hydric inclusions	Prime
Pt	Pits and quarries	Non-hydric	
UB	Urban land and Udorthents	Hydric inclusions	

* Prime Farmland and Farmland of Statewide Importance as determined by the NRCS.

The Duffield series consists of gently sloping, deep, well drained soil on uplands and in karst limestone valleys. The depth to bedrock is greater than 4 feet. Depth to seasonal high water table is greater than 6 feet. Duffield series soils are not considered hydric in Cumberland County

The Edom series consists of deep, well drained soils on ridges and in valleys. The depth to bedrock is greater than 40 inches. Depth to seasonal high water table is greater than 6 feet. Edom series soils are not considered hydric in Cumberland County.

Hagerstown series consists of deep, well drained soils in valleys and on adjacent hills. The depth to bedrock is greater than 40 inches. Depth to seasonal high water table is greater than 6 feet. Hagerstown series soils are not considered hydric in Cumberland County.

Huntington series consists of deep, well drained soils in drainageways and on level or concave areas. The depth to bedrock is between 4 and 6 feet. Depth to seasonal high water table is greater than 5 feet. Huntington series soils in Cumberland County contain hydric inclusions of Atkins series soils.

Melvin series soils consists of deep poorly drained soils on floodplains. These soils are formed in alluvial material that originated in limestone areas. The depth to seasonal high water table is between 0 and 1 foot between the months of December through May. Depth to bedrock is greater than 5 feet. Melvin series soils are considered hydric in Cumberland County.

Monongahela series soils are deep, moderately well drained soils on stream terraces. The seasonal high water is considered a perched table between 1.5 and 3 feet deep, from December through April. Depth to bedrock is greater than 5 feet. Monongahela series soils in Cumberland County contain hydric inclusions in some areas characterized as wet spots.

Pits and quarries are area where the soil has been disturbed for the excavation of materials such as stone, gravel, coal, or other marketable rocks or minerals. These areas normally have the soil removed down to bedrock. These normally do not support wetlands.

Urban land and Udorthents are area of very shallow to deep, well drained to somewhat poorly drained soils on uplands and floodplains. They formed in material altered as a result of construction for industrial and urban development and other uses. The depth to bedrock is greater than 6 inches. Udorthents in Cumberland County may contain hydric inclusions in certain wet spot areas.

C. PLANT COMMUNITY TYPES

Investigations were conducted on August 28, 2003 to verify the mappings, and to identify land use and plant community types within the study area. The perennial and intermittent streams were verified as “waters of the U.S.” and “regulated waters of the Commonwealth” based on the existence of defined bed and banks and flowing water. Hereinafter these waters will be referred to as waters of the U.S. Land use consists of mainly commercial use, undeveloped herbaceous meadow, and scrub-shrub lowlands. Since the areas to be affected are located within 50 feet on either side of the roadway, only this area was investigated for wetlands and waters of the U.S. The following discussion details the water and wetland features identified within the study area.

Forested Plant Community.

The forested plant community type was restricted to the riparian area around Burd Run, upstream and downstream of the project area. Species composition near the roadway crossing consisted of honey locust (*Gleditsia triacanthous*), box elder (*Acer negundo*), black willow (*Salix nigra*), slippery elm (*Ulmus rubra*), sycamore (*Platanus occidentalis*), black cherry (*Prunus serotina*) and multiflora rose (*Rosa multiflora*).

Shrub Plant Community.

The scrub/shrub community was located within the forested community and along the streams and manmade and natural drainageways. The dominant shrubs consisted of multiflora rose (*Rosa multiflora*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), white mulberry (*Morus alba*), slippery elm (*Ulmus rubra*), and poison ivy (*Toxicodendron radicans*).

Herbaceous Community.

The herbaceous layer within the forest canopy was generally sparse. Where herbaceous growth was present under the shaded stream edges, jewelweed (*Impatiens capensis*), dominated the community.

The dominant herbaceous vegetation throughout the majority of the project length was maintained lawn grasses. The dominant herbaceous species in areas that were not maintained, minimally maintained or in manmade drainage ditches, included jewelweed (*Impatiens capensis*), ragweed (*Ambrosia artemisiifolia*), crown vetch (*Coronilla varia*), tall fescue (*Festuca arundinacea*), red clover (*Trifolium pratense*), wild carrot (*Daucus carota*), yellow nutsedge (*Cyperus strigosus*), English and common plantain (*Plantago lanceolata and major*) and dogbane (*Apocynum spp.*).

D. WATER AND WETLAND HABITAT DESCRIPTIONS

The riparian forest cover, stream-side and roadside plant community types were investigated for wetlands, waters of the U.S., and agency jurisdiction. Waters and wetlands found to be potentially jurisdictional were identified and divided into “areas” based on the location, type of plant community, soil, water presence, and topographic orientation and are shown in Figure 4 (provided in Appendix F). Following are brief descriptions of each identified area, with identification as to regulatory

jurisdiction and functional assessment. Photographs with photo location maps are provided in Appendix E.

Area 1- meadow

Area 1 was a meadow area located on the north side of SR 174, between the developed lot of the Health Care Center and the developed lot of the Hope Church (Figure 4-A) (Photo 1). Area 1 is not a jurisdictional wetland. Area 1 showed evidence of earthmoving within the last few years. The lot was level and appeared, based on the stage of vegetative growth, to have been mowed at least once during the current growing season. Area 1 receives drainage from upslope overland flow and overflow from a small stormwater basin on the east side. This area had one small depressed spot with stained leaves, but no jurisdictional wetlands were identified. No surface or subsurface hydrology was noted and hydric soils were not found. The soil profile exhibited a loam soil with a 10 YR 4/4 matrix in the upper 12 inches and a 10 YR 5/6 matrix in the 12-14 inch depth. Plot Data Sheet 1 describes the vegetative conditions of Area 1 and is attached in Appendix B. Any impacts to Area 1 would not require a permit from the PADEP and the USACE.

Area 2- low spot

Area 2 is located on the south side of SR 174 approximately 530 feet east of Airport Road (Figure 4-B) (Photo 2). Area 2 was a depressed area adjacent to a maintained lawn and a cultivated agricultural field. This area exhibited cracked ground with little vegetation. JMT ground survey crew delineated ponded water at this location. The low spot is apparently well drained and somewhat drained by a nearby highway drainage ditch. Figure 3, NWI map, shows an inland vegetated wetland at this location.

No surface or subsurface hydrology was noted, however cracked ground was present. The soil exhibited a 1.5 inch surface layer with a 10 YR 4/3 matrix and a 7.5 YR 5/6 matrix to a depth of 17 inches. The entire sampled profile was a clay loam texture.

Plot Data Sheet 2 describes the vegetative conditions of Area 2 and shows that it does not qualify as a jurisdictional wetland, as it does not satisfy the necessary hydrology duration and consequently did not exhibit hydric soil indicators. Plot Data Sheet 2 is attached in Appendix B. Any impacts to Area 2 would not require a permit from the PADEP and the USACE.

Area 2 does act as a storwater retention area, in turn assisting in floodflow alteration. Area 2 will also collect nutrients and sediments from the cultivated field allowing some settling prior to flow entering the roadside ditch and ultimately Burd Run.

Area 3 – Burd Run.

Area 3 is Burd Run which crosses under SR 174 near Airport Road (Figure 4-B) (Photos 3,4 and 5). Burd Run is a jurisdictional watercourse within the project limits. The stream is only ephemeral within the project impact area and did not contain flow during the field investigation. The channel was mainly unvegetated consisting of freestone stream bed. Some unknown forbs and some sycamore

(*Platanus occidentalis*) were growing within the banks. The vegetation was mainly restricted to a riparian strip on both sides of the channel not exceeding 25 feet in width on the southside of 174. Honey locust (*Gleditsia triacanthous*), box elder (*Acer negundo*), black willow (*Salix nigra*), slippery elm (*Ulmus rubra*) and sycamore (*Platanus occidentalis*) dominated the south riparian area. On the north side of SR 174 a broader riparian area extended into a small floodplain. Box elder (*Acer negundo*), black willow (*Salix nigra*), slippery elm (*Ulmus rubra*), sycamore (*Platanus occidentalis*), black cherry (*Prunus serotina*) and multiflora rose (*Rosa multiflora*) dominated the north riparian area. The stream at this location exhibited signs of stress on the banks as well as moderate aggradation along the stream bed.

The channel appears to provide limited functions restricted to floodflow alteration and water conveyance. The absence of flow limits aquatic animal habitat and the narrow riparian zone with adjacent residential development limits terrestrial animal habitat.

Due to the size of the channel, evidence of the movement of medium size bedload and the indication of a perennial stream on the USGS mapping, the lack of flow was suspicious. A call to the Cumberland County Conservation District confirmed that this channel drains a large watershed but is normally a dry channel at this location. The channel receives spring fed flow as the channel approaches SR 11 (Photo 11) to the north and west of the project area. JMT field investigation found flow originating in the stream approximately 2,100 feet west of where SR 174 crosses Burd Run.

This channel is jurisdictional as a “waters of the Commonwealth” based on the “defined bed and banks” and as a “waters of the US”, based on an observed “ordinary highwater mark”. No adjacent wetlands were identified near Burd Run. The drainage area of the channel is 4,333.20 hectares (10,707.20 acres). Any impacts to this channel would require a permit from the PADEP and USACE.

Area 4 – unnamed tributary channel.

Area 4 consists of a stormwater management channel which passes under SR 174 through a culvert crossing approximately 1,500 feet west of Burd Run and 2,160 feet east of SR 11 (Figure 4-C) (Photo 7). Also a drainage swale entering this channel from the east, adjacent to SR 174, was found (Photo 8). The main channel is tributary to Burd Run. A small emergent wetland was located approximately 425 feet upstream within the channel banks, behind K-mart store, outside of the project impact area. Both the channel and the swale contained on-line detention weirs for stormwater control. The on-line controls ended near the SR 174 crossing on the south side of SR 174 (Photo 7). This channel functions as a stormwater and sediment retention basin and aides in floodflow alteration.

The Area is considered a “waters of the US” and “waters of the Commonwealth”, but no wetlands were present. The channel is fully vegetated but contained very poor non-hydric soils. The soil profile exhibited a 2 inch surface layer with a 10 YR 2/2 matrix and a 10 YR 4/3 matrix to a depth of 13 inches. No mottling or other hydric indicators were observed. The soil profile was gravelly and rocky and likely deposited within this channel during construction. Plot Data Sheet 3 describes the vegetative conditions of Area 4 and is attached in Appendix B. Vegetative growth in the channel, north of SR 174, consisted of sycamore (*Platanus occidentalis*), slippery elm (*Ulmus rubra*) and some herbaceous growth (Photo 9 and 10).

Although the channel does not contain jurisdictional wetlands, PADEP would consider it as “Waters of the Commonwealth” since the channel exhibits “defined bed and banks”. The USACE would also consider the channel jurisdictional as “waters of the US” since it has an ordinary high water mark below the bridge and is tributary to Burd Run, which is a jurisdictional watercourse. The drainage area of the channel is 80.27 hectares (198.35 acres). Any impacts to the channel would require a permit from the PADEP and the USACE.

Stormwater Management Facilities

Stormwater management facilities, consisting of drainage channels (Photos 6, 12) and shallow retention basins (Photos 2, 7 and 8), are located within the project limits along SR 174 and are shown on the “Area and Photo Index Map in Appendix F. These facilities are considered “waters of the Commonwealth” based on the presence of defined bed and bank. Activities impacting the stormwater management facilities which result in continued use for that designated purpose are waived from permit requirements by the PADEP under Chapter 105 Section 105.12(a)(6). In the absence of freshwater wetlands and an ordinary high water mark, these facilities are not subject o USACE jurisdiction. .

IV. SUMMARY

The area of S.R. 174 from, but not including, the SR 174/81 interchange west to the intersection of S.R. 11 was field investigated on August 28, 2003 for jurisdictional wetlands and waters of the U.S. in anticipation of a center turning lane addition, guiderail improvements and drainage improvements to S.R. 174. No jurisdictional wetlands were found within the project study area. Two stream channels, Burd Run and an unnamed tributary channel, which cross under S.R. 174, were found to be jurisdictional waters of the U.S. The landscape characteristics of the interchange area consisted of nearly level meadows, lawns, residential and commercial developed lots. Stormwater management facilities were identified in association with the commercial development.

Areas 1 and 2 are low-lying spots within the project area which were evaluated for the presence of wetlands. Area 1 includes a meadow and Area 2 lies adjacent to agricultural fields. Neither site contained a prevalence of hydrophytic vegetation or hydric soil and are therefore not jurisdictional wetlands.

Area 3, or Burd Run, within the project limits is an ephemeral channel conveying flow only during precipitation events of an undefined magnitude. The Area supported riparian vegetation and some in channel vegetation. The majority of the channel bed was comprised of gravel and cobble substrate and showing signs of aggradation. This channel would be considered jurisdictional based upon defined "bed and banks" and the presence of an "ordinary highwater mark."

Area 4, or the unnamed tributary channel, within the project limits is a stormwater or ephemeral channel conveying flow only during precipitation events of an undefined magnitude. The channel contained on-line detention weirs for stormwater control. The channel was completely vegetated with woody and herbaceous vegetation. The unnamed channel flows directly into Burd Run. This channel would be considered jurisdictional based upon defined "bed and banks" and the presence of an "ordinary highwater mark."

Area 3 and Area 4 are jurisdictional waters. Any proposed impacts, temporary or permanent, to these resources would require a permit from the PADEP and USACE.

Stormwater management facilities consisting of drainage channels and shallow retention basins were identified as jurisdictional waters based upon defined bed and banks. Impacts to stormwater management facilities are waived under 105.12(a)(6).

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APPENDIX A
PROFESSIONAL QUALIFICATIONS

Patricia W. Riley, P.W.S., A.I.C.P. - Senior Associate Professional Wetland Scientist/Environmental Manager

Ms. Riley has over 20 years of experience in preparation of Environmental Impact Statements, Environmental Assessments, and Wetland Evaluations and Permits. Ms. Riley is certified as a Professional Wetland Scientist with the Society of Wetland Scientists and is experienced in delineating tidal and non-tidal wetlands and preparing plans for the creation, enhancement, and preservation of wetland and terrestrial habitats in PA, MD, NJ, and DE. She is experienced in the preparation of Section 4(f) evaluations, agricultural resources documentation, hazardous waste preliminary site evaluations, and soils and water quality sampling reports. Ms. Riley is experienced with agency coordination for natural, cultural and socioeconomic resources, regulatory jurisdictional determination, permit applicability, and public meetings as a former NJDEP employee and private consultant. She has also provided training to PA DEP and US EPA personnel on best management practices to control non-point source pollution. Relevant project experience includes:

Lewistown By-Pass, SR 0022, Mifflin County, PA: Environmental Manager responsible for environmental aspects of project including noise monitoring and modeling, wetland impact assessment, wetland mitigation, stream restoration and wildlife habitat enhancement plans. Water quality Best Management Practices (BMPs) were designed in-line with the stormwater drainage system so that all runoff was treated prior to discharge. BMPs included bio-retention ponds, level spreaders, energy dissipaters, open grass-lined channels and oil/grit separators. JMT utilized natural channel design, incorporating riffle, run and pool complexes and biostabilization, to restore the impaired stream. Terrestrial habitat was included in both wetland and stream designs. Conducted informal consultation regarding the federally endangered Indiana bat (*Myotis sodalis*) and obtained a Joint 404/105 permit for unavoidable impacts to an exceptional value wetland.

S.R. 0022 Natural Resources, Dauphin County, PA: Project Manager responsible for the environmental aspects of this highway design project including a wetland mitigation plan for the creation of 5.46 acres of wetlands to mitigate for unavoidable impacts to 3.52 acres of wetlands. The design included plans for a forested wetland in a prior converted cropland, a shrub/emergent wetland in a drained agricultural field, and a shrub/emergent wetland in a streamside field. Co-authored an article about this unique project. Designed a wildlife habitat enhancement and creation plan to mitigate for the loss of terrestrial habitat, including preparation of a management plan for warm season grasses, site selection, plant selection, plant layout, and planting details. Both mitigation plans were approved by the regulatory agencies on first submittal. Received a joint permit within nine months. Wetland design won the 2002 CEC/PA Honor Award for Environmental Projects.

I-83/S.R. 0114 Interchange, York County, PA: Performed environmental studies for this fast-track highway interchange improvement project. Provided field assessment for wetlands and hazardous waste; records research for historic, archaeologic, 4(f), and hazardous information; and coordination for threatened and endangered species. Incorporated findings into engineering files such that preliminary design was able to commence within two weeks. Prepared a Level 4 Categorical Exclusion Evaluation and provided agency coordination.

Wetland Monitoring, District 8-0, PA: Monitored multiple wetland sites for compliance with PA DEP, USACOE permits. Utilized PENNDOT Wetland Monitoring Protocol and compiled information for incorporation into the PennWET Database. Parameters sampled and evaluated included: vegetation, soils, hydrology, wildlife, sedimentation, and habitat. Used GPS to delineate wetland boundaries, community types, and other significant features. Performed an assessment of wetland functions and values using the New England method.

BMP Training, Bucks County, PA: Presented a slide show and conducted a training tour for US EPA Office of Watersheds, Philadelphia, PA personnel to demonstrate best management practices in the control of non-point source pollution. The tour focused on a watershed in Bucks County, PA to demonstrate a multitude of erosion control facilities which can be used in agriculture and urban construction. Coordinated personnel from the Natural Resources Conservation Service, the Bucks County Conservation District, the PADEP, and the site owners and operators.



**Years
Experience with
JMT:
7**

**Years
Experience with
Other Firms:
13**

**Specialty:
Environmental
Studies and
Permits**

**Education:
MS/Ecology/
1986**

**BS/Biology-
Environmental
Science/1983**

**Active
Registrations:
Professional
Wetland
Scientist
Certification #
0001133/1998**

**A.I.C.P. #:
017202/2001**

**OSHA
HAZWOPER
(40 hour)
Certification#:
99JAC8HMR
6820/1998**

Jason D. Reed

Environmental Specialist

Mr. Reed has over 7 years experience performing environmental analysis, wetland delineation, wetland mitigation monitoring, vegetative identification and characterization, forest stand delineations, natural channel design assessments, GPS data collection and preliminary site evaluation. He has successfully completed the Corps Wetland Delineator Certification Preparatory Training course, 4 levels of Natural Channel Design-Stream Restoration course (Rosgen Methodology), and EPA Watershed Training modules. Selected relevant project experience includes:

Lewistown By-Pass, SR 0022, Mifflin County, PA: This project involved the final design of 4 miles of new 4-lane limited access highway on new alignment for PENNDOT District 2-0. Responsible for plan preparation of the design of 300 feet of a Priority 3 Channel Restoration using Natural Channel Design. Performed a Level I Geomorphic Characterization and a Level II Morphological Description as part of a Fluvial Geomorphological Assessment. Specified the dimension, pattern, and profile of the channel, conducted a Modified Wolman Pebble Count to determine particle size distribution of channel material and specified the appropriate stabilization measures and bioengineering to be installed. Prepared and obtained a Joint 404/105 Permit for unavoidable impacts in an exceptional value wetland and high quality watershed. Prepared final wetland mitigation plans for the creation of 1.73 acres of wetlands with a 0.31 acre pond and an additional 2 acres of advance wetland compensation through natural regeneration.

Hammond Branch Restoration Post-construction Monitoring, Howard County, MD: Performed monitoring on approximately 800 foot long reach of Hammond Branch, a Priority 1 restoration using Natural Channel Design methods. Collected cross sectional and longitudinal profile data to compare to as-built conditions. Performed a Modified Wolman Pebble count to determine particle size distribution of channel material and identified all hydrologic units along the profile. Evaluated the conditions of in-stream structures, vegetative stabilization, bioengineering efforts, habitat creation and the dimension, pattern and profile of the new channel.

Wetland Creation Construction Inspection S.R. 0022, Dauphin County, PA: Inspected vegetation and conditions of the wetlands created as mitigation for wetlands lost due to the impacts from the highway construction project. Responsibilities included identifying species and health of plants used for revegetation, noting proper elevations at critical points and checking construction as-built plans. Performed inspection of all structures and required procedures per the design plan.

Wetland Delineation and GPS Mapping S.R. 438 and S.R. 439, Sussex County, DE: This project dealt with drainage improvement for two dirt roads. Responsibilities involved the delineation of wetlands and preparation of wetland reports. Mapped the roadways and pertinent features using a Global Positioning System unit.

Wetland Monitoring, PENNDOT District 8-0: Under an open-end contract with PENNDOT, District 8-0, responsible for wetland monitoring and monitoring report preparation on multiple sites in PA. Wetlands were created as mitigation for existing wetlands which were impacted through highway construction projects. The monitoring was conducted to determine if the mitigated wetlands were successful, as outlined in the permit conditions. Parameters evaluated include vegetation, soils, hydrology, wildlife, sedimentation, and habitat.



**Years
Experience with
JMT:
5**

**Years
Experience with
Other Firms:
2**

**Specialty:
Natural
Resources**

**Education:
BS/Environment
al Resources
Management/
1996**

**Active
Registrations:
OSHA
HAZWOPER
(40 hour)
Certification#:
99JAC8HMR
6068/1996**

APPENDIX B
WETLAND DETERMINATION DATA FORMS

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: SR 174 Applicant/Owner: PENNDOT Investigators: PWR, JDR	Project No:	Date: 28-Aug-2003 County: Cumberland State: Pennsylvania Plot ID: 1
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Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation:)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? (If needed, explain on the reverse side)	Community ID: Meadow Transect ID: Field Location: Between the Hope Church & Health Center
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VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Festuca arundinacea</i> Fescue, Kentucky	Herb	FACU	<i>Aster</i> Aster spp.	Herb	NI
<i>Polygonum pensylvanicum</i> Smartweed, Pennsylvania	Herb	FACW	<i>Trifolium pratense</i> Clover, Red	Herb	FACU-
<i>Juncus tenuis</i> Rush, Slender	Herb	FAC-	<i>Apocynum spp.</i> dogbane	Herb	NI
<i>Plantago lanceolata</i> Plantain, English	Herb	UPL	<i>Daucus carota</i> wild carrot	Herb	NI

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/5 = 20.00%	FAC Neutral: 1/4 = 25.00% Numeric Index: 18/5 = 3.60
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Remarks:

HYDROLOGY

<u>NO</u> Recorded Data(Describe in Remarks): <u>N/A</u> Stream, Lake or Tide Gauge <u>N/A</u> Aerial Photographs <u>N/A</u> Other <u>YES</u> No Recorded Data Field Observations Depth of Surface Water: None (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: N/A (in.)	Wetland Hydrology Indicators Primary Indicators <u>NO</u> Inundated <u>NO</u> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands Secondary Indicators <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>YES</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>NO</u> FAC-Neutral Test <u>NO</u> Other(Explain in Remarks)
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Remarks:
 Feature lies in line with the stormwater drainage along the roadway. A low spot in the meadow had water stained leaves. The area shows evidence of mowing within the current year.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: SR 174 Applicant/Owner: PENNDOT Investigators: PWR, JDR	Project No:	Date: 28-Aug-2003 County: Cumberland State: Pennsylvania Plot ID: 1
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SOILS

Map Unit Name (Series and Phase): Hagerstown - rock outcrop complex		Mapped Hydric Inclusion? No
Map Symbol: HdD	Drainage Class: well drained	Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>
Taxonomy (Subgroup): Typic Hapludalfs		
Profile Description		

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-12	A	10YR4/4	N/A	N/A	N/A	Loam
12-14	B	10YR5/6	N/A	N/A	N/A	Loam

Hydric Soil Indicators:	
<u>NO</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>NO</u> Gleyed or Low Chroma Colors	<u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <u>NO</u> Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soils Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampling Point within the Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
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Remarks:
 This is an upland data point.

**DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)**

Project/Site: SR 174 Applicant/Owner: PENNDOT Investigators: PWR, JDR	Project No:	Date: 28-Aug-2003 County: Cumberland State: Pennsylvania Plot ID: 2
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Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation:)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on the reverse side)	Community ID: Upland Depression Transect ID: Field Location: approximately 500 feet E of Airport Rd.
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VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Cyperus strigosus</i> Flatsedge, Straw-Color	Herb	FACW	<i>Apocynum spp.</i> dogbane	Herb	NI
<i>Rumex crispus</i> Dock, Curly	Herb	FACU			

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/2 = 50.00%	FAC Neutral: 1/2 = 50.00% Numeric Index: 6/2 = 3.00
--	--

Remarks:
Evidence of mowing.

HYDROLOGY

<u>NO</u> Recorded Data(Describe in Remarks): <u>N/A</u> Stream, Lake or Tide Gauge <u>N/A</u> Aerial Photographs <u>N/A</u> Other <u>YES</u> No Recorded Data Field Observations Depth of Surface Water: N/A (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: N/A (in.)	Wetland Hydrology Indicators Primary Indicators <u>NO</u> Inundated <u>NO</u> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands Secondary Indicators <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>NO</u> FAC-Neutral Test <u>YES</u> Other(Explain in Remarks)
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Remarks:
Low spot. Evidence of water retention, however soil is moderately well drained. The ground was cracked and stained.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: SR 174 Applicant/Owner: PENNDOT Investigators: PWR, JDR	Project No:	Date: 28-Aug-2003 County: Cumberland State: Pennsylvania Plot ID: 2
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SOILS

Map Unit Name (Series and Phase): Huntington silt loam 0 to 5 percent		Mapped Hydric Inclusion? Atkins
Map Symbol: HuA	Drainage Class: well drained	Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>
Taxonomy (Subgroup): mixed mesic Fluventic Hapludolls		
Profile Description		

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-1.5	A	10YR4/3	N/A	N/A	N/A	Clay loam
1.5-17	A/B	7.5YR5/6	N/A	N/A	N/A	Clay loam

Hydric Soil Indicators: <u>NO</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>NO</u> Gleyed or Low Chroma Colors	<u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <u>NO</u> Other (Explain in Remarks)
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Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soils Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampling Point within the Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
--	---

Remarks:
 This is an upland data point.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: SR 174 Applicant/Owner: PENNDOT Investigators: PWR, JDR	Project No:	Date: 28-Aug-2003 County: Cumberland State: Pennsylvania Plot ID: 3
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Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation:)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No (If needed, explain on the reverse side)	Community ID: drainage channel Transect ID: Field Location: within the channel
--	---

VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Phalaris arundinacea</i> Grass, Reed Canary	Herb	FACW+	<i>Ambrosia trifida</i> Ragweed, Great	Herb	FAC
<i>Festuca arundinacea</i> Fescue, Kentucky	Herb	FACU	<i>Polygonum persicaria</i> Thumb, Lady's	Herb	FACW
<i>Agrostis stolonifera</i> Bentgrass, Spreading	Herb	FACW			

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 4/5 = 80.00%	FAC Neutral: 3/4 = 75.00% Numeric Index: 13/5 = 2.60
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Remarks:

HYDROLOGY

<u>NO</u> Recorded Data(Describe in Remarks): <u>N/A</u> Stream, Lake or Tide Gauge <u>N/A</u> Aerial Photographs <u>N/A</u> Other <u>YES</u> No Recorded Data Field Observations Depth of Surface Water: None (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: = 9.0 (in.)	Wetland Hydrology Indicators Primary Indicators <u>NO</u> Inundated <u>YES</u> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands Secondary Indicators <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>NO</u> FAC-Neutral Test <u>NO</u> Other(Explain in Remarks)
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Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: SR 174 Applicant/Owner: PENNDOT Investigators: PWR, JDR	Project No:	Date: 28-Aug-2003 County: Cumberland State: Pennsylvania Plot ID: 3
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SOILS

Map Unit Name (Series and Phase): Monongahela silt loam 0 to 3 percent Map Symbol: MnA Drainage Class: moderately well drained Mapped Hydric Inclusion? hydric inclusions Taxonomy (Subgroup): Typic Fragiuults Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>								
Profile Description								
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc		
0-2	A	10YR2/2	N/A	N/A	N/A	Silty clay loam		
2-13	A/B	10YR4/3	N/A	N/A	N/A	Clay loam, rocky		
Hydric Soil Indicators: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <u>YES</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>NO</u> Gleyed or Low Chroma Colors </td> <td style="width: 50%; border: none;"> <u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <u>NO</u> Other (Explain in Remarks) </td> </tr> </table>							<u>YES</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>NO</u> Gleyed or Low Chroma Colors	<u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <u>NO</u> Other (Explain in Remarks)
<u>YES</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>NO</u> Gleyed or Low Chroma Colors	<u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <u>NO</u> Other (Explain in Remarks)							
Remarks: Soil was likely placed in the development of the stormwater channel. No evidence of hydric indicators showing.								

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soils Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampling Point within the Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Sampling point did not exhibit hydric soils.	

APPENDIX C
LIST OF PLANT SPECIES

LIST OF PLANT SPECIES AND INDICATOR STATUS

PENNDOT Site No: SR 174 Cumberland County Investigator(s): P.W.R., J.D.R.

Date: August 28, 2003

Species Scientific Name	Common Name	Indicator Status
Herbaceous:		
<i>Agropyron repens</i>	quackgrass	FACU-
<i>Agrostis stolonifera</i>	bent grass	FACW
<i>Ambrosia artemisiifolia</i>	common ragweed	FACU
<i>Ambrosia trifida</i>	great ragweed	FAC
<i>Anagallis arvensis</i>	scarlet pimpernel	NL
<i>Apocynum spp.</i>	dogbane	
<i>Asclepias syriaca</i>	common milkweed	NL
<i>Aster spp.</i>	aster	
<i>Chenopodium hybridum</i>	maple-leaved goosefoot	NL
<i>Coronilla varia</i>	crown vetch	NL
<i>Cyperus strigosus</i>	yellow nutsedge	FACW
<i>Daucus carota</i>	wild carrot	NL
<i>Digitaria spp.</i>	crabgrass	
<i>Festuca arundinacea</i>	tall fescue	FACU
<i>Impatiens capensis</i>	jewelweed	FAC
<i>Juncus tenuis</i>	slender rush	FAC-
<i>Mentha arvensis</i>	field mint	FACW
<i>Oenothera biennis</i>	common evening primrose	FACU-
<i>Phalaris arundinacea</i>	reed canary grass	FACW+
<i>Phleum pratense</i>	timothy	FACU

LIST OF PLANT SPECIES AND INDICATOR STATUS

PENNDOT Site No: SR 174 Cumberland County Investigator(s): P.W.R., J.D.R.

Date: August 28, 2003

Species Scientific Name	Common Name	Indicator Status
<i>Plantago lanceolata</i>	English plantain	NL
<i>Plantago major</i>	common plantain	FACU
<i>Polygonum pensylvanicum</i>	Pennsylvania smartweed	FACW
<i>Polygonum persicaria</i>	Lady's thumb	FACW
<i>Rumex crispus</i>	curled dock	FACU
<i>Solanum dulcamara</i>	nightshade	FAC-
<i>Solanum carolinense</i>	horse nettle	NL
<i>Trifolium pratense</i>	red clover	FACU-
Shrubs:		
<i>Rosa multiflora</i>	multiflora rose	FACU
Vines		
<i>Toxicodendron radicans</i>	poison ivy	FAC
<i>Vitis spp.</i>	grape vine	
Trees:		
<i>Acer negundo</i>	box elder	FAC+
<i>Acer platanoides</i>	Norway maple	NL
<i>Acer saccharinum</i>	silver maple	FACW
<i>Gleditsia triacanthos</i>	honey locust	FAC+
<i>Juglans nigra</i>	black walnut	FACU
<i>Morus alba</i>	white mulberry	NL
<i>Platanus occidentalis</i>	sycamore	FACW
<i>Prunus serotina</i>	black cherry	FACU
<i>Salix nigra</i>	black willow	FACW+
<i>Ulmus rubra</i>	slippery elm	FAC

APPENDIX D
THREATENED AND ENDANGERED SPECIES
CORRESPONDENCE

PNDI Internet Database Search Results

PNDI Search Number: N126978

Search Results For Blacksmith.John@dep.state.pa.us

Search Performed By: John Blacksmith On 8/26/03 12:06:19 PM

Agency/Organization: DEP

Phone Number: 717 705-4821

Search Parameters: Quad - 407715; North Offset - 10.5; West Offset - 1.2; Acres - 50

Project location center (Latitude): 40.05765

Project location center (Longitude): 77.50857

Project Type: Transportation Projects/Existing Roadway Repair

Print this page using your Internet browser's print function and keep it as a record of your search.

Instructions for DCNR Bureau of Forestry personnel only:

When instructed below to contact the PA Fish and Boat Commission, the US Fish and Wildlife Service or the PA Game Commission, Bureau of Forestry personnel should instead contact Merlin Benner, who will coordinate resolution with those agencies.

When instructed to contact Justin Newell, they should do so.

DEP and Conservation Districts should follow the instructions below when potential conflicts are indicated.

When details are displayed as part of the search result, the element's Scientific Name, Common Name, State Status, Proposed State Status and Number of Occurrences within the Search Area are listed.

Due to the sensitive nature of certain endangered species, species names are not displayed for species under the jurisdiction of the Pennsylvania Fish & Boat Commission and the U.S. Fish & Wildlife Service.

PNDI records indicate the following potential conflicts with ecological resources of special concern within the specified search area:

1 potential conflicts

The Applicant should MAIL a copy of this entire PNDI Search Result (including the Search Number) and a cover letter including a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality and county where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Natural Diversity Section
PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823**

Please mail only one (1) copy of the project review request. Do not fax or email the project information. Allow 30 days for completion of the project review from the date of PFBC receipt of the project review request. To inquire about the review status of projects previously mailed to PFBC,

telephone (814) 359-5113 and provide name, company/agency, telephone number, the projects township/municipality and county location, the PNDI Search Number, and a brief project description.

Your search yielded potential conflicts with the following **Federally Listed Species** of Special Concern:

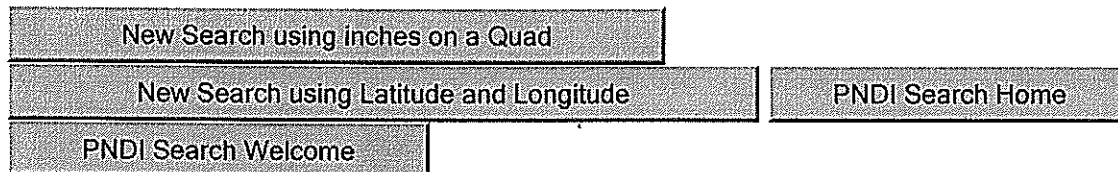
1 potential conflicts

The Applicant should FAX a cover letter including a copy of the PNDI Internet Database Search Results, a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Endangered Species Biologist
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
FAX Number: (814) 234-0748**

PNDI is a site specific information system, which describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is valid for 1 year. An absence of recorded information does not necessarily imply actual conditions on-site. A field site survey may reveal previously unreported populations of rare species, their critical habitats, or other unique natural resources.

Legal authority for Pennsylvania's biological resources resides with three administrative agencies. The handout entitled Pennsylvania Biological Resource Management Agencies, outlines which species groups are managed by these agencies. Feel free to contact our office if you have concerning this response or the PNDI system, and please refer to the PNDI Search Number at the top of this page in future correspondence concerning this project.



PNDI Internet Database Search Results

PNDI Search Number: N126980

Search Results For Blacksmith.John@dep.state.pa.us

Search Performed By: John Blacksmith On 8/26/03 12:07:33 PM

Agency/Organization: DEP

Phone Number: 717 705-4821

Search Parameters: Quad - 407714; North Offset - 11; West Offset - 14.6; Acres - 50

Project location center (Latitude): 40.06039

Project location center (Longitude): 77.47924

Project Type: Transportation Projects/Existing Roadway Repair

Print this page using your Internet browser's print function and keep it as a record of your search.

Instructions for DCNR Bureau of Forestry personnel only:

When instructed below to contact the PA Fish and Boat Commission, the US Fish and Wildlife Service or the PA Game Commission, Bureau of Forestry personnel should instead contact Merlin Benner, who will coordinate resolution with those agencies.

When instructed to contact Justin Newell, they should do so.

DEP and Conservation Districts should follow the instructions below when potential conflicts are indicated.

When details are displayed as part of the search result, the element's Scientific Name, Common Name, State Status, Proposed State Status and Number of Occurrences within the Search Area are listed.

Due to the sensitive nature of certain endangered species, species names are not displayed for species under the jurisdiction of the Pennsylvania Fish & Boat Commission and the U.S. Fish & Wildlife Service.

PNDI records indicate the following potential conflicts with ecological resources of special concern within the specified search area:

6 potential conflicts

The Applicant should MAIL a copy of this entire PNDI Search Result (including the Search Number) and a cover letter including a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality and county where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Natural Diversity Section
PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823**

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telephone (814) 359-5113 and provide name, company/agency, telephone number, the projects township/municipality and county location, the PNDI Search Number, and a brief project description.

Your search yielded potential conflicts with the following **Federally Listed** Species of Special Concern:

1 potential conflicts

The Applicant should FAX a cover letter including a copy of the PNDI Internet Database Search Results, a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Endangered Species Biologist
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
FAX Number: (814) 234-0748**

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New Search using inches on a Quad

New Search using Latitude and Longitude

PNDI Search Home

PNDI Search Welcome

PNDI Internet Database Search Results

PNDI Search Number: N126981

Search Results For Blacksmith.John@dep.state.pa.us

Search Performed By: John Blacksmith On 8/26/03 12:08:22 PM

Agency/Organization: DEP

Phone Number: 717 705-4821

Search Parameters: Quad - 407714; North Offset - 10.9; West Offset - 15.9; Acres - 50

Project location center (Latitude): 40.05984

Project location center (Longitude): 77.48853

Project Type: Transportation Projects/Existing Roadway Repair

Print this page using your Internet browser's print function and keep it as a record of your search.

Instructions for DCNR Bureau of Forestry personnel only:

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When instructed to contact Justin Newell, they should do so.

DEP and Conservation Districts should follow the instructions below when potential conflicts are indicated.

When details are displayed as part of the search result, the element's Scientific Name, Common Name, State Status, Proposed State Status and Number of Occurrences within the Search Area are listed.

Due to the sensitive nature of certain endangered species, species names are not displayed for species under the jurisdiction of the Pennsylvania Fish & Boat Commission and the U.S. Fish & Wildlife Service.

PNDI records indicate the following potential conflicts with ecological resources of special concern within the specified search area:

6 potential conflicts

The Applicant should MAIL a copy of this entire PNDI Search Result (including the Search Number) and a cover letter including a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality and county where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Natural Diversity Section
PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823**

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telephone (814) 359-5113 and provide name, company/agency, telephone number, the projects township/municipality and county location, the PNDI Search Number, and a brief project description.

Your search yielded potential conflicts with the following **Federally Listed** Species of Special Concern:

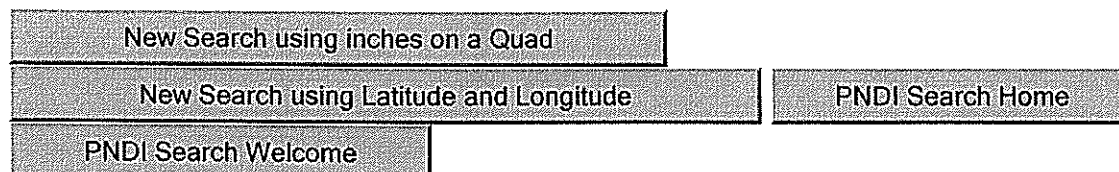
1 potential conflicts

The Applicant should FAX a cover letter including a copy of the PNDI Internet Database Search Results, a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Endangered Species Biologist
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
FAX Number: (814) 234-0748**

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PNDI Internet Database Search Results

PNDI Search Number: N126982

Search Results For Blacksmith.John@dep.state.pa.us

Search Performed By: John Blacksmith On 8/26/03 12:09:28 PM

Agency/Organization: DEP

Phone Number: 717 705-4821

Search Parameters: Quad - 407714; North Offset - 10.7; West Offset - 16.9; Acres - 50

Project location center (Latitude): 40.05874

Project location center (Longitude): 77.49567

Project Type: Transportation Projects/Existing Roadway Repair

Print this page using your Internet browser's print function and keep it as a record of your search.

Instructions for DCNR Bureau of Forestry personnel only:

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When instructed to contact Justin Newell, they should do so.

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When details are displayed as part of the search result, the element's Scientific Name, Common Name, State Status, Proposed State Status and Number of Occurrences within the Search Area are listed.

Due to the sensitive nature of certain endangered species, species names are not displayed for species under the jurisdiction of the Pennsylvania Fish & Boat Commission and the U.S. Fish & Wildlife Service.

PNDI records indicate the following potential conflicts with ecological resources of special concern within the specified search area:

4 potential conflicts

The Applicant should MAIL a copy of this entire PNDI Search Result (including the Search Number) and a cover letter including a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality and county where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Natural Diversity Section
PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823**

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telephone (814) 359-5113 and provide name, company/agency, telephone number, the projects township/municipality and county location, the PNDI Search Number, and a brief project description.

Your search yielded potential conflicts with the following **Federally Listed** Species of Special Concern:

1 potential conflicts

The Applicant should FAX a cover letter including a copy of the PNDI Internet Database Search Results, a project narrative, acreage to be impacted, how construction/maintenance activity is to be accomplished, township/municipality where project resides, USGS 7.5 minute quadrangle with project boundary marked, and quad name on the map to:

**Endangered Species Biologist
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
FAX Number: (814) 234-0748**

PNDI is a site specific information system, which describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is valid for 1 year. An absence of recorded information does not necessarily imply actual conditions on-site. A field site survey may reveal previously unreported populations of rare species, their critical habitats, or other unique natural resources.

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New Search using inches on a Quad

New Search using Latitude and Longitude

PNDI Search Home

PNDI Search Welcome



601-467.01 ENV

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823
814-359-5236

September 15, 2003

IN REPLY REFER TO
SIR# 12879

JOHNSON, MIRMIRAN & THOMPSON
Patricia Riley
160 Red Rock Road
York, PA 17402

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
S.R. 174, Section 008 – Roadway Widening between I-81 and S.R. 11
JMT Job No. 601-467.01
Shippensburg Borough and Southampton and Shippensburg Townships,
Cumberland County, Pennsylvania

Dear Ms. Riley:

I have examined the maps accompanying your recent correspondence which shows the location for the above referenced project. Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files, the following rare or protected species are known from the vicinity of the project:

Common Name	Scientific Name	PA Status
Bog turtle	<i>Clemmys muhlenbergii</i>	endangered
Price's cave isopod	<i>Caecidotea pricei</i>	rare
Biggers' cave amphipod	<i>Stygobromus biggersi</i>	rare
Pennsylvania cave amphipod	<i>Crangonyx dearolfi</i>	rare

The bog turtle is a small (up to a 4-inch carapace) semi-aquatic, omnivorous turtle that prefers open marshy wetlands associated with springs and groundwater, specific vegetative communities, and mucky soils for burrowing. Due to the lack of pristine habitat found in its range from disturbance and successional processes, the bog turtle has in some cases become accustomed to disturbed, low quality wetland complexes often with semi-closed canopies. Bog turtles are also known to be transients in forested habitat associated with springs and small streams leading to more open marshes. They use these habitats as dispersal corridors to other wetlands. The bog turtle is threatened by habitat destruction, poor water quality, and poaching.

We will therefore need to know if wetlands of any type exist within or adjacent to the project site. If project activities will directly or indirectly affect wetlands, then we will require additional information to allow a more thorough evaluation of potential adverse impacts from the proposed project to the bog turtle. The following items will assist us in our review of the proposed project: detailed project plans and maps, a description of the proposed work, on-site color photographs of affected wetlands and connected waterways (dated, labeled, and keyed to a map), wetland delineation reports, wetland acreage to be impacted (direct and indirect), complete plant lists, and a bog turtle habitat suitability assessment. The habitat suitability assessment should be conducted in accordance

P. Riley
September 15, 2003
Page 2

with the Phase 1 survey criteria in the enclosed "*Guidelines for Bog Turtle Surveys.*" Pending the review of this information, a Phase 2 survey targeting the presence/absence of the bog turtle may be required.

However, if there will be no direct or indirect impacts to wetlands from the proposed project, then I anticipate no adverse impacts to the bog turtle. Please notify us regarding your assessment of the direct and indirect impacts to any wetlands within or adjacent to the proposed project.

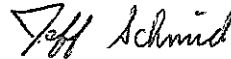
The three aquatic invertebrate species referenced above inhabit caves and springs. These species are threatened by water quality degradation and habitat destruction (including diminution to water quantity). Based on the type of project activities and the distances from the proposed project to the known site occurrences of these rare species, no adverse impacts to these species are anticipated.

No additional species of special concern protected under the jurisdiction of the Pennsylvania Fish and Boat Commission are known to occur in the vicinity of the proposed project.

In any future correspondence with us regarding this specific project, please refer to the SIR tracking number indicated above. Thank you for your cooperation and attention to this matter of endangered species conservation.

Please contact me at (814) 359-5236 if you have questions regarding this response.

Sincerely,



Jeff Schmid, Fisheries Biologist
Natural Diversity Section

Enclosure (1)

cc: R. Anderson, USFWS
J. Blacksmith, PA DEP, SCRO



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA GAME COMMISSION
 2001 ELMERTON AVENUE, HARRISBURG, PA 17110-9797

August 14, 2003

AUG 18 2003

Mr. Jason D. Reed
 Johnson, Mirmiran & Thompson
 160 Red Rock Road
 York, PA 17402

In re: S.R. 0174, Section 008 Roadway Widening
 Cumberland County, PA
 JMT Job #601-467.01

Dear Mr. Reed:

This is in response to your letter July 22, 2003, requesting information concerning state endangered and threatened species of birds and mammals as related to this project.

Our office review has determined that no state listed endangered or threatened species are known to occur within the proposed project area. Should project plans extend beyond the present study area, or if additional information on endangered or threatened species of birds or mammals becomes available, this review may be reconsidered.

This reply relates only to endangered and threatened species and does not address other concerns of the Pennsylvania Game Commission. If an on-site field investigation determines the project may impact critical and unique wildlife habitat such as wetlands, heron rookeries, or bat hibernaculum, you may be requested to conduct additional surveys.

If you have any questions, please contact me directly at (717) 783-5957.

Very truly yours,

Kevin L. Mixon
 Division of Environmental
 Planning and Habitat Protection
 Bureau of Land Management

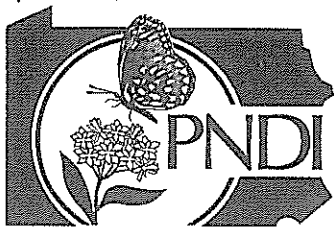
KLM/pfb

ADMINISTRATIVE BUREAUS:

PERSONNEL: 717-787-7836 ADMINISTRATION: 717-787-5670 AUTOMOTIVE AND PROCUREMENT DIVISION: 717-787-6594
 LICENSE DIVISION: 717-787-2084 WILDLIFE MANAGEMENT: 717-787-5529 INFORMATION & EDUCATION: 717-787-6286 LAW ENFORCEMENT: 717-787-5740
 LAND MANAGEMENT: 717-787-6818 REAL ESTATE DIVISION: 717-787-6568 AUTOMATED TECHNOLOGY SYSTEMS: 717-787-4076 FAX: 717-772-2411

WWW.PGC.STATE.PA.US

AN EQUAL OPPORTUNITY EMPLOYER



Pennsylvania Natural Diversity Inventory

Scientific information and expertise for the conservation of Pennsylvania's native biological diversity

August 8, 2003

Fax 717-772-0271
717-772-0258

Bureau of Forestry

Jason Reed
Johnson, Mirmiran & Thompson
160 Red Rock Rd.
York, PA 17402

406 7 2 2003

Re: Pennsylvania Natural Diversity Inventory Review of the Proposed SR 0174, Section 008, Roadway Widening, Shippensburg and Southampton Twps. **PER NO: 14766**

Dear Mr. Reed:

In response to your request on July 25, 2003 the Pennsylvania Natural Diversity Inventory (PNDI) information system was used to gather information regarding the presence of resources of special concern within the referenced site. PNDI records indicate potential impact to species of special concern in the project vicinity.

Because of the close proximity of the project to species of special concern, our office recommends that you contact **Bonnie Dershem** of the US Fish & Wildlife Service at **(814) 234-4090** and contact the Pennsylvania Fish & Boat Commission **(814) 359-5113** for recommendations on potential impact on endangered animals in the area.

US Fish and Wildlife Service
315 South Allen St., Suite 322
State College, PA 16801

Pennsylvania Fish and Boat Commission
Bureau of Fisheries and Engineering
450 Robinson Lane
Bellefonte, PA 16823

This response represents the most up-to-date summary of the PNDI data files and is applicable for one year. However, an absence of recorded information does not necessarily imply actual conditions on site. A field survey of any site may reveal previously unreported populations. Should project plans change or additional information on listed or proposed species become available this determination may be reconsidered.

PNDI is the natural heritage program of Pennsylvania and uses a site-specific information system that describes significant natural resources within the Commonwealth for environmental review. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy, and the Western Pennsylvania Conservancy.

Please phone this office if you have questions concerning this response or the PNDI system.

Sincerely,

A handwritten signature in black ink, appearing to read "Justin P. Newell". The signature is fluid and cursive, with a long horizontal stroke at the end.

Justin P. Newell
Environmental Review Specialist



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4850

August 11, 2003

Jason D. Reed
Environmental Specialist
Johnson, Mirmiran & Thompson
160 Red Rock Road
York, PA 17402

AUG 15 2003

Dear Mr. Reed:

This responds to your letter of July 22, 2003, requesting information about federally listed and proposed endangered and threatened species within the area affected by the proposed roadway widening project (SR 174, Section 008) located in Shippensburg and Southampton Townships, Cumberland County, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

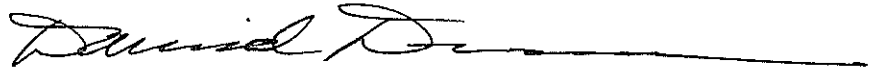
The proposed project is within the known range of the bog turtle (*Clemmys muhlenbergii*), a species that is federally listed as threatened. Bog turtles inhabit shallow, spring-fed fens, sphagnum bogs, swamps, marshy meadows, and pastures characterized by soft, muddy bottoms; clear, cool, slow-flowing water, often forming a network of rivulets; high humidity; and an open canopy. Bog turtles usually occur in small, discrete populations occupying suitable wetland habitat dispersed along a watershed. The occupied "intermediate successional stage" wetland habitat is usually a mosaic of micro-habitats ranging from dry pockets, to areas that are saturated with water, to areas that are periodically flooded. Some wetlands occupied by bog turtles are located in agricultural areas and are subject to grazing by livestock.

If any wetlands occur within or near the project area, their potential suitability as bog turtle habitat should be assessed, as described under "Bog Turtle Habitat Survey" (Phase 1 survey) of the enclosed *Guidelines for Bog Turtle Surveys*. This habitat survey could easily be conducted by a wetland biologist concurrent with a routine wetland identification and delineation. If any wetlands are identified as potential bog turtle habitat, efforts should be made to avoid any direct or indirect impacts to those wetlands. If adverse effects to these wetlands cannot be avoided, a more detailed and thorough survey will be necessary, as described under "Bog Turtle Survey" (Phase 2 survey) of the *Guidelines for Bog Turtle Surveys*. The Phase 2 survey should be conducted by a qualified biologist with bog turtle field survey experience (see enclosed list of qualified surveyors). Survey results should be submitted to the Fish and Wildlife Service for review and concurrence. If project activities might adversely affect bog turtles, additional consultation with the Service will be required, pursuant to the Endangered Species Act.

This response relates only to endangered and threatened species under our jurisdiction based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities. A compilation of certain federal status species in Pennsylvania is enclosed for your information.

Please contact Robert Anderson of my staff at 814-234-4090 if you have any questions or require further assistance regarding this matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "David Densmore", followed by a long horizontal line extending to the right.

David Densmore
Supervisor

Enclosures

APPENDIX E
SITE PHOTOGRAPHS



Photo 1. View of Area 1-meadow, which is located in the background adjacent to the mowed lawn.



Photo 2. Area 2-low spot. Data point #2 was taken just to the right of the tire ruts.



Photo 3. Burd Run - looking south from SR 174.



Photo 4. Burd Run – from the south side looking north.



Photo 5. Burd Run – from the north side looking south.



Photo 6. Roadside drainage. This ditch originates near Area 2 in the background. The ditch enters a cross pipe near the utility pole in the foreground.



Photo 7. Area 4 with Data Point #3 located near the center of the photo. The adjacent drainage swale is visible coming in from the right. Notice the detention weirs.

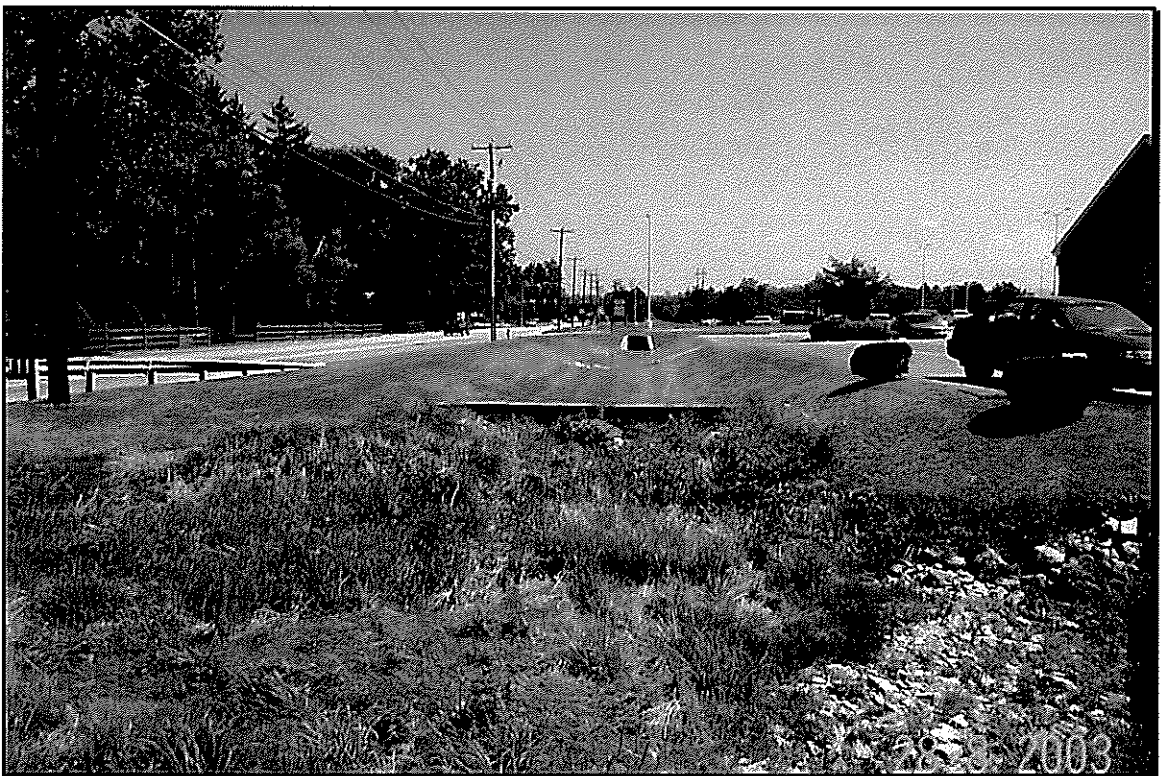


Photo 8. The drainage swale which connects to Area 4-channel is shown. The on-line detention weir is visible.



Photo 9. Area 4-channel is shown looking north from SR 174.



Photo 10. Area 4-channel is shown from near its confluence with Burd Run, looking south.

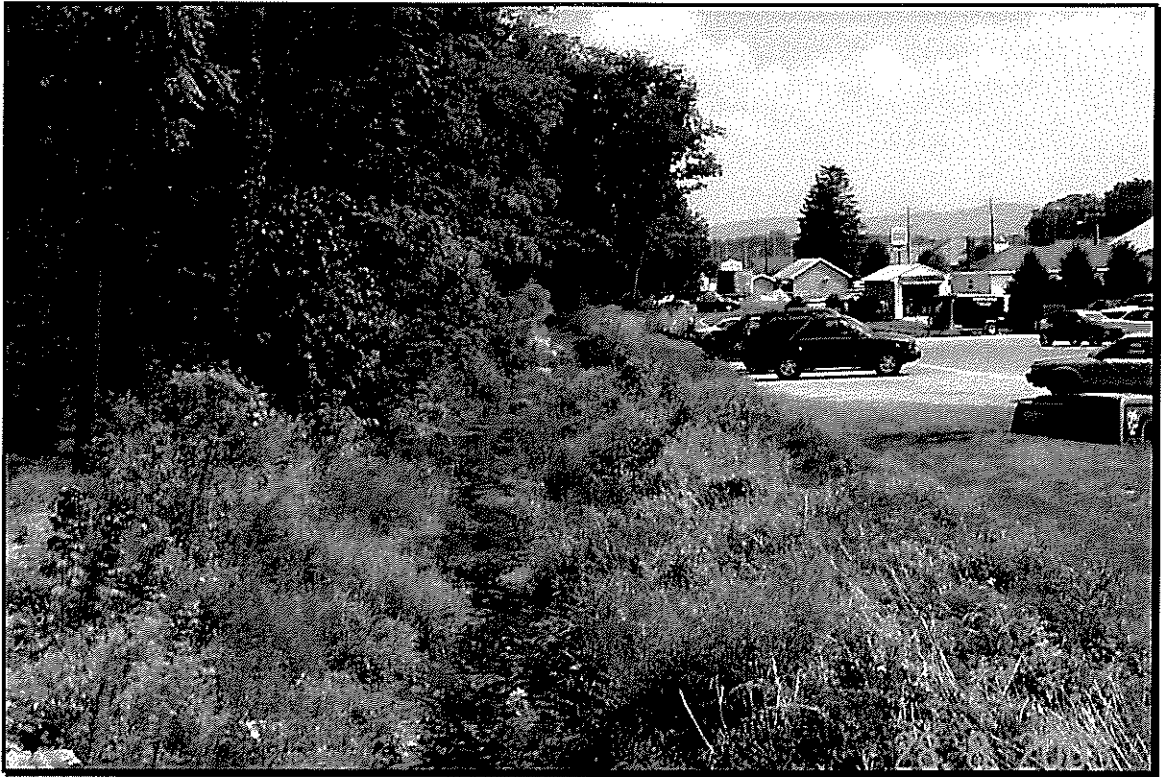


Photo 11. This is Burd Run looking east from SR 11. This location is outside the project area.

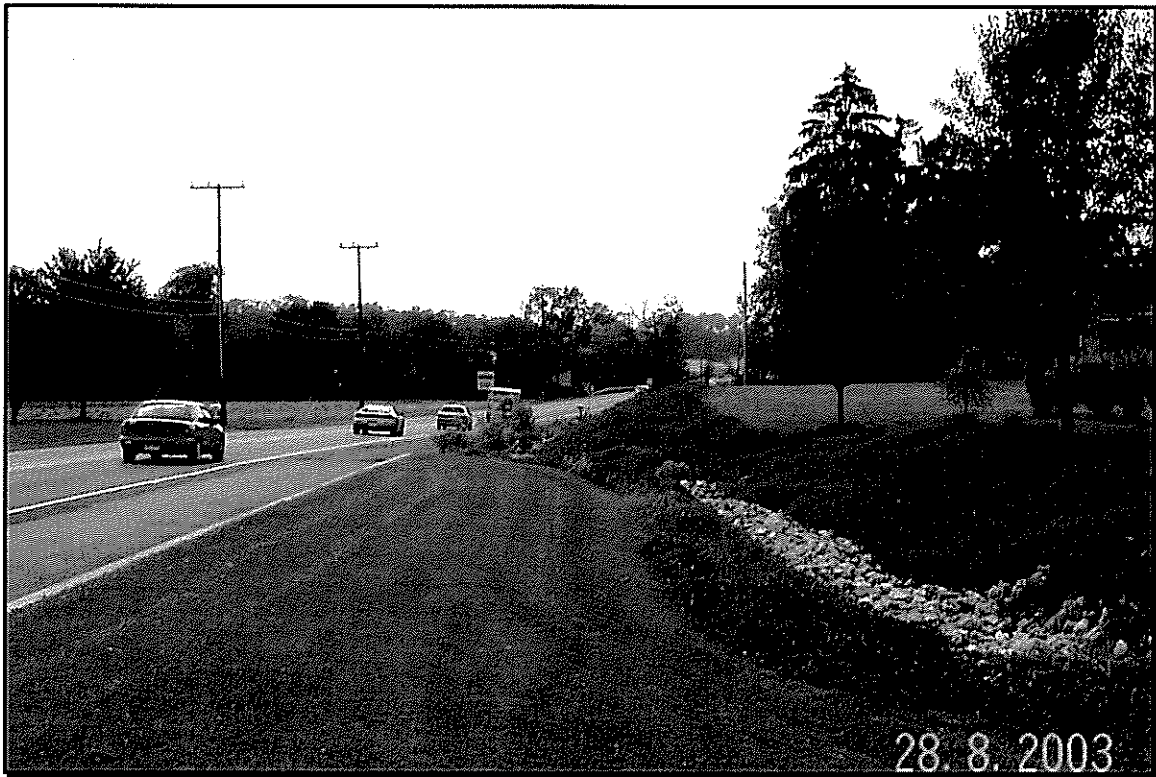
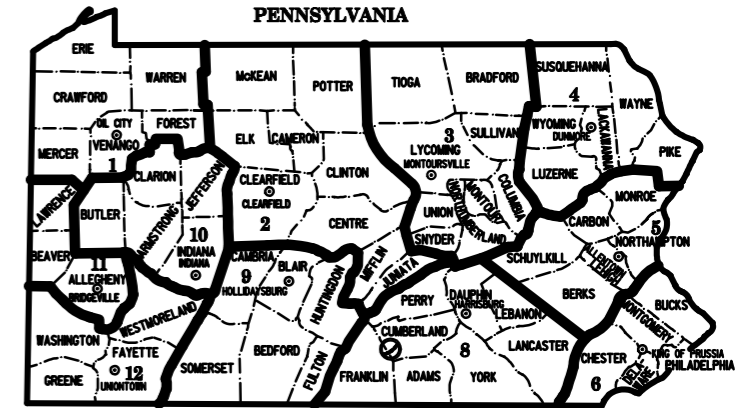
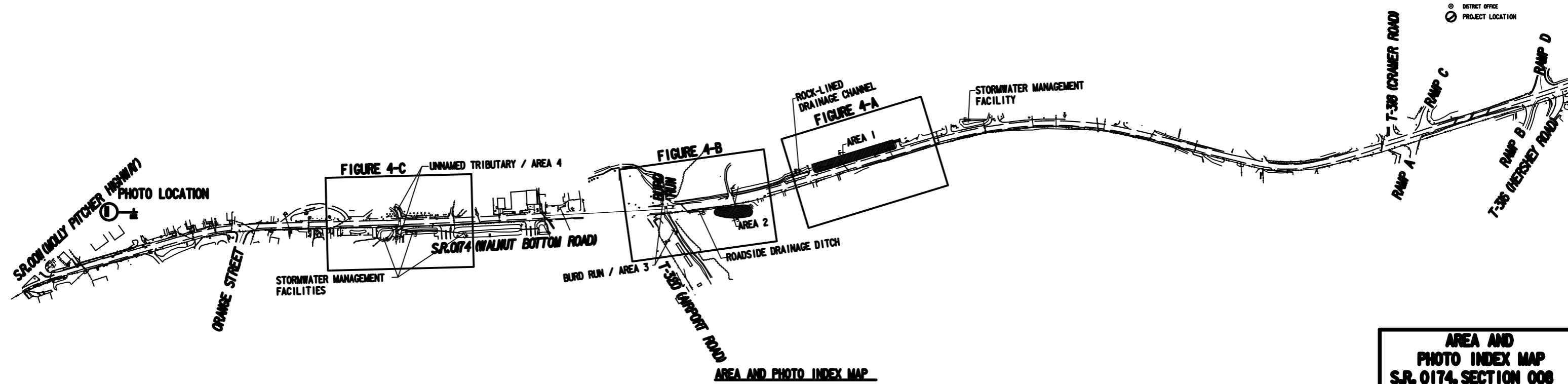


Photo 12. Typical drainage swale along SR 174 along the north side, located at the eastern end of project.

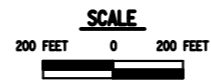
APPENDIX F
WETLAND DELINEATION PLANS



- 8 DISTRICT
- DISTRICT OFFICE
- ⊙ PROJECT LOCATION



AREA AND PHOTO INDEX MAP



**AREA AND
PHOTO INDEX MAP
S.R. 0174, SECTION 008
SHIPPENSBURG BOROUGH
SHIPPENSBURG TOWNSHIP
SOUTHAMPTON TOWNSHIP
CUMBERLAND COUNTY
SEPTEMBER 2003**

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING CONTOUR
- ==== INTERMITTENT CHANNEL
- ⊕ DP-1 DATA POINT
- ② PHOTO LOCATION

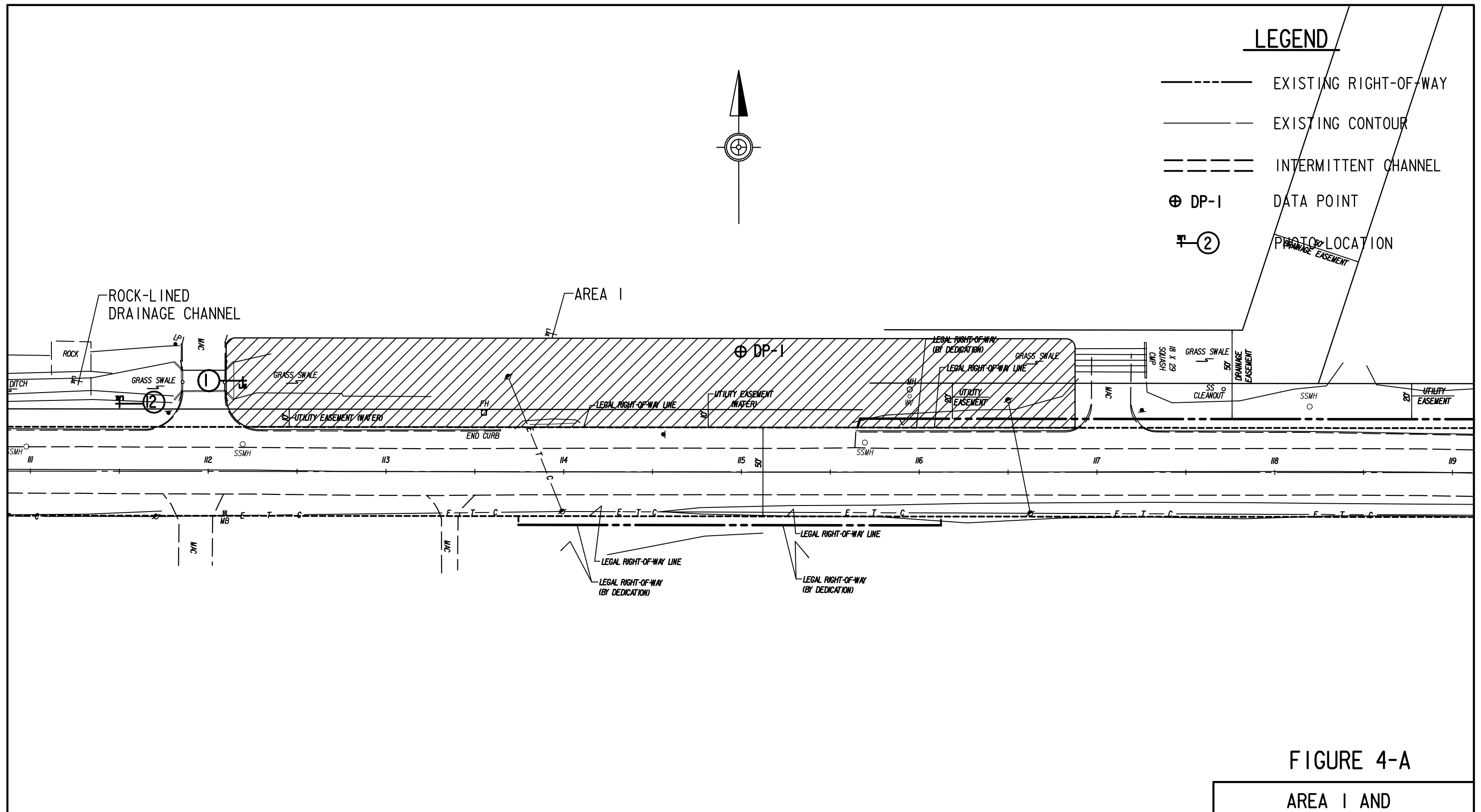
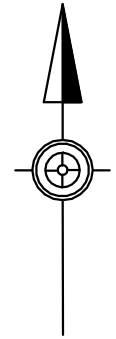
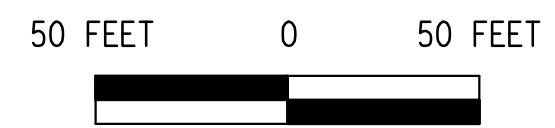



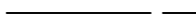
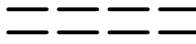


FIGURE 4-A

AREA I AND
 PHOTO LOCATION MAP - A
 S.R. 0174, SECTION 008
 SHIPPENSBURG TOWNSHIP
 CUMBERLAND COUNTY
 SEPTEMBER 2003

SCALE



LEGEND

-  EXISTING RIGHT-OF-WAY
-  EXISTING CONTOUR
-  INTERMITTENT CHANNEL
-  DATA POINT
-  PHOTO LOCATION

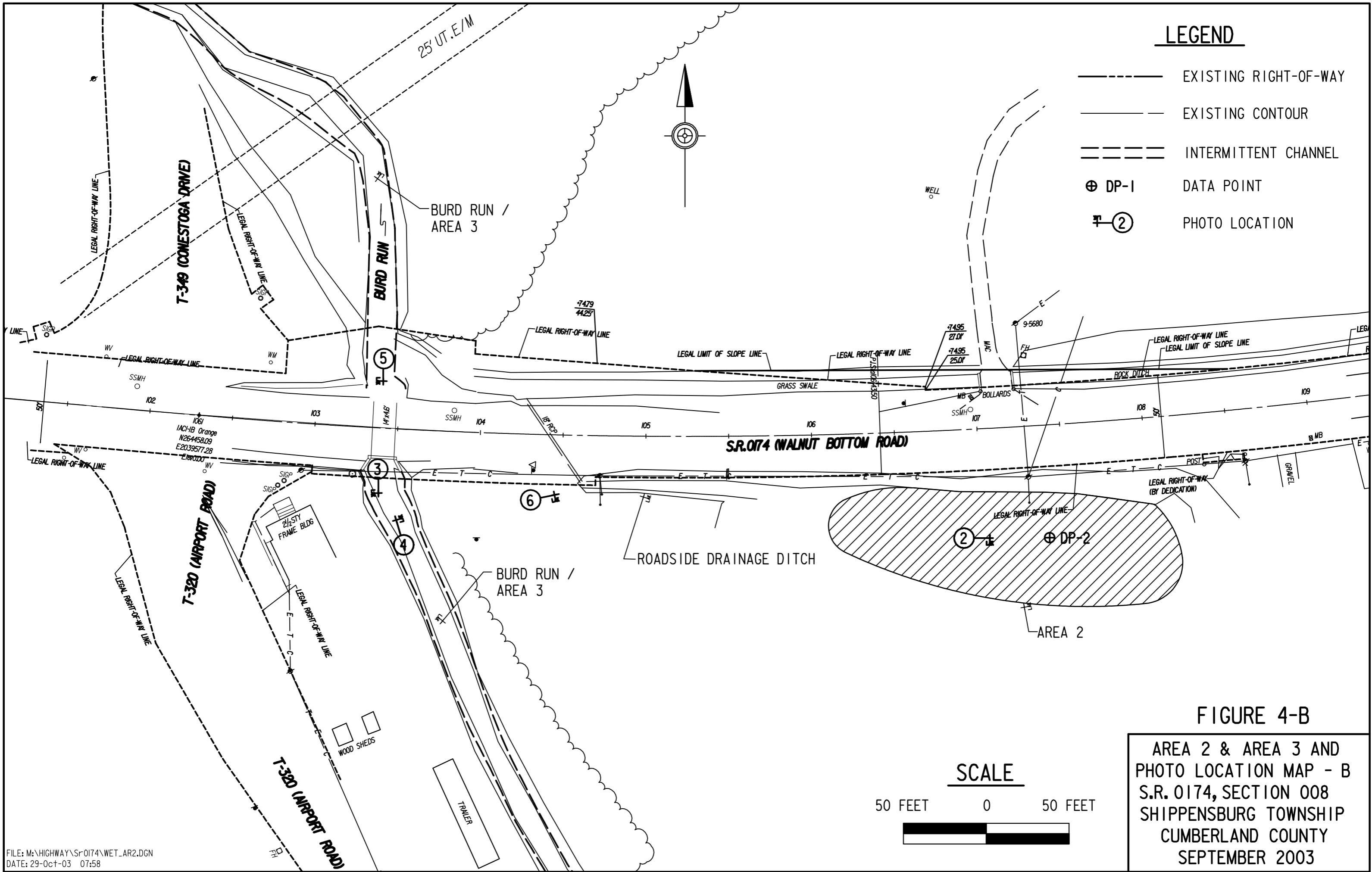


FIGURE 4-B

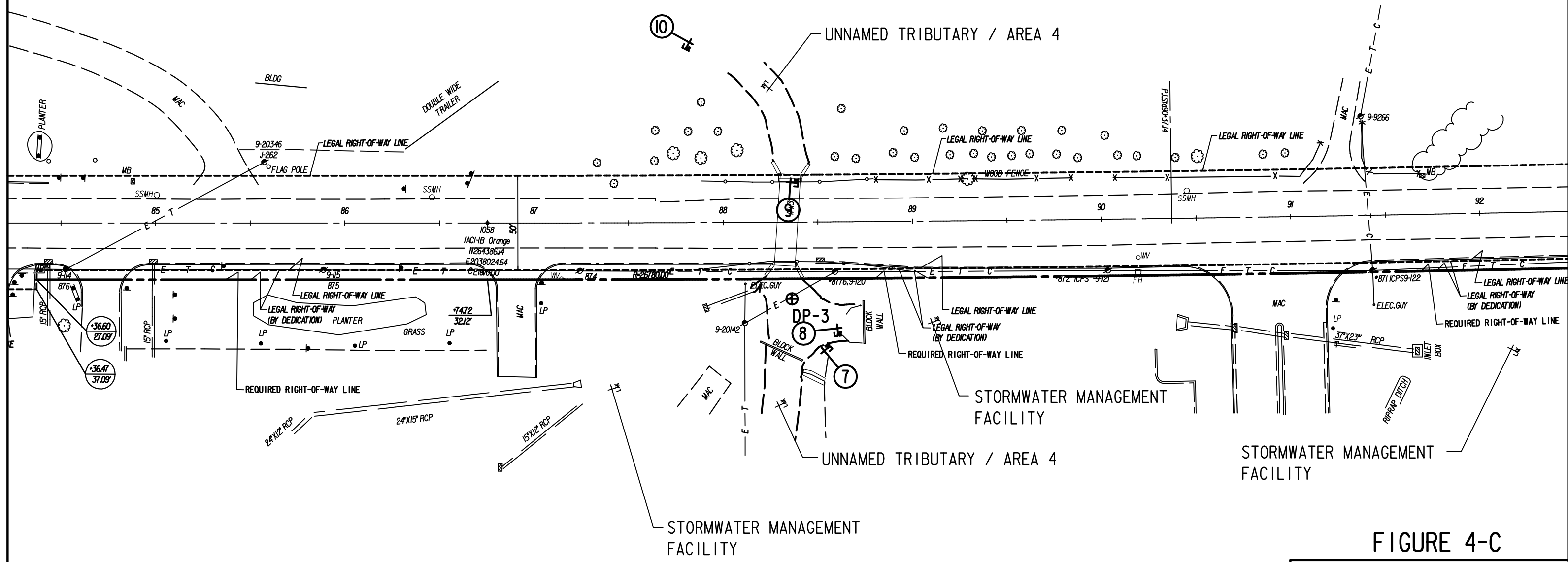
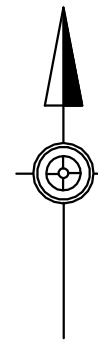
AREA 2 & AREA 3 AND
 PHOTO LOCATION MAP - B
 S.R. 0174, SECTION 008
 SHIPPENSBURG TOWNSHIP
 CUMBERLAND COUNTY
 SEPTEMBER 2003

SCALE



LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING CONTOUR
- ==== INTERMITTENT CHANNEL
- ⊕ DP-1 DATA POINT
- ② PHOTO LOCATION



SCALE

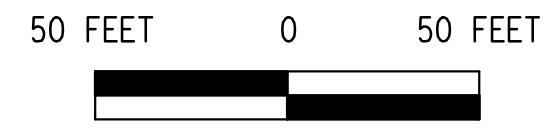


FIGURE 4-C

AREA 4 AND
 PHOTO LOCATION MAP - C
 S.R. 0174, SECTION 008
 SHIPPENSBURG TOWNSHIP
 CUMBERLAND COUNTY
 SEPTEMBER 2003