Attachment E

Wetland and Other Waters

Delineation Report

Part 1 of 2

Wetlands and Other Waters

Delineation Report

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for:

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STATEMENT OF CERTIFICATION

The analyses, opinions and conclusions in this report are based entirely on EnviroScience's unbiased, professional judgment. EnviroScience's compensation is not in any way contingent on any action or event resulting from this study. Neither EnviroScience nor any EnviroScience employee has any vested interest in the property examined in this study.

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EXECUTIVE SUMMARY

EnviroScience, Inc. performed a delineation of wetlands and other waters in June 2015 for Utility Technologies, Inc. at the Glen Karn Pipeline project. The project area is linear in nature and begins at an existing natural gas production station north of Mikesell Road. The project area continues off-road in a general southeast direction, crossing over Hollansburg-Tampico Road, Palestine-Hollansburg Road, and ending north of Hollansburg-Arcanum Road. The project area is located in Liberty and Harrison Townships in Darke County, Ohio. The project area is 11,338 feet long and 200 feet wide, for a total project area of 52.5 acres.

One perennial stream and one intermittent stream were identified within the project area and account for 573 linear feet (0.099 acres). No open water aquatic resources or wetlands were identified within the project area. One potential habitat tree for threatened and endangered bat species was located within the project area.

The onsite waterbodies are under the jurisdiction of the Ohio EPA or U.S. Army Corps of Engineers (USACE). No filling may occur within these areas without their written permission. Impacts under 0.5 acres of wetland and 300 linear feet of stream would follow those authorized in the USACE 2012 Nationwide Permits for a Nationwide Permit (NWP) #12 (Utility Line Activities). However, if all onsite water resources are avoided, a USACE NWP or Ohio EPA Water Quality Certification will not be required for this project.

1.0 INTRODUCTION AND SITE DESCRIPTION

EnviroScience, Inc. performed a delineation of wetlands and other waters in June 2015 for Utility Technologies, Inc. at the Glen Karn Pipeline project. The project area is linear in nature and begins at an existing natural gas production station north of Mikesell Road. The project area continues off-road in a general southeast direction, crossing over Hollansburg-Tampico Road, Palestine-Hollansburg Road, and ending north of Hollansburg-Arcanum Road. The project area is located in Liberty and Harrison Townships in Darke County, Ohio. The project area is 11,338 feet long and 200 feet wide, for a total project area of 52.5 acres.

Three distinct vegetative communities were identified within the project area. The project area exists as maintained lawn, agricultural field, and open field vegetative communities. The surrounding area exists as agricultural land with scattered rural residential properties. The project area crosses one perennial stream and one intermittent stream. The project area crosses three existing natural gas stations.

The project area is located in the Whitewater drainage basin (Hydrologic # 05080003) which drains portions of western Ohio and eastern Indiana. It is within the Eastern Corn Belt ecoregion (Woods *et al.* 1998) of Ohio. The project area is located within the area covered by the Midwest Regional Supplement (USACE 2012) and associated plant list (Lichvar *et al.* 2014). The project area is regulated by the USACE Huntington District.

2.0 METHODS

Government agencies regulate coastal and inland waters for commerce, flood control and water quality. These water bodies provide numerous functions and values necessary to protect and sustain our quality of life. Wetlands comprise a significant portion of regulated waters. The USACE and Environmental Protection Agency (EPA) jointly define wetlands as:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

The remaining deepwater aquatic habitats (open waters) are defined by the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) as:

> ". . . areas that are permanently inundated at mean annual water depths >6.6 ft or permanently inundated areas <6.6 ft in depth that do not support rooted emergent or woody plant species."

The methods used for determining and delineating wetlands and open waters strictly adhere to those found in the *Corps of Engineers Wetlands Delineation Manual*

(Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2012). Wetlands and open water boundaries were determined by the disappearance of one or more of their diagnostic characteristics.

Ordinary high water marks (OHWM) defined the outermost regulatory boundaries of ephemeral and open waters.

Each sample plot and the perimeter of each wetland and other water was surveyed and marked in the field with plain pink flags and pink "wetland boundary" flags, respectively. A global positioning system (GPS) unit with submeter accuracy was used, in conjunction with aerial photography and topographic figures, for the survey. Computer Aided Design (CAD) software was used to determine wetland dimensions and produce a map of the project area showing wetlands and other waters.

2.1 WETLANDS

2.1.1 Determination

A review of secondary literature sources was performed to find known wetlands and other significant ecological resources and areas with high potential for wetlands in or near the proposed project area. Resources included the following:

1. U.S. Geological Survey (USGS) topographic maps;
2. National Wetlands Inventory (NWI) maps;
3. Web Soil Survey; and
4. Aerial Photographs.

A field inspection of the project area was then completed to identify major plant communities and to visually locate potential wetlands. The routine, onsite (Level 2) wetland determination was used to perform the delineation. Wetland communities were classified according to the classification scheme of Cowardin *et al.* (1979) (Table 1). Mature nonwetland communities that had reached a stable equilibrium were classified according to Anderson (1982) and Gordon (1966, 1969). Disturbed and successional nonwetland communities were classified as one of the categories described in Table 2.

Table 1. Wetland Communities (Cowardin *et al.* 1979)

Community	Description
PEM	Palustrine Emergent
PSS	Palustrine Scrub-Shrub
PFO	Palustrine Forested
POW	Palustrine Open Water

Table 2. Disturbed and Successional Nonwetland Communities

Community		Description
Disturbed	Urban	regularly maintained land; residential; industrial
	Agricultural	land used for producing crops or raising livestock; cropland; pastureland
	Cleared	disturbed areas devoid of most vegetation from recent clearing, grading or filling
Successional	Open Field	herbaceous community without woody vegetation
	Old Field	herbaceous community having woody vegetation coverage of <50%
	Scrub-Shrub	community dominated by woody vegetation <6 m (20 ft) tall
	Forest	community dominated by woody vegetation >6 m (20 ft) tall

Sample plots were established within each natural community and potential wetland within the study area. Complete data for each sample plot were collected and recorded on the USACE's Routine Wetland Determination Data Forms contained in the applicable USACE Regional Supplement (USACE 2012). Vegetation, hydrology and soils were evaluated at each sample plot.

2.1.1.1 Vegetation

To detect the presence or absence of hydrophytic vegetation, four plant strata were evaluated within specific radii of the plot center. Each stratum was ranked by aerial cover in descending order of abundance. Table 3 provides information on each vegetative stratum.

Table 3. Vegetative Strata

Stratum	Definition	Survey Area
Tree	woody plants > or equal to 3 in. (7.6 cm) dbh, regardless of height	30 ft (9.1 m) radius
Sapling/shrub	woody plants <3 in. (7.6 cm) dbh and ≥3.28 ft (1 m) tall	15 ft (4.6 m) radius
Herbaceous	herbs and woody plants less than 3.28 ft (1 m) in height	5 ft (1.5 m) radius
Woody vines	woody vines >3.28 ft (1 m) in height	30 ft (9.1 m) radius

Percent dominance was obtained for each species and within each stratum. Dominant species are those which cumulatively totaled in order of abundance immediately exceed 50% and also include any individual species with an abundance of 20% or more (USACE 2012). Dominant taxa were identified using recognized local guides: nomenclature follows the *National List of Scientific Plant Names* (USDA 1982). Following the identification of each plant species present within the plot, all dominant species within

each stratum were assigned a wetland indicator status according to Lichvar (2014). Indicators are summarized in Table 4.

Table 4. Plant Indicators

Indicator	Category	Definition
OBL	Obligate Wetland	almost exclusively (>99% of occurrences) found in wetlands
FACW	Facultative Wetland	most likely found in wetlands (67-99% of occurrences)
FAC	Facultative	equally likely found in wetlands or nonwetlands (34-66%)
FACU	Facultative Upland	most likely found in nonwetlands (1-33% occurrence in wetlands)
UPL	Obligate Upland	almost exclusively found in nonwetlands (<1% occurrence in wetlands)

An 'NI' (no indicator) designation represents species where not enough information is available to assign an indicator; an 'NL' (no listing) designation is given to species whose identification was not determined sufficiently enough to assign an indicator. Once the indicator status is assigned to each dominant species, the evaluator can perform the percent dominance test according to the protocol outlined within the applicable Regional Supplement (USACE 2012) to determine if the plot meets the criterion for hydrophytic vegetation.

2.1.1.2 Hydrology

To detect the presence or absence of wetland hydrology, surface and subsurface hydrologic indicators were evaluated at the sample plot and throughout the adjacent community. Primary sources of wetland hydrology include direct precipitation, headwater flooding, backwater flooding, groundwater or any combination of these. When obtaining data at each sample plot, the evaluator observes evidence of hydrology. Primary indicators of hydrology (only one of these is necessary to indicate sufficient wetland hydrology) include the presence of surface water, water marks, sediment deposits, drift deposits, etc. (USACE 2012). Secondary indicators of hydrology (which requires two or more at each sample plot) include surface soil cracks, drainage patterns, crayfish burrows, etc. (USACE 2012).

2.1.1.3 Soils

The upper horizons of the soil at each sample plot were examined to detect the presence or absence of hydric soils indicators. Current USACE guidance requires the evaluator to assess the upper 20 inches of soil for hydric soil characteristics. Most indicators of hydric soils require an assessment of soil matrix color and mottle characteristics (Environmental

Laboratory 1987, USACE 2012) for each horizon. These characteristics were determined by comparing a moist sample with *Munsell Soil Color Chart* (Munsell Color 2009) or *The Globe Soil Color Book* (Visual Color Systems, 2004).

2.1.2 ORAM Categorization

Each identified wetland system will be categorized in accordance with version 5.0 of the Ohio EPA's Ohio Rapid Assessment Method for Wetlands (ORAM) (Mack 2001).

Ohio EPA has established three primary and three intermediate categories of wetland quality which are based on a wetland's size, its hydrologic function, the types of plant communities present, the physical structure of the wetland plant community and the wetland's level of disturbance (OAC 3745-1-54). The relationship between the various wetland categories and their respective ORAM scores is presented in Table 5. ES also evaluated the project area for the presence of state threatened and endangered species as part of the ORAM evaluation.

Table 5. ORAM Scores and Categories

ORAM Score	ORAM Category	Description
0-29.9	Category 1	Lowest quality, and are generally characterized by hydrological isolation, lack of plant species diversity, insufficient habitat availability, and limited potential to perform major wetland functions.
30-34.9	Category 1 or 2 (Gray Zone)	ORAM score is insufficient to categorize wetland. In absence of a nonrapid method such as VIBI, assign the wetland to the higher functional category (Category 2)
35-44.9	Modified Category 2	Category 2 wetlands that may be of lower quality or degraded but have reasonable potential to be restored.
45-59.9	Category 2	Wetlands that have the capability to support a moderate wildlife community or maintain mid-level hydrological functions.
60-64.9	Category 2 or 3 (Gray Zone)	ORAM score is insufficient to categorize wetland. In absence of a nonrapid method such as VIBI, assign the wetland to the higher functional category (Category 3)
65-100	Category 3	Highest quality, generally characterized by a high level of biological diversity and topographical variation, threatened or endangered species, large numbers of native species, or a high level of functional importance to its surroundings.

Category 3 wetlands have the highest quality, and are generally characterized by a high level of biological diversity and topographical variation, large numbers of native species, or a high level of functional importance to its surroundings. Category 2 wetlands have the capability to support a moderate wildlife community or maintain mid-level hydrological functions. Category 2 also includes wetlands that may be of lower quality or degraded but have reasonable potential to be restored (Modified Category 2). Category 1 wetlands

are of the lowest quality, and are generally characterized by hydrological isolation, lack of plant species diversity, insufficient habitat availability, and limited potential to perform major wetland functions (OAC 3745-1-54).

Since the ORAM is a rapid assessment method, there are certain wetland scores which fail to clearly differentiate the wetland's functional category. The so-called "gray zone" wetlands fall between the definite scoring breaks between the categories. Ohio EPA requires that "gray zone" wetlands be considered as the higher category unless more detailed functional assessments such as the VIBI or AmphIBI are conducted on those wetlands. As a result of this requirement, wetlands whose scores fall between the breakpoints for Categories 1 and 2 (1 or 2 gray zone wetlands) wetlands will be considered as Category 2 wetland for purposes of this report. Wetlands whose scores fall between the breakpoints for Categories 2 and 3 wetlands (2 or 3 gray zone wetlands) will be considered a Category 3 wetland for purposes of this report.

2.1.3 Cowardin Wetland Classification

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory uses the *Classification of Wetlands and Deepwater Habitats of the United States* to classify wetland habitat types (Cowardin *et al* 1979). This classification system is hierarchical and defines five major systems – Marine, Estuarine, Riverine, Lacustrine, and Palustrine. The Palustrine system was the only type of wetland system identified within the study area and is defined as including all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean driven-derived salts is below 0.5 percent (Cowardin *et al* 1979).

2.2 OTHER WATERS

Other waters include ephemeral and open waters. These waters are broken down into two categories: 1) ponds and lakes; and 2) streams and rivers.

2.2.1 Ponds and Lakes

Palustrine systems other than wetlands, and lacustrine waters are addressed as ponds and lakes, respectively. These non-linear open waters may harbor important aquatic communities such as vegetated shallows (aquatic bed) and mud flats. They are classified according to Cowardin *et al.* (1979).

2.2.2 Streams and Rivers

Riverine systems are linear flowing waters bounded by a channel. Cowardin *et al.* (1979) divides these system into four groups, however, for the purpose of this report streams are placed into three regulatory types, listed below.

Ephemeral: An ephemeral stream only conveys runoff precipitation and meltwater. It is permanently located above the water table and is most often dry.

Intermittent: An intermittent stream is located below the water table for parts of the year, but does have dry periods.

Perennial: A perennial stream typically has flowing water throughout the entire year.

In addition to flow characteristics, the USACE has defined other regulatory categories that apply to streams, which are listed below (USACE and USEPA, 2007).

Traditional Navigable Waters (TNW): all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

Relatively Permanent Waters (RPW): non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months).

Non-Relatively Permanent Waters (Non-RPW): non-navigable tributaries of traditional navigable waters that are not relatively permanent where the tributaries typically do not have continuous flow at least seasonally (e.g., typically three months).

The Corps and USEPA will assert jurisdiction under the Clean Water Act on Traditional Navigable Waters (TNWs) and all wetlands adjacent to them, non-navigable tributaries of TNWs that are Relatively Permanent Waters (RPW) [i.e., tributaries that typically flow year-round or have continuous flow at least seasonally]; and wetlands that directly abut such tributaries. In addition, the agencies will assert jurisdiction over every water body that is not an RPW if that water body is determined (on the basis of a fact-specific analysis) to have a significant nexus with a TNW.

"A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological, integrity of a TNW. Principal considerations when evaluating significant nexus include the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands."

2.2.3 HHEI and QHEI

Data collection for all streams included the completion of either the Ohio EPA Headwater Habitat Evaluation Index (HHEI) for primary headwater habitat (PHWH) streams or the Qualitative Habitat Evaluation Index (QHEI) for larger streams. Biologists are Ohio EPA trained to assess streams using the QHEI and HHEI. Following the Ohio EPA guidance, any stream with a drainage area of less than or equal to one mi^2 (2.589 km^2) and pools with a maximum water depths less than or equal to 15.75 in (40 cm) were evaluated using the HHEI (Ohio EPA 2002). The QHEI was used to evaluate streams with drainage areas greater than one mi^2 and pools with maximum water depths greater than 15.75 in (40 cm). The assessment location is representative of the stream/headwater within the project area.

3.0 LITERATURE REVIEW

3.1 USGS TOPOGRAPHIC MAP

The U.S. Geological Survey (USGS) 7.5-minute topographic series (Spartansburg and Whitewater Quadrangles) is shown on Figure 2 (Appendix A). The project area is relatively flat. Elevations range from approximately 1,189 feet above mean sea level (AMSL) near the southern end of the project area to approximately 1,140 feet AMSL along the Middle Fork/East Fork Whitewater River.

3.2 NWI MAP

The National Wetlands Inventory (NWI) map (Spartansburg and Whitewater Quadrangles) of the project area is shown on Figure 3 in Appendix A. No wetlands or other deepwater habitats are depicted within the project area.

3.3 COUNTY SOIL SURVEY

The project area is found on the *Soil Survey of Darke County, Ohio* and was accessed on the Soil Survey Geographic (SSURGO) Database (USDA Web Soil Survey, 2011) (Figure 4; Appendix A). Six soil types are depicted within the project area and are listed in Table 6. Five of the onsite soil types are listed as predominantly non-hydric within Darke County. One soil type, Brookston silty clay loam, fine texture, 0 to 2 percent slopes (Br), is listed as predominantly hydric within Darke County.

Table 6. Soil Types within the Project Area.

Symbol	Soil Type	Status	Percent Hydric	Acres in Project Area	Percent Within Project Area
MmB	Miamian silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	5	2.2996	4.4
CeB	Celina silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	10	11.9897	22.9
CrB	Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	Predominantly Non-Hydric	5	12.9062	24.6
CrA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	Predominantly Non-Hydric	5	10.8998	20.8
Br	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	Predominantly Hydric	90	14.0451	26.8
MnC3	Miamian clay loam, shallow to dense till substratum, 6 to 12 percent slopes, severely eroded	Predominantly Non-Hydric	10	0.3211	0.6

3.4 U.S. Fish and Wildlife Service

The project area was examined for suitable habitat for federally listed species whose known range includes Darke County, Ohio. These species are the federally endangered Indiana bat (*Myotis sodalis*), the federally threatened northern long-eared bat (*Myotis septentrionalis*), the federally endangered rayed bean (*Villosa fabalis*), and the federal species of concern bald eagle (*Haliaeetus leucocephalus*).

Living or dead trees with shedding or peeling bark or cavities may serve as roosting trees for the Indiana bat and/or the northern long-eared bat. In addition, sheds and barns may serve as roosting habitat for the northern long-eared bat. No potential winter hibernaculum is located within the project area. Several structures associated with natural gas stations are located within the project area. In addition, the project area includes a portion of a barn located on the east side of Hollansburg-Tampico Road. All of the onsite structures appeared to be in good repair without and obvious entrances for the northern long-eared bat to use. A small portion of the project area contains trees.

One tree was located within the project area that may provide habitat for either bat species. This tree is a standing dead, multi-trunk ash species with a diameter at breast height (dbh) of 14 inches and 100% solar exposure. A photograph of this tree is provided in Appendix B. If this tree will be impacted during construction, further coordination with the USFWS may be required.

The rayed bean generally lives in smaller, headwater creeks, but it is sometimes found in large rivers and wave-washed areas of glacial lakes. It prefers gravel or sand substrates, and is often found in and around roots of aquatic vegetation. Due to the amount of water in the onsite streams during the field visit, it is unknown if either stream provides habitat for the rayed bean. Further coordination with the USFWS may be required if either stream is proposed to be impacted.

The bald eagle nests in large trees near water. No bald eagle habitat was observed within the project area.

Utility Technologies, Inc contacted the Ohio Department of Natural Resources' (ODNR) Natural Heritage Database program and USFWS in regards to this project. Records of the correspondence is included in Appendix E. On May 27, 2015, ODNR responded and indicated that, "We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges, parks or forests or other protected natural areas within a one mile radius of the project area."

On June 29, 2015, USFWS responded (TAILS# 03E15000-2015-TA-1141) and indicated that, "Should the proposed site contain trees ≥3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats and northern long-eared bats within the project area during the summer.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals

effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts."

3.5 AERIAL PHOTOGRAPHY

A recent aerial photograph of the project area is shown on Figure 5 (Appendix A). The majority of the site is depicted as agricultural land with small portions of field and maintained lawn. Three natural gas stations are apparent and a portion of one barn also falls within the project area. The project area is surrounded by agricultural fields and rural residential properties.

4.0 RESULTS

Six sample plots were established within three natural communities. Table 7 summarizes the sample plot data. Field work was conducted after a week of heavy rain (about 1.4 inches) and most areas were inundated and wetland hydrology was noted, but is not anticipated to remain more than one week out of the growing season.

Table 7. Sample Plot Results.

Sample Plot	Photo *	Community**	Hydrophytic Vegetation	Wetlands Hydrology	Hydric Soil	Status	Location
1	1	Open Field		X		Non-Wetland	SP-1
2	2	Open Field		X	X	Non-Wetland	SP-2
3	3	Agricultural Field		X		Non-Wetland	SP-3
4	4	Maintained Lawn	X	X		Non-Wetland	SP-4
5	5	Open Field		X		Non-Wetland	SP-5
6	6	Agricultural Field		X		Non-Wetland	SP-6

*photos are located in Appendix B

Each sample plot and other waters are illustrated on Figure 5 (Appendix A). The following section describes general conditions found within each plant community and summarizes relevant information from the data forms, located in Appendix C.

4.1 NONWETLANDS

Three upland communities including open field, agricultural field, and maintained lawn exist within the project area. The open field community is represented by Sample Plots 1, 2, and 5. Small amounts of Allegheny blackberry (*Rubus allegheniensis*, FACU) were observed growing in the shrub layer. The herbaceous layer of the open field includes red

fescue (*Festuca rubra*, FACU), great ragweed (*Ambrosia trifida*, FAC), poison ivy (*Toxicdendron radicans*, FAC), wild parsnip (*Pastinaca sativa*, UPL), Canadian thistle (*Cirsium arvense*, FACU), orchard grass (*Dactylis glomorata*, FACU), curly doc (*Rumex crispus*, FAC), and climbing black bindweed (*Fallopia scandens*, FAC).

The agricultural field is represented by Sample Plots 3 and 6 and includes corn (*Zea mays*, UPL), soybeans (*Soja max*, UPL), Canadian thistle, red fescue, orchard grass, and Carolina horse nettle (*Solanum carolinense*, FACU) in the herbaceous layer.

The maintained lawn is represented by Sample Plot 4 and includes Kentucky blue-grass (*Poa pratensis*, FAC), red clover (*Trifolium repens*, FACU), common dandelion (*Taraxacum officinale*, FACU), and ground-ivy (*Glechoma hederacea*, FACU) in the herbaceous layer.

4.2 WETLANDS

No wetlands were identified within the project area.

4.3 Streams and Rivers

One perennial stream and one intermittent stream were identified and delineated within the project area. The results are depicted in Table 9 and illustrated on Figure 5 (Appendix A). The perennial stream was assessed using the Qualitative Habitat Evaluation Index (QHEI) and the intermittent stream was assessed using the Headwater Habitat Evaluation Index (HHEI); the scoring forms are included in Appendix D.

Table 8. Stream Results within the Project Area.

Stream	Photos*	Type	Bankfull Width (feet)	Depth at Time of Survey (inch)	Length Within Project Area (linear feet)	Area Within Project Area (acres)	QHEI/ HHEI Score
Middle Fork/East Fork Whitewater River	7-8	Perennial	15	24	214	0.074	38
S-1	9-11	Intermittent	3	6	359	0.025	41
Total Stream					**573**	**0.099**	

*photos are located in Appendix B

Stream S-1 is flowing northwest and eventually into the Whitewater River. The onsite portion of Stream S-1 assessed within the range of a Modified Class II Primary Headwater Habitat stream. A portion of the Middle Fork/East Fork Whitewater River flows south through the project area. This onsite portion of the river scored a 38 using the QHEI. Water levels in both onsite streams was unseasonably high during the site visit due to heavy rain during the week prior.

4.4 PONDS AND LAKES

No open water aquatic resources were identified within the project area.

5.0 REGULATORY JURISDICTION

The wetlands and waterbodies are under the jurisdiction of the Ohio EPA or Corps. No filling may occur within these areas without their written permission. Please contact the Ohio EPA Division of Surface Water at (614) 644-2001 or the Huntington District, U.S. Army Corps of Engineers, at (304) 399-5210 before working in these areas. Based on the site plans for the Glen Karn PIpeline project, the proposed activities would follow those authorized in the U.S. Army Corps of Engineers (USACE) 2012 Nationwide Permits for a Nationwide Permit (NWP) #12 (Utility Line Activities) if impacts to onsite water resources are proposed. However, if all onsite water resources are avoided, a U.S. Army Corps of Engineers NWP or Ohio EPA Water Quality Certification will not be required for this project.

The following information is excerpted and summarized from the 2007 *U.S. Army Corps Of Engineers Jurisdictional Determination Form Instructional Guidebook.*

> "In 2001, the … U.S. Supreme Court's decision in the *Solid Waste Agency of Northern Cook County (SWANCC) v. Corps* held that isolated, intrastate, non-navigable waters could not be regulated under the CWA based solely on the presence of migratory birds. Following the SWANCC decision it generally was believed that a water body (including a wetland) was subject to CWA jurisdiction if the water body was part of the U.S. territorial seas, or a traditional navigable water, or any tributary to a traditional navigable water, or a wetland adjacent to any one of the above. In addition, isolated wetlands and other waters might be considered jurisdictional where they had the necessary link to either navigable waters or interstate commerce."

In the state of Ohio, the Ohio EPA isolated wetland permitting program was legislatively created in response to the 2001 SWANC decision. On July 17, 2001, House Bill 231 was signed into law, establishing a permanent permitting process for isolated wetlands. The provisions of House Bill 231 were incorporated in Sections 6111.021 through 6111.029 of the Ohio Revised Code.

"In 2006, the Supreme Court once again addressed the jurisdictional scope of Section 404 of the CWA, specifically the term "the waters of the U.S.," in *Rapanos v. U.S*. and in *Carabell v. U.S*. (hereafter referred to as Rapanos).

The decision provides two new analytical standards for determining whether water bodies that are not traditional navigable waters (TNWs), including wetlands adjacent to those non-TNWs, are subject to CWA jurisdiction: (1) if the water body is relatively permanent, or if the water body is a wetland that directly abuts (e.g., the wetland is not separated from the tributary by uplands, a berm, dike, or similar feature) a relatively permanent water body (RPW), or (2) if a water body, in combination with all wetlands adjacent to that water body, has a significant nexus with TNWs. CWA jurisdiction over TNWs and their adjacent wetlands was not in question in this case, and, therefore, was not affected by the Rapanos decision. In addition, at least five of the Justices in Rapanos agreed that CWA jurisdiction exists over all TNWs and over all wetlands adjacent to TNWs.

The Memo states that the [Corps and USEPA] will assert jurisdiction over the following categories of water bodies: TNWs; all wetlands adjacent to TNWs; non-navigable tributaries of TNWs that are relatively permanent (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally); and wetlands that directly abut such tributaries. In addition, the agencies will assert jurisdiction over every water body that is not an RPW if that water body is determined (on the basis of a fact-specific analysis) to have a significant nexus with a TNW. The classes of water body that are subject to CWA jurisdiction only if such a significant nexus is demonstrated are: non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally; wetlands adjacent to such tributaries; and wetlands adjacent to but that do not directly abut a relatively permanent, non-navigable tributary. A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological, integrity of a TNW. Principal considerations when evaluating significant nexus include the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands."

6.0 ASSUMPTIONS AND DISCLAIMERS

The constant influence of human activity on the project area can result in a rapid change of ecological boundaries. Over time, natural succession and changes in hydrology can also affect their boundaries. Precision of GPS collected data is subject to variation caused by canopy cover, atmospheric interference and satellite configuration. Because slight inaccuracies are possible, all acreages and derived boundaries presented in this report are approximate.

The results and conclusions contained in this report apply to the year and date in which the data were collected. This report is not considered officially valid until it is approved by the Corps. The report is then valid for a period of five years. Refer to the Corps' Regulatory Guidance Letter # 94-1 (23 May 1994).

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Appendix A:

Figures

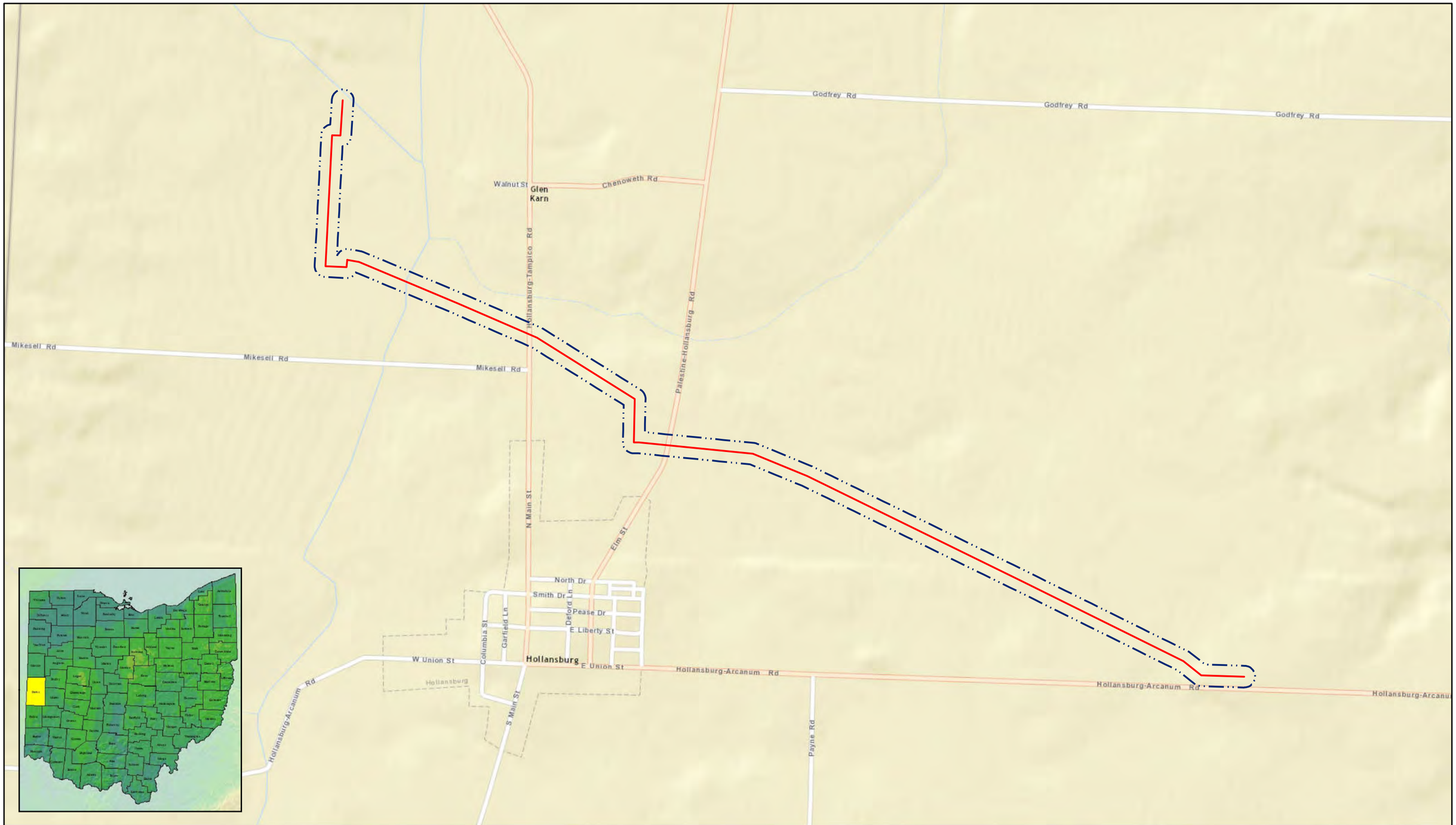

Figure 1. Location of Site on Highway Map of Darke County, Ohio. Glen Karn Pipeline.

Pipeline
Project Area

0 600 1,200 2,400 Feet
0 200 400 800 Meters

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Date: 6/26/2015 Path: P:\10_Projects\UU\Utility Technologies\470NR\GlenKarnPipeline\GIS\GlenKarn_Map1_Location.mxd

Basemap courtesy of Esri.

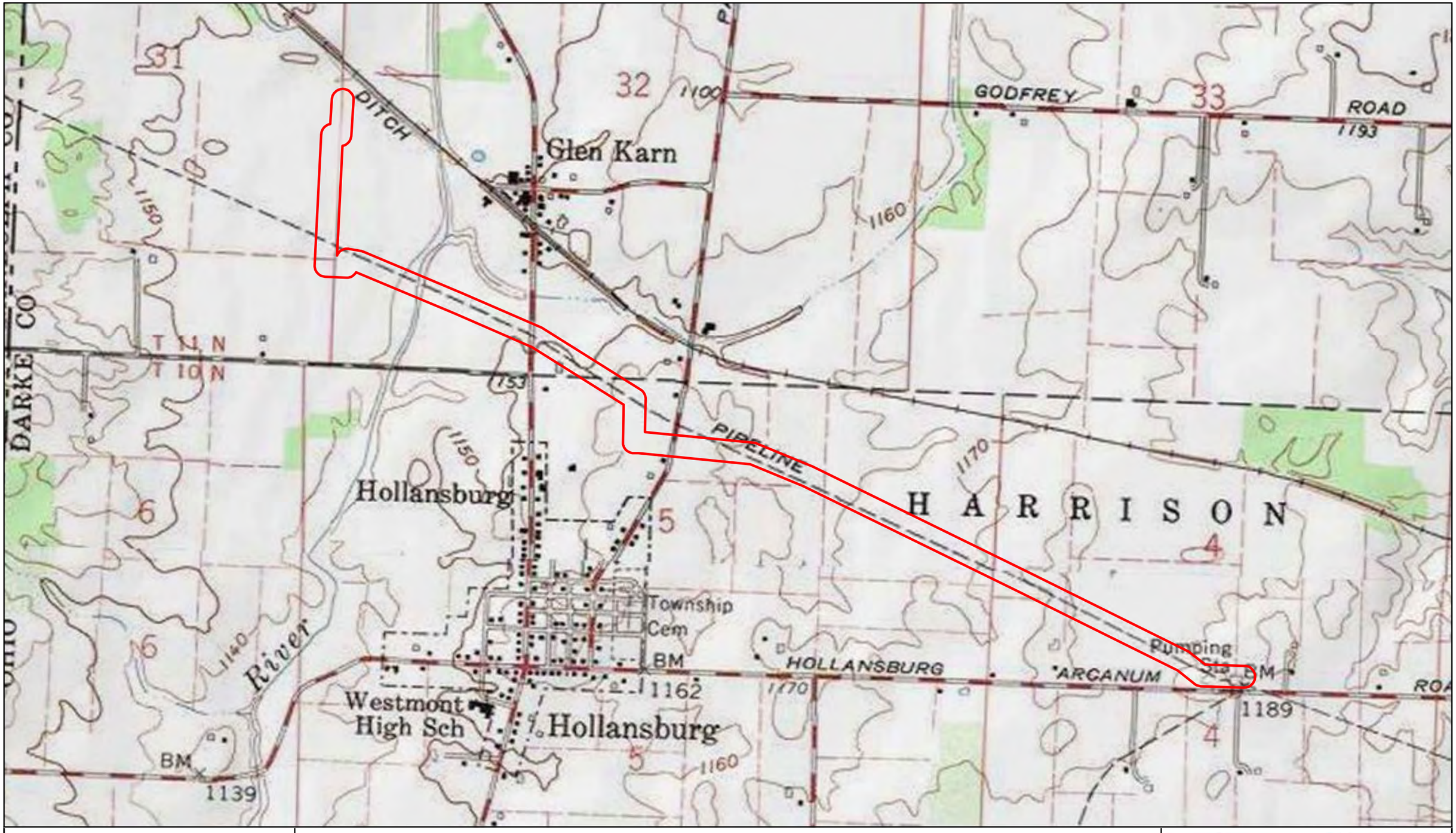

Figure 2. USGS 7.5-minute Topographic Map of Darke Quadrangle. Glen Karn Pipeline.

Project Area

0 600 1,200 2,400 Feet

0 200 400 800 Meters

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Date: 6/26/2015 Path: P:\10_Projects\UU\Utility Technologies\470NR\GlenKarnPipeline\GIS\GlenKarn_Map2_Topo.mxd

Basemap courtesy of National Geographic Society (2013).

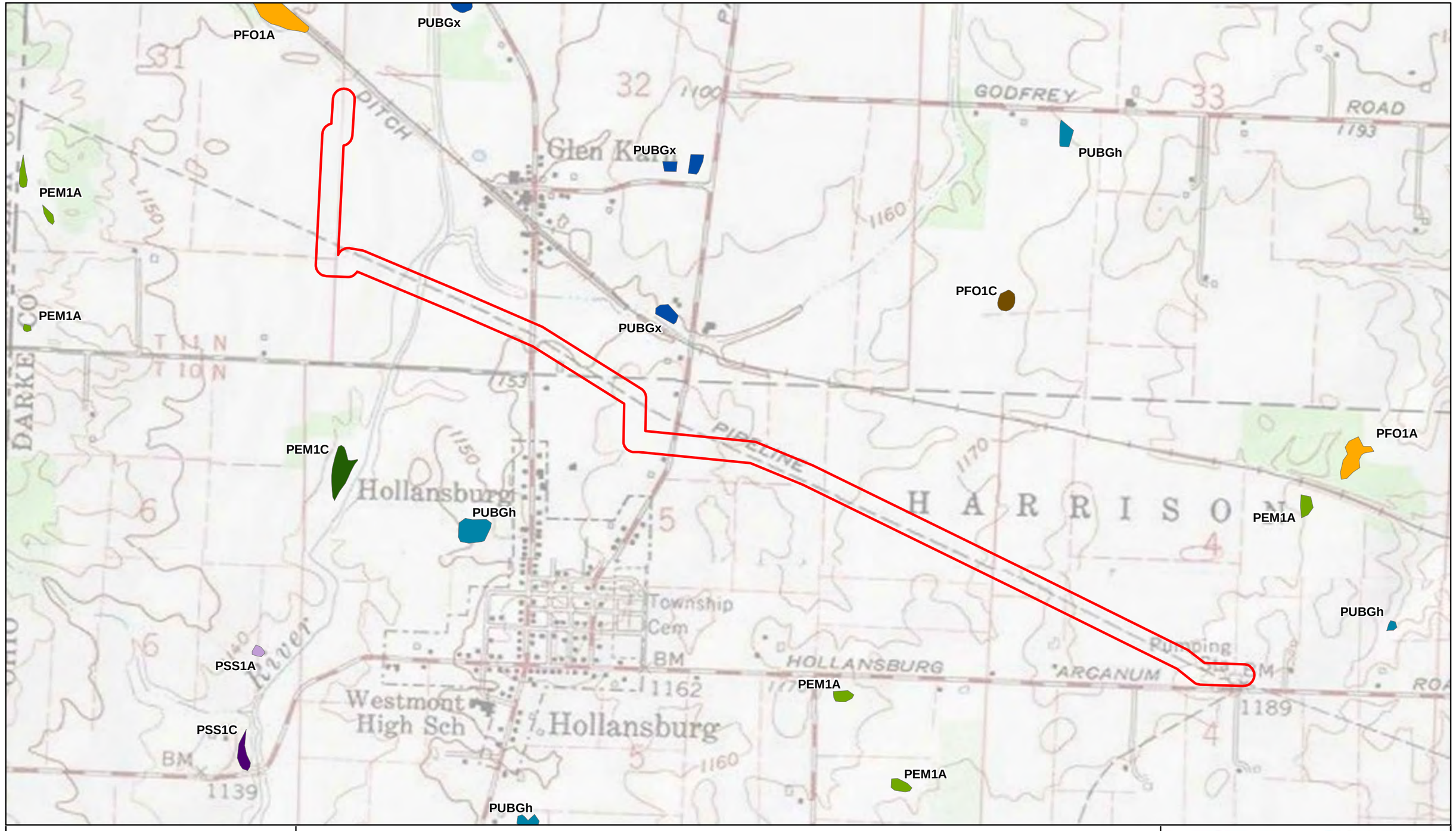

Figure 3. NWI Map of Site (Spartanburg and Whitewater Quadrangles). Glen Karn Pipeline.

Project Area

0 600 1,200 2,400 Feet

0 200 400 800 Meters

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Date: 6/26/2015 Path: P:\10_Projects\UUtility Technologies\470NR\GlenKarnPipeline\GIS\GlenKarn_Map3_NWI.mxd

Basemap courtesy of National Geographic Society (2013). NWI data courtesy of USFWS (current as of October 2014).

Figure 4. Soil Map of Site
in Darke County, Ohio.
Glen Karn Pipeline.

Project Area

0 600 1,200 2,400 Feet

0 200 400 800 Meters

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Date: 6/29/2015 Path: P:\10_Projects\UU\Utility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map4_Soil.mxd

Basemap courtesy of Esri. Soil data courtesy of SSURGO.

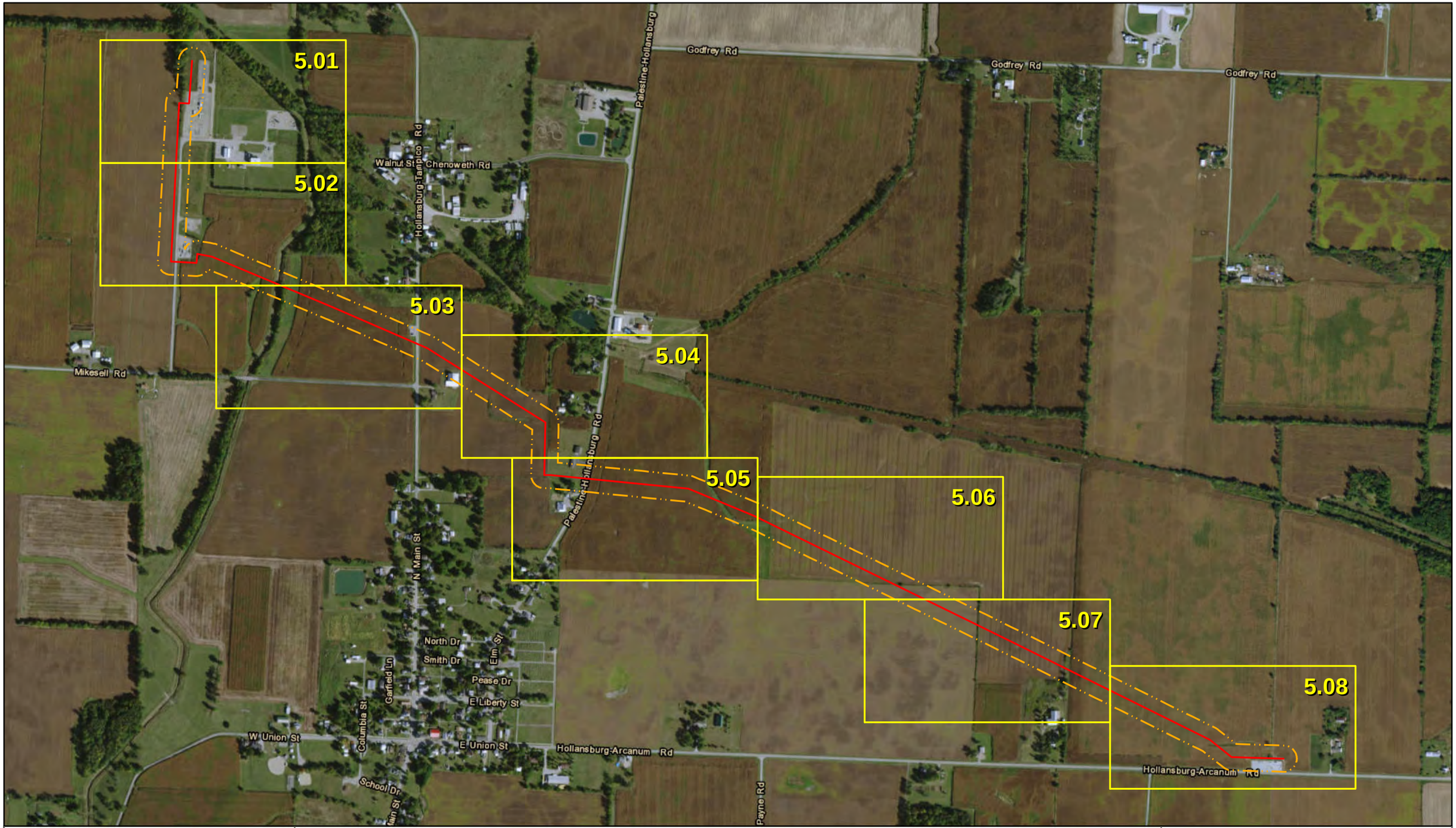

Figure 5. Site Map Overveiw of Wetlands and Other Water Resources. Glen Karn Pipeline.

Pipeline
Project Area

0 500 1,000 2,000 Feet
0 150 300 600 Meters

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Date: 6/25/2015 Path: P:\10_Projects\UUtility Technologies\470NR\GlenKarnPipeline\GIS\GlenKarn_Map5_SiteOverview.mxd

Basemap courtesy of Esri.

Figure 5.01. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

PRT
Sample Plot
Stream (Intermittent)
Stream (Perennial)
Stream (Offsite)
Project Area
Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.01

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Date: 7/2/2015 Path: P:\10_Projects\UUtility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

Figure 5.02. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

PRT
Sample Plot
Stream (Intermittent)
Stream (Perennial)
Stream (Offsite)
Project Area
Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.02

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Date: 7/2/2015 Path: P:\10_Projects\U\Utility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

Figure 5.03. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

PRT
Sample Plot
Stream (Intermittent)
Stream (Perennial)
Stream (Offsite)
Project Area
Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.03

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Date: 7/2/2015 Path: P:\10_Projects\U\Utility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

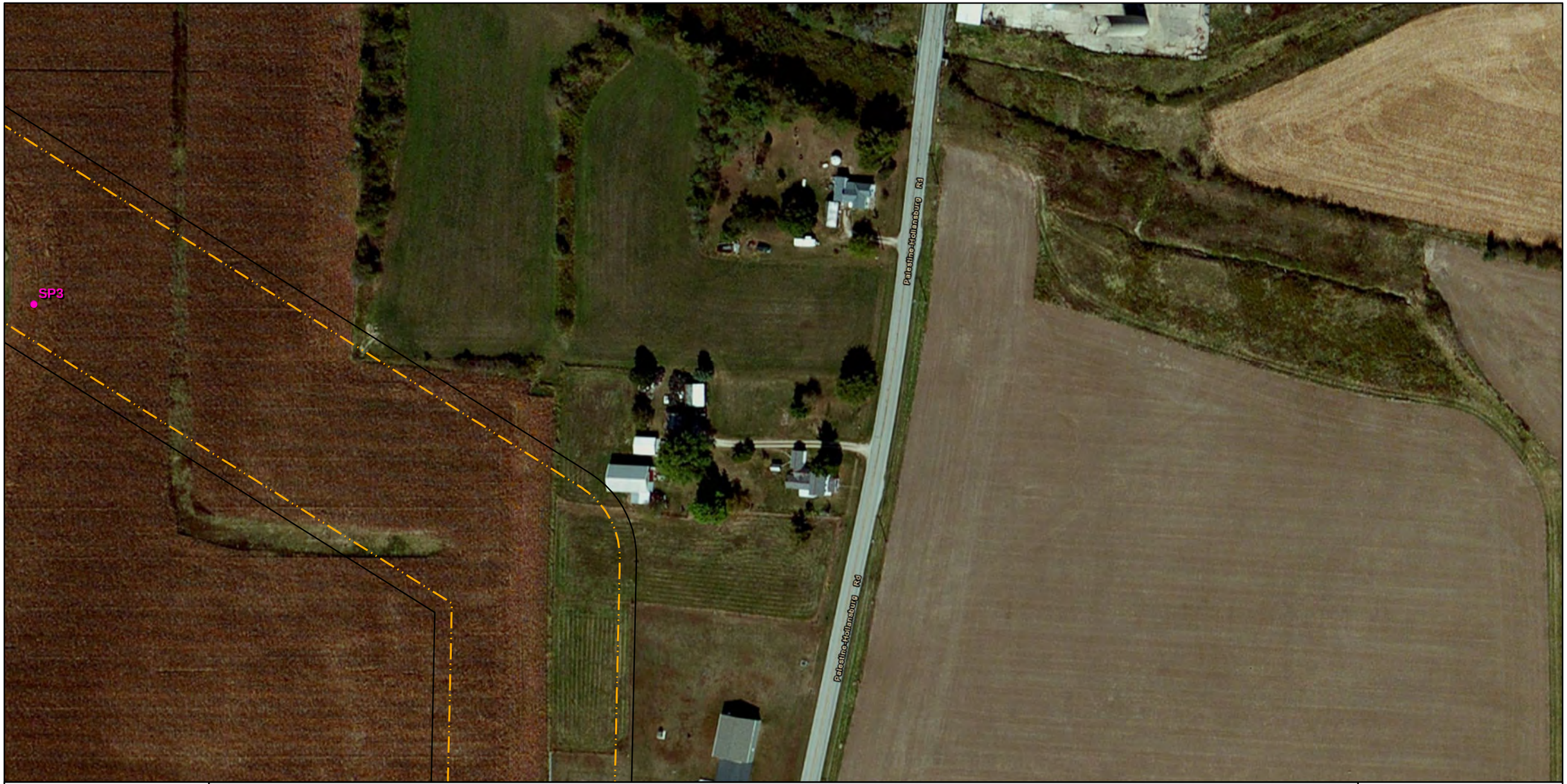

Figure 5.04. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

- PRT
- Sample Plot
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Offsite)
- Project Area
- Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.04

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Date: 7/2/2015 Path: P:\10_Projects\UU\Utility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

Figure 5.05. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

PRT
Sample Plot
Stream (Intermittent)
Stream (Perennial)
Stream (Offset)
Project Area
Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.05

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Date: 7/2/2015 Path: P:\10_Projects\UUtility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

Figure 5.06. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

PRT
Sample Plot
Stream (Intermittent)
Stream (Perennial)
Stream (Offset)
Project Area
Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.06

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Date: 7/2/2015 Path: P:\10_Projects\UUtility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

Figure 5.07. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

PRT
Sample Plot
Stream (Intermittent)
Stream (Perennial)
Stream (Offset)
Project Area
Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.07

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Date: 7/2/2015 Path: P:\10_Projects\UUtility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

Figure 5.08. Site Map of Wetlands and Other Water Resources.
Glen Karn Pipeline.

- PRT
- Sample Plot
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Offsite)
- Project Area
- Project Area Buffer (add. 20')

0 100 200 400 Feet

0 25 50 100 Meters

5.08

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Date: 7/2/2015 Path: P:\10_Projects\UU\Utility Technologies\470NR\7523_GlenKarnPipeline\GIS\GlenKarn_Map5_Site3.mxd

Basemap courtesy of Esri.

Summary: Application Notice of Construction Application for the Glen Karn ANR Interconnect (part 6 of 7) electronically filed by Melinda R Stahl on behalf of Vectren Energy Delivery of Ohio