

ECSI Report #2

**REPORT #2 – USFWS PROJECT #2104 – 0200
SUNOCO LOGISTICS, PENNSYLVANIA PIPELINE PROJECT
PHASE 1 BOG TURTLE HABITAT EVALUATIONS**

**Cumberland County
Pennsylvania**

Prepared for:

Tetra Tech, Inc.
Mr. Preston R. Smith
Manager, Wetlands and Ecological Services Department
Appalachian Basin Oil and Gas Services
661 Anderson Drive Foster Plaza No. 7
Pittsburgh, PA 15220

May 5, 2014

Prepared by:

Kevin S. Keat, *PWS, Sr. Biologist*
Bog Turtle Surveyor

Environmental Consultation Services, Inc.

**1095 Mill Road
Pen Argyl, PA 18072
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Sunoco Logistics, PA Pipeline Project, Table of Wetlands Meeting All Three Bog Turtle Habitat Criteria,
Cumberland, York, Dauphin [Spring Creek Watershed Only], Lebanon, Lancaster, Berks, Chester and Delaware Counties, PA
File Updated May 5, 2014

County	Township	Wetland ID	Approx. Wetland Size (Acres)	Approx. Suitable Habitat	Bog Turtle Surveyor	Map * Book #	Potential Habitat?		Notes	USFWS Determination		
							Yes	Agency Review		Non-Habitat	Phase 2 Needed	Assumed Occupancy
Cumberland	Lower Frankford	J35	10+	2.16	Keat	14	✓		3 individual core habitat areas: BT1 (0.3 Ac.), BT2 (1.28 Ac.) cow pasture, BT3 (0.58 Ac.) Totaling 2.16 Acres of decent habitat.			
	Lower Frankford	J36	5+	2.39	Keat	13	✓		Actively Grazed Cow Pasture with abundant groundwater seeps, grass hummocks and mucky soils - overall good habitat.			
	Lower Frankford	J21	1	0.1	Keat	17	✓		Marginal due to limited size and area of mucky soils and agricultural disturbances			
	Lower Frankford	J27	1.5	0.1	Keat	16	✓		Limited to spring seep head and approx. 75 linear ft by 12 ft of mucky rivulet. Remainder of PEM is less than 3 in. muck and the rivulet transitions into an incised channel downstream of this area.			
	Lower Frankford	J28/29	2	0.1	Keat	16	✓		PEM opening within wooded ravine between J28/J29. Limited seep influence and limited extent of mucky soils render this marginal habitat.			
	Lower Frankford	i52	1	0.1	Keat	19	✓		Limited area of potential habitat in active cow pasture along a single rivulet that becomes more incised downstream.			
	Lower Frankford	J44	5+	0.2	Keat	TBD	✓		Phalaris-dominated, spring-fed rivulet that transitions between seep to incised channel intermittently with a mucky fringe.			
	Lower Frankford	J20	2	0.1	Keat	TBD	✓		Phalaris-dominated habitat that may be further reduced in area as the growing season progresses.			

* Maps 04-30-

USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Locust Crk,
Drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO LOGISTICS, INC.
County: CUMBERLAND Quad: _____ Township/Municipality: LOWER FRANKFORD
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: J35(BT-1) PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: 10+ acres

Wetland size estimation – If actual acreage is not known at time of investigation, check one:

☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☐ 1-2 acres ☐ 2-4 acres ☐ 5+ acres ☒ 10+ acres

WETLAND LOCATION: Lat 40.24405 Long -77.32253
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☒ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-16-14 Time In: 1000 Time Out: 1100
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?

☒ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☒ some of it – _____ acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?

☐ none of it ☐ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?

☐ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☐ Y ☒ N ☐ Unknown

If yes, *could* they be potential bog turtle habitat? ☐ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

EXISTING PIPELINE ROW, PFO, IDLE WOODLAND, STREAMS, COW PASTURE

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☒ PSS 10 ☒ PFO 10 ☐ POW _____

☒ Y ☐ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

MAINTAINED - EXISTING PIPELINE ROW

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe

MOVED Veg.

Project Name PA PIPELINE - SONOCO LOGISTICS

Wetland J35 (BT1) (con't)

Hydrology

- ☒ Y ☐ N Springs or seeps ☒ visible or ☐ likely? Watercress present? ☒ Yes ☐ No
☐ Y ☒ N Spring houses in or adjacent to wetland?
☒ Y ☐ N Saturated soils present? If yes, year-round? ☐ Likely ☐ Unlikely ☐ Unknown
☒ Y ☐ N Water visible on surface? Check all that apply: ☒ small puddles/depressions (2" deep)
☒ Y ☐ N ☒ rivulets (2" deep) ☒ larger pools/ponds (2" deep)
☐ Y ☒ N Evidence of flooding? If yes, describe indicators _____

Soils Mapping Unit (optional):

Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown

Soils - PEM Portion of Wetland			
Mucky ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input checked="" type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>10</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
Non-mucky ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input checked="" type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils - PSS and PFO Portions of Wetland			
Mucky ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input checked="" type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>12</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"

Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

- ☒ sedges ☒ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☒ sensitive fern ☐ rice cutgrass ☒ tearthumb ☒ reed canary grass ☐ Phragmites ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐
 Additional dominant species: Adj. PFO - GRN. ASH

Herptiles

Were any bog turtles observed? ☐ YES ☒ NO If yes, how many? _____

Other herptiles ☒ observed ☐ previously observed: Spring Peepers
HEARD

Additional Comments/Observations: (use additional sheets if necessary)

~0.3 ACRES POTENTIAL HAB. OCCURS IN ROW & Adj. Area

INVESTIGATOR'S OPINION

- ☒ YES ☐ NO ☐ UNSURE The hydrology criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE The soils criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE The vegetation criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT
Investigator's Name (print)

[Signature]
Investigator's Signature

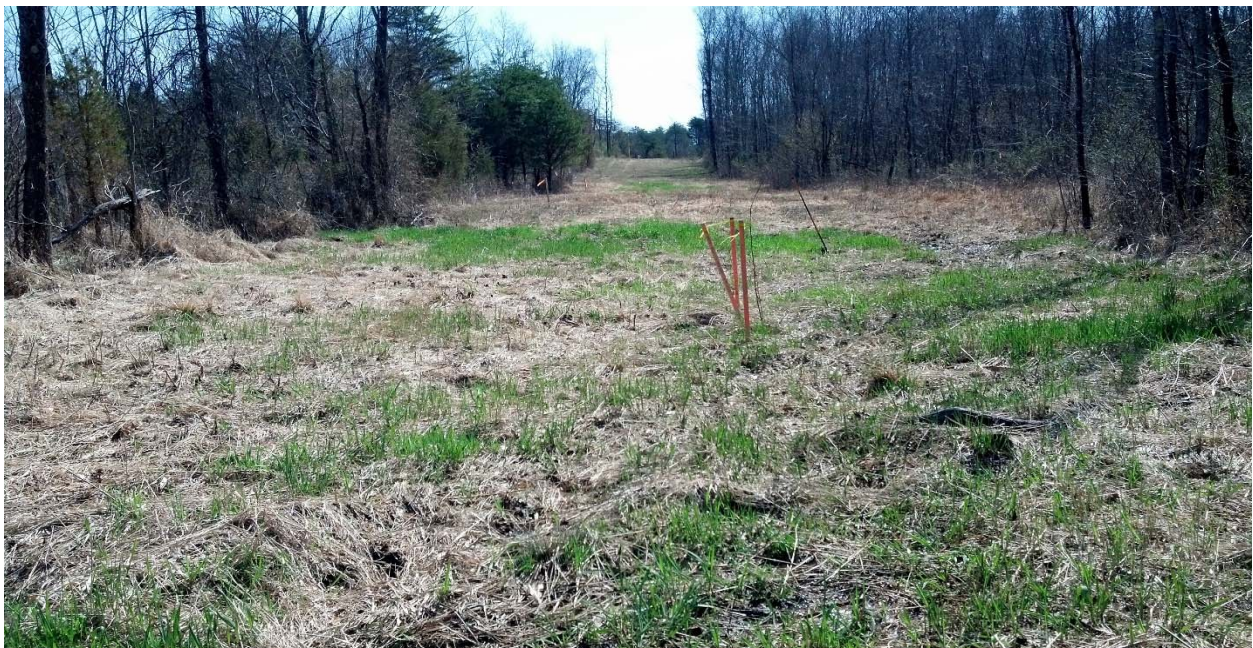
4-16-14
Date

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



Wetland J35 (BT1) - Eastern extent of potential BT habitat (BT1), looking westward in existing ROW. 4-16-14



Wetland J35 (BT1) – Eastern extent of potential habitat (BT1), looking eastward in existing ROW.

USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Locust Creek
Drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO LOGISTICS, INC.
County: CUMBERLAND Quad: _____ Township/Municipality: Lower Frankford
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: J35(BT2) PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: 10+ acres

Wetland size estimation – If actual acreage is not known at time of investigation, check one:

☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☐ 1-2 acres ☐ 2-4 acres ☐ 5+ acres ☒ 10+ acres

WETLAND LOCATION: Lat 40.24448 Long -77.32927
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☒ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-16-14 Time In: 1130 Time Out: 1230
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?

☒ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☐ some of it – _____ acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?

☐ none of it ☐ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?

☐ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☐ Y ☒ N ☐ Unknown

If yes, *could* they be potential bog turtle habitat? ☐ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Active Cow pasture, pipeline ROW, idle woodlands, fallow fields

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☐ Y ☒ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe

actively grazed by cattle

Project Name

PA PIPELINE-SUNOCO LOGISTICS

Wetland

J35(BT2)
(con't)**Hydrology**☒ Y ☐ NSprings or seeps ☒ visible or ☐ likely? Watercress present? ☒ Yes ☐ No3 Seeps visible
on Hillside☐ Y ☒ N

Spring houses in or adjacent to wetland?

☒ Y ☐ NSaturated soils present? If yes, year-round? ☒ Likely ☐ Unlikely ☐ Unknown☒ Y ☐ NWater visible on surface? Check all that apply: ☒ small puddles/depressions (2" deep)☐ Y ☒ N☒ rivulets (1" deep) ☒ larger pools/ponds (3" deep)

Evidence of flooding? If yes, describe indicators _____

Soils Mapping Unit (optional):Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown**Soils – PEM Portion of Wetland**

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input checked="" type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>20</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input checked="" type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
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Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

☒ sedges ☒ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☐ sensitive fern ☐ rice cutgrass ☐ tearthumb ☐ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐

Additional dominant species: Pasture Grass Hummocks and several Hoof Prints**Herptiles**Were any bog turtles observed? ☐ YES ☒ NO If yes, how many? _____Other herptiles ☐ observed ☐ previously observed: _____**Additional Comments/Observations:** (use additional sheets if necessary)

~ 1.28 ACRES OF POTENTIAL BT HAB PRESENT
 SUBTERRANEAN Channels & several hillside Seeps

INVESTIGATOR'S OPINION☒ YES ☐ NO ☐ UNSUREThe hydrology criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe soils criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe vegetation criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSURE

This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT

Investigator's Name (print)

Investigator's Signature

4-16-14

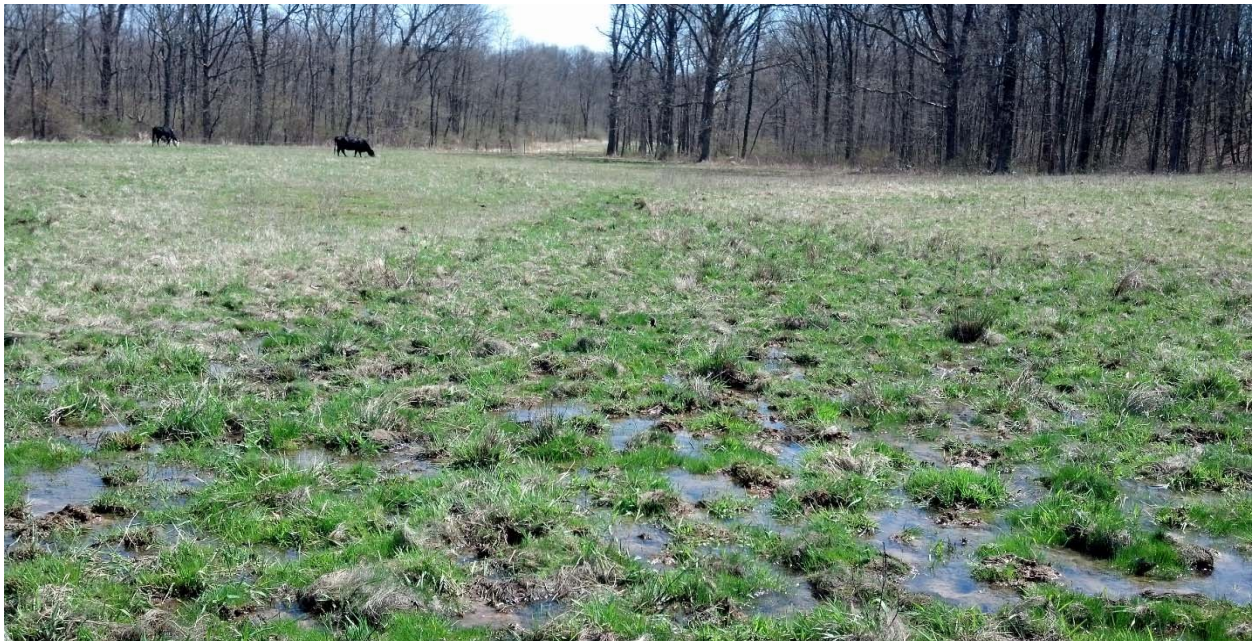
Date

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



Wetland J35 (BT2) – Standing in cow pasture potential BT habitat (BT2) looking northward at ROW. At least three spring seeps are the major sources of hydrology to this habitat. 4-16-14



Wetland J35 (BT2) – Standing in cow pasture potential BT habitat (BT2) looking eastward at existing ROW. Subterranean tunnels, mucky soils and groundwater seeps make this good potential habitat. 4-16-14

USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Laurel Crk,
Drainage

Project/Property Name: PA Pipeline
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO Logistics, Inc.
County: CUMBERLAND Quad: _____ Township/Municipality: Lower Frankford
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: J35 (BT3) PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: 10+ acres
Wetland size estimation – If actual acreage is not known at time of investigation, check one:
☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☐ 1-2 acres ☐ 2-4 acres ☐ 5+ acres ☒ 10+ acres

WETLAND LOCATION: Lat 40.24336 Long -77.33266
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☐ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-16-14 Time In: 1300 Time Out: 1400
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?
☒ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☐ some of it – _____ acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?
☐ none of it ☐ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?
☐ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☐ Y ☒ N ☐ Unknown
If yes, *could* they be potential bog turtle habitat? ☐ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

late woodland, active cow pasture, fallow fields

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☐ Y ☒ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe
actively grazed

Project Name PA PIPELINE - SUNOCO LOGISTICS

Wetland J35 (BT3) (con't)

Hydrology

☒ Y ☐ N

Springs or seeps ☐ visible or ☐ likely? Watercress present? ☐ Yes ☐ No

☐ Y ☒ N

Spring houses in or adjacent to wetland?

☒ Y ☐ N

Saturated soils present? If yes, year-round? ☒ Likely ☐ Unlikely ☐ Unknown

☒ Y ☐ N

Water visible on surface? Check all that apply: ☒ small puddles/depressions (2" deep)

☒ rivulets (2" deep) ☐ larger pools/ponds (" deep)

☐ Y ☒ N

Evidence of flooding? If yes, describe indicators

Soils Mapping Unit (optional):

Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown

Soils – PEM Portion of Wetland			
<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input checked="" type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>8</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input checked="" type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland			
<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____”	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5” <input type="checkbox"/> 6-8” <input type="checkbox"/> 9-11” <input type="checkbox"/> ≥12”

Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present ($\geq 5\%$ areal coverage), and also circle if dominant ($\geq 20\%$ coverage).

☒ sedges ☒ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☐ sensitive fern ☐ rice cutgrass ☐ tearthumb ☐ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐

Additional dominant species: Actively grazed - GRASS Hummocks

Herptiles

Were any bog turtles observed? ☐ YES⁷ ☒ NO If yes, how many?

Other herptiles ☐ observed ☐ previously observed: _____

Additional Comments/Observations: (use additional sheets if necessary)

~0.58 AC, potential HABITAT present

INVESTIGATOR'S OPINION

☐ YES ☐ NO ☐ UNSURE

The hydrology criterion⁸ for bog turtle habitat is met.

☐ YES ☐ NO ☐ UNSURE

The soils criterion⁸ for bog turtle habitat is met.

☐ YES ☐ NO ☐ UNSURE

The vegetation criterion⁸ for bog turtle habitat is met.

☐ YES ☐ NO ☐ UNSURE

This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT

Investigator's Name (print)

[Signature]

Investigator's Signature

4-16-14

Date _____

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



Wetland J35 (BT3) – Standing in cow pasture potential BT habitat (BT3) looking northward.

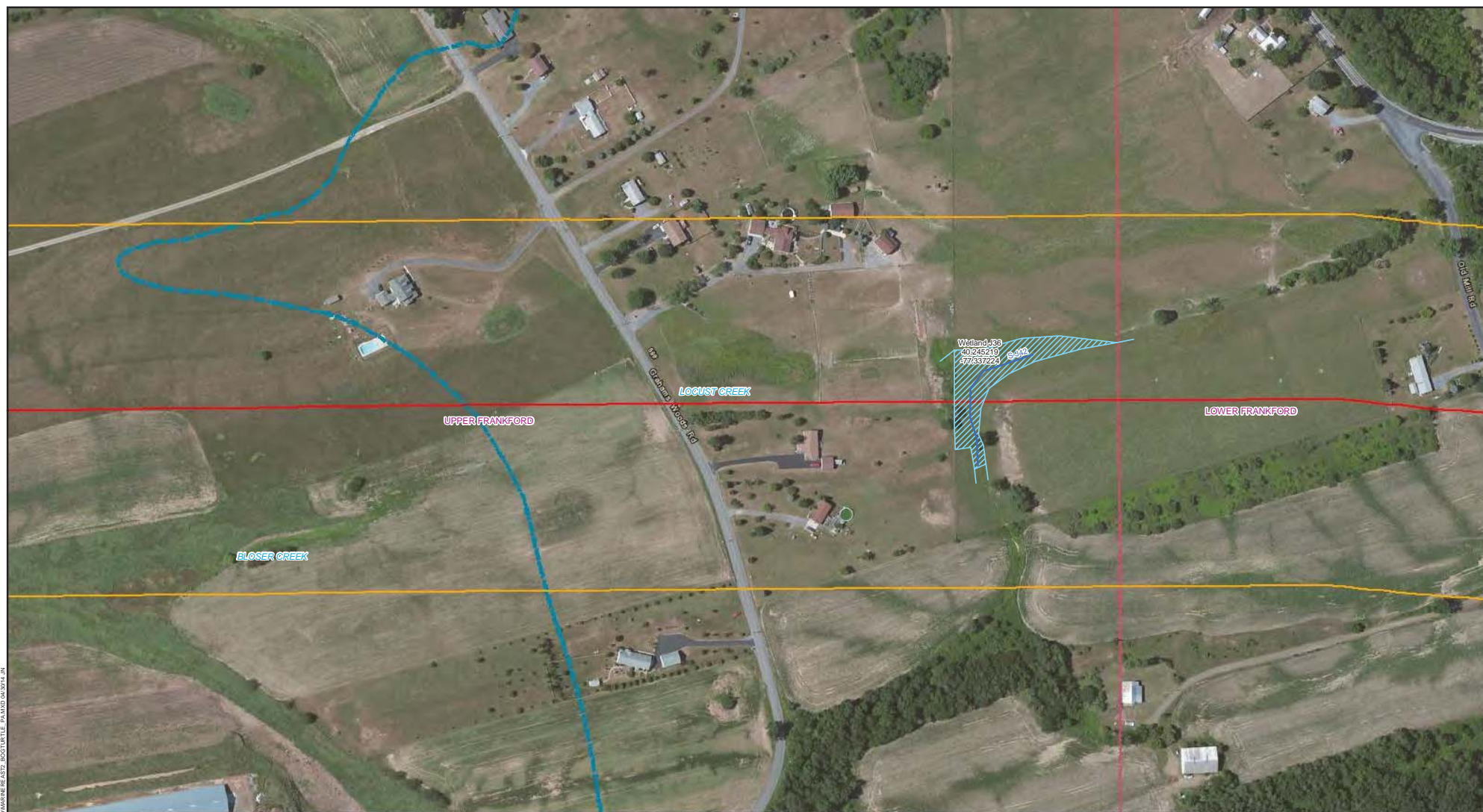
4-16-14

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072

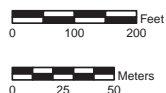


Wetland J35 (BT3) – Standing in cow pasture potential BT habitat (BT3) looking eastward. 4-16-14



Legend

-
- Legend:
- Stream
 - Alignment Centerline
 - PEM
 - 800-ft ROW
 - PFO
 - USGS Quad Boundary
 - PSS
 - Municipality Boundary
 - Pond
 - Watershed



Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service
(© 2011 ESRI and its data suppliers).
2) Coordinate system is NAD 1983 SPCS Pennsylvania South.



BOG TURTLE STUDY AREA
PA PIPELINE
SUNOCO LOGISTICS, L.P.
BERLAND COUNTY, PENNSYLVANIA

DRAWN BY: K. MOORE 2/6/14
CHECKED BY: P. SMITH 04/30/14
APPROVED BY:

CONTRACT NUMBER: 112IC05958

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REVISION	0
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USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

LOCUST CREEK
DRAINAGE

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO Logistics, INC.
County: CUMBERLAND Quad: _____ Township/Municipality: UPPER FRANKFORD
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: W-536 PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: 5+ acres

Wetland size estimation – If actual acreage is not known at time of investigation, check one:

☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☐ 1-2 acres ☐ 2-4 acres ☒ 5+ acres ☐ 10+ acres

WETLAND LOCATION: Lat 40.24405 Long -77.32253
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☒ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-16-14 Time In: ~ 1500 Time Out: ~ 1600
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?
☐ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☒ some of it – _____ acres or ~20 % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?
☒ none of it ☐ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?
☒ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☒ Y ☐ N ☐ Unknown
If yes, *could* they be potential bog turtle habitat? ☐ Y ☐ N ☒ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

AGRICULTURAL - CATTLE PASTURE, FALLOW FIELDS, Idle wood/land

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☐ Y ☒ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe
ACTIVELY GRAZED BY CATTLE

Project Name

PA Pipeline - Sunoco Logistics

Wetland J36 (con't)

Hydrology

- ☒ Y ☐ N Springs or seeps ☒ visible or ☐ likely? Watercress present? ☒ Yes ☐ No
☐ Y ☒ N Spring houses in or adjacent to wetland?
☒ Y ☐ N Saturated soils present? If yes, year-round? ☒ Likely ☐ Unlikely ☐ Unknown
☒ Y ☐ N Water visible on surface? Check all that apply: ☒ small puddles/depressions (2" deep)
☒ Y ☐ N ☒ rivulets (3" deep) ☒ larger pools/ponds (3" deep)
☐ Y ☒ N Evidence of flooding? If yes, describe indicators _____

Soils Mapping Unit (optional):Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown**Soils – PEM Portion of Wetland**

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input checked="" type="checkbox"/> >70%	Mucky soils range in depth from: 3 to 12"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
---	--	--	--

Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

- ☒ sedges ☒ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☐ sensitive fern ☐ rice cutgrass ☐ tearthumb ☐ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐ _____

Additional dominant species:

GRASS HUMMOCKS (PASTURE)

HerptilesWere any bog turtles observed? ☐ YES ☒ NO If yes, how many? _____Other herptiles ☐ observed ☐ previously observed: _____**Additional Comments/Observations:** (use additional sheets if necessary)

~ 2.39 ACRES OF SUITABLE BT HABITAT IS Present
 & ACTIVELY GRAZED BY CATTLE

INVESTIGATOR'S OPINION

- ☒ YES ☐ NO ☐ UNSURE The hydrology criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE The soils criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE The vegetation criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT
Investigator's Name (print)

Investigator's Signature

Date

4-16-14

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



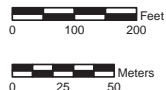
Wetland J36 – Western limit looking eastward, 2.39 acres of potential BT habitat with hummocks and mucky spring-fed rivulets throughout. Extent of mucky soils may decrease as the growing season progresses. 4-16-14



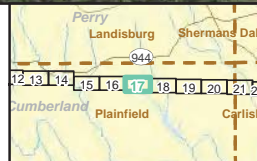
Wetland J36 – Eastern limit looking westward at grass and soft rush hummocks and spring-fed rivulets. Active cow pasture throughout, keeping vegetation growth/density in check throughout the 2.39 acres of core habitat, 4-16-14.



- Legend**
- Stream
 - Alignment Centerline
 - PEM
 - 800-ft ROW
 - PFO
 - USGS Quad Boundary
 - Municipality Boundary
 - PSS
 - Watershed
 - Pond



Notes:
 1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).
 2) Coordinate system is NAD 1983 SPCS Pennsylvania South.



BOG TURTLE STUDY AREA
 PA PIPELINE
 SUNOCO LOGISTICS, L.P.
 CUMBERLAND COUNTY, PENNSYLVANIA

DRAWN BY: K. MOORE 2/6/14
 CHECKED BY: P. SMITH 04/30/14
 APPROVED BY:
 CONTRACT NUMBER: 112IC05958

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REVISION
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USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Opposum Crk,
Drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO Logistics, Inc.
County: CUMBERLAND Quad: _____ Township/Municipality: Lower Frankford
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: J21 PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: ~1 acres
Wetland size estimation – If actual acreage is not known at time of investigation, check one:
☐ < 0.1 acre ☐ 0.1-0.5 acre ☒ > 0.5 to < 1 acre ☐ 1-2 acres ☐ 2-4 acres ☐ 5+ acres ☐ 10+ acres

WETLAND LOCATION: Lat 40.24206 Long -77.28967
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☒ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-23-14 Time In: ~1430 Time Out: ~1530
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?
☒ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☐ some of it – _____ acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?
☐ none of it ☐ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?
☐ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☐ Y ☐ N ☐ Unknown
If yes, *could* they be potential bog turtle habitat? ☐ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Ag. Tilled cornfields, Idle woodland, CRP lands

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☒ Y ☐ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe

Ag. Tilled cropland

Project Name PA Pipeline - Sunoco Logistics

Wetland J21 (con't)

Hydrology

- ☒ Y ☐ N Springs or seeps ☒ visible or ☐ likely? Watercress present? ☐ Yes ☐ No
☐ Y ☒ N Spring houses in or adjacent to wetland?
☒ Y ☐ N Saturated soils present? If yes, year-round? ☐ Likely ☐ Unlikely ☐ Unknown
☒ Y ☐ N Water visible on surface? Check all that apply: ☒ small puddles/depressions (2" deep)
☒ rivulets (2" deep) ☒ larger pools/ponds (3" deep)
☐ Y ☒ N Evidence of flooding? If yes, describe indicators _____

Soils Mapping Unit (optional): _____

Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown

Soils – PEM Portion of Wetland

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>10</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input checked="" type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
---	--	--	--

Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

- ☐ sedges ☐ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☒ sensitive fern ☐ rice cutgrass ☒ tearthumb ☒ reed canary grass ☐ *Phragmites* ☒ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐ _____

Additional dominant species: JAPANESE STILTGRASS

Herptiles

Were any bog turtles observed? ☐ YES ☒ NO If yes, how many? _____

Other herptiles ☐ observed ☐ previously observed: 2 painted turtles in pond downstream

Additional Comments/Observations: (use additional sheets if necessary)

marginal due to limited area of muck & land use
Tilled fields in immediate vicinity.

INVESTIGATOR'S OPINION

- ☒ YES ☐ NO ☐ UNSURE The hydrology criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE The soils criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE The vegetation criterion⁸ for bog turtle habitat is met.
☒ YES ☐ NO ☐ UNSURE This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT
Investigator's Name (print)

[Signature]
Investigator's Signature

4-23-14
Date

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



Wetland J21 – East view looking toward marginally suitable, potential BT habitat. 4-23-14



Wetland J21 – Standing in potential habitat looking west. 4-23-14

Environmental Consultation Services, Inc.

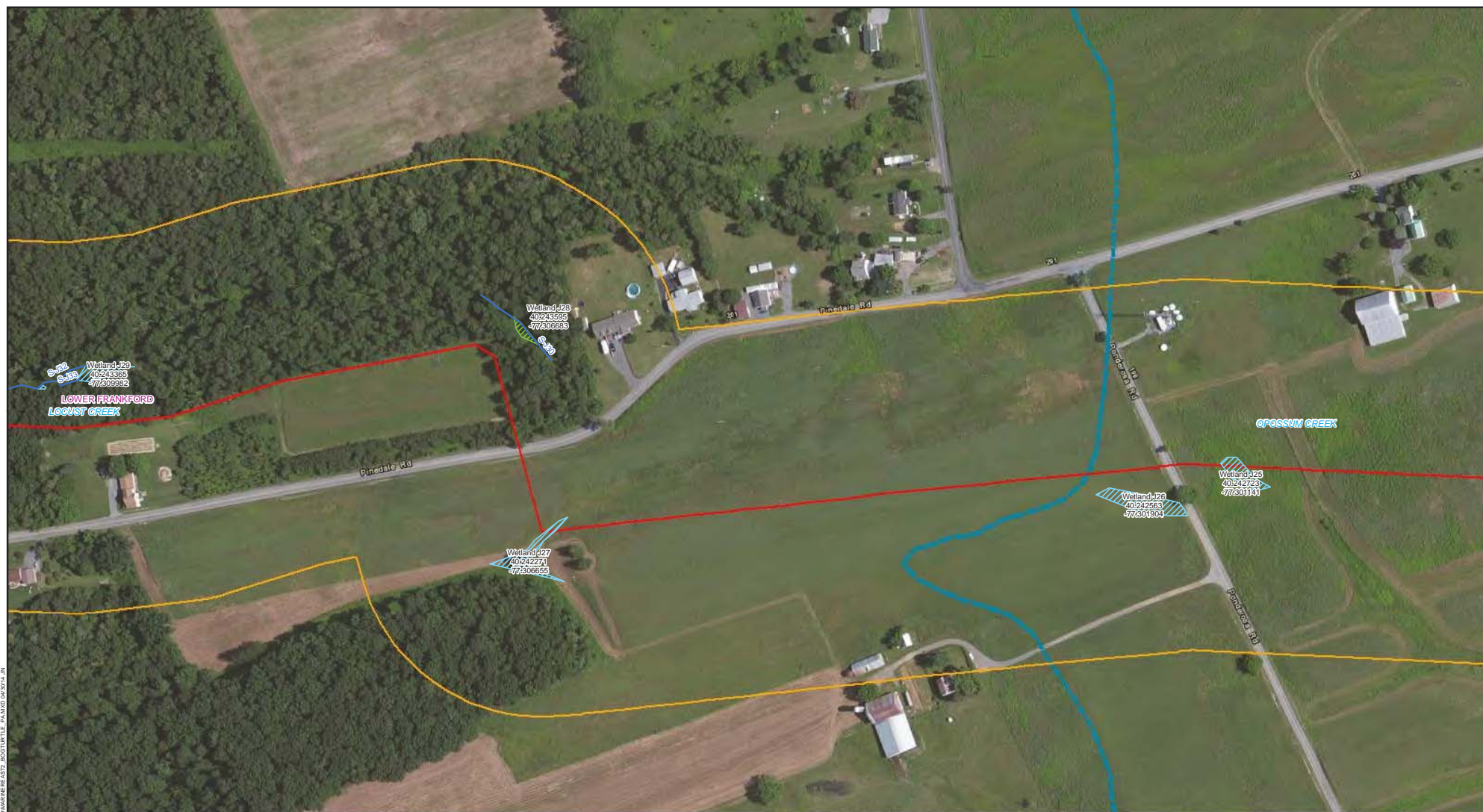
1095 Mill Rd., Pen Argyl, PA 18072



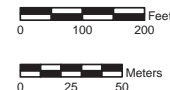
Wetland J21 – Downgradient side of potential habitat looking north.



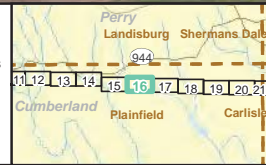
Wetland J21 – In potential habitat looking south, very limited in size.



- Legend**
- Stream
 - Alignment Centerline
 - PEM
 - PFO
 - PSS
 - Pond
 - 800-ft ROW
 - USGS Quad Boundary
 - Municipality Boundary
 - Watershed



Notes:
 1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).
 2) Coordinate system is NAD 1983 SPCS Pennsylvania South.



BOG TURTLE STUDY AREA
 PA PIPELINE
 SUNOCO LOGISTICS, L.P.
 CUMBERLAND COUNTY, PENNSYLVANIA

DRAWN BY: K. MOORE 2/6/14
 CHECKED BY: P. SMITH 04/30/14
 APPROVED BY:
 CONTRACT NUMBER: 112IC05958

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REVISION
 0



P01: POSSESSOR/OWNER: EAST 2ND/MAIN/REAR ST. BOGTURTLE. PLAND 04/30/14. JN

USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Locust Crk,
Drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO Logistics, Inc.
County: CUMBERLAND Quad: _____ Township/Municipality: Lower Frankford
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: W527 PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: ~1.5 acres

Wetland size estimation – If actual acreage is not known at time of investigation, check one:

☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☒ 1-2 acres ☐ 2-4 acres ☐ 5+ acres ☐ 10+ acres

WETLAND LOCATION: Lat 40.24214 Long -77.30682
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☐ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-23-14 Time In: 1000 Time Out: 1100
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?

☐ none of it – the entire wetland is within the property boundaries (skip next 2 questions)

☒ some of it – _____ acres or 30 % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?

☐ none of it ☒ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?

☒ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☐ Y ☐ N ☐ Unknown

If yes, *could* they be potential bog turtle habitat? ☐ Y ☒ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Ag. fields & idle woodland

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☐ Y ☒ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe
mowed

Project Name

PA PIPELINE-SUNOCO LOGISTICS

Wetland

J27

(con't)

Hydrology☒ Y ☐ NSprings or seeps ☒ visible or ☐ likely? Watercress present? ☐ Yes ☐ No☐ Y ☒ N

Spring houses in or adjacent to wetland?

☒ Y ☐ NSaturated soils present? If yes, year-round? ☐ Likely ☐ Unlikely ☐ Unknown☒ Y ☐ NWater visible on surface? Check all that apply: ☒ small puddles/depressions (2" deep)☒ rivulets (1" deep) ☒ larger pools/ponds (2" deep)☐ Y ☒ N

Evidence of flooding? If yes, describe indicators _____

Soils Mapping Unit (optional): _____Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown**Soils – PEM Portion of Wetland**

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input checked="" type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>12</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____ "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
---	--	--	---

Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

☐ sedges ☒ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☒ sensitive fern ☐ rice cutgrass ☒ tearthumb ☒ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐ _____

Additional dominant species: _____

HerptilesWere any bog turtles observed? ☐ YES ☒ NO If yes, how many? _____Other herptiles ☐ observed ☐ previously observed: _____**Additional Comments/Observations:** (use additional sheets if necessary)

0.1 Acres POT. HAB. - Limited muck, which is confined to
 Seep Head & Approx. 75 ft. linear rivulet THAT is 6-12" wide.
 Only 1 main Seep Head feeding rivulet.

INVESTIGATOR'S OPINION☒ YES ☐ NO ☐ UNSUREThe hydrology criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe soils criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe vegetation criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSURE

This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT

Investigator's Name (print)

Investigator's Signature

4-23-14

Date

Environmental Consultation Services, Inc.

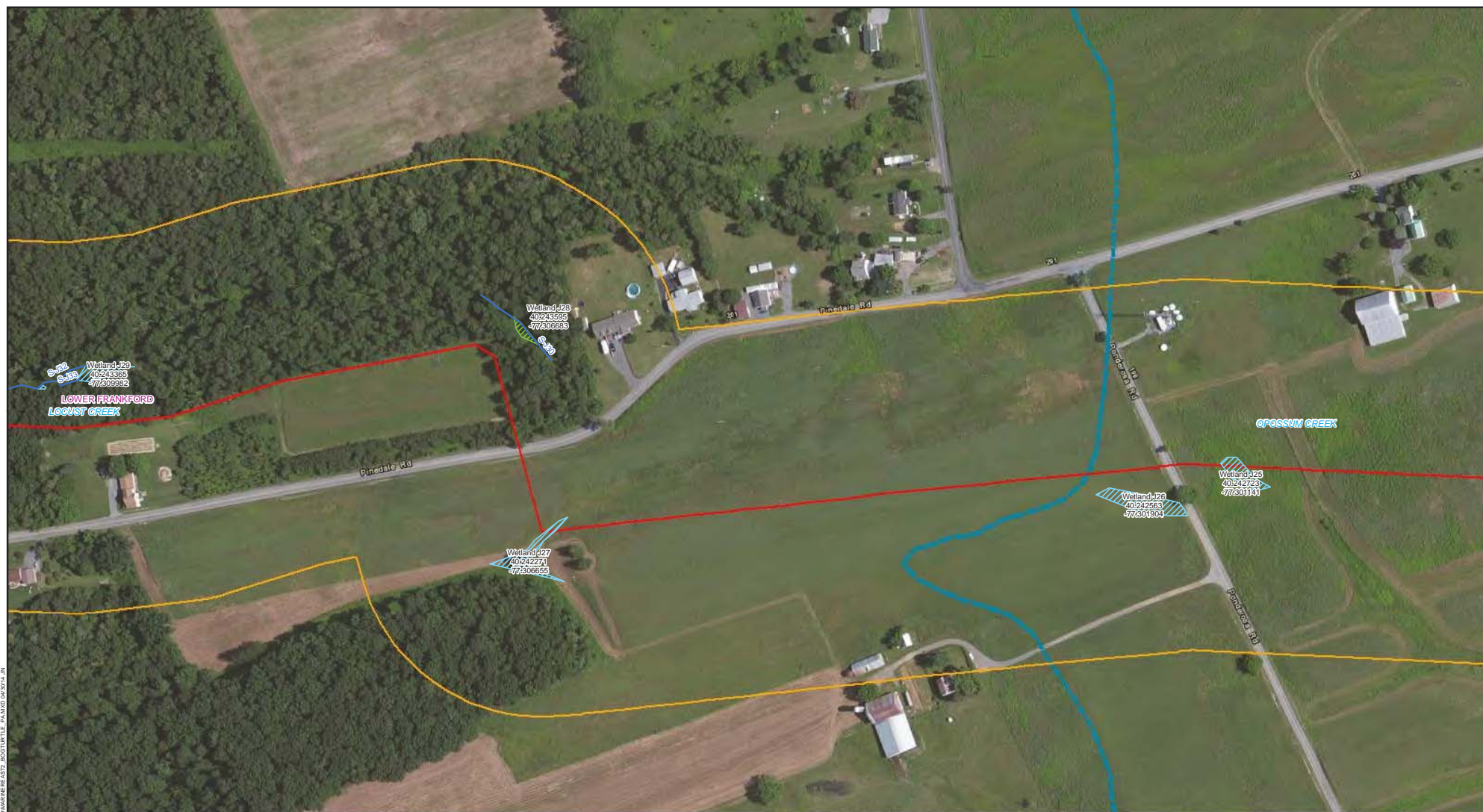
1095 Mill Rd., Pen Argyl, PA 18072



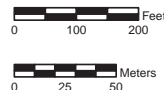
Wetland J27 – Southwest view of marginal potential habitat due to limited size. 4-23-14



Wetland J27 – Standing at spring seep head looking west. 4-23-14



- Legend**
- Stream
 - Alignment Centerline
 - PEM
 - PFO
 - PSS
 - Pond
 - 800-ft ROW
 - USGS Quad Boundary
 - Municipality Boundary
 - Watershed



Notes:
 1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).
 2) Coordinate system is NAD 1983 SPCS Pennsylvania South.



BOG TURTLE STUDY AREA
 PA PIPELINE
 SUNOCO LOGISTICS, L.P.
 CUMBERLAND COUNTY, PENNSYLVANIA

DRAWN BY: K. MOORE 2/6/14
 CHECKED BY: P. SMITH 04/30/14
 APPROVED BY:
 CONTRACT NUMBER: 112IC05958

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REVISION
 0



PSH: POSHUNODDAMER: EAST 2ND/MAIN/REAST/ BOGTURTLE PLAND 04/30/14 .IN

USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Locust Crk,
Drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO Logistics, Inc.
County: CUMBERLAND Quad: _____ Township/Municipality: L. Frankford
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: Between 528/529 PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: _____ acres
Wetland size estimation – If actual acreage is not known at time of investigation, check one:
☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☐ 1-2 acres ☐ 2-4 acres ☐ 5+ acres ☐ 10+ acres

WETLAND LOCATION: Lat 40.24387 Long -77.30898
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☐ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-23-14 Time In: ~1200 Time Out: ~1300
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?
☒ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☐ some of it – _____ acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?
☐ none of it ☐ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?
☐ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☒ Y ☐ N ☐ Unknown
If yes, *could* they be potential bog turtle habitat? ☒ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Open PEM wetland w/in Wooded Ravine surrounded by Ag & idle woodland

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☒ Y ☐ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe

Project Name

PA PIPELINE - SUNOCO LOGISTICS

Between 528/29
Wetland (con't)**Hydrology**☒ Y ☐ NSprings or seeps ☐ visible or ☒ likely? Watercress present? ☐ Yes ☒ No☐ Y ☒ N

Spring houses in or adjacent to wetland?

☐ Y ☐ NSaturated soils present? If yes, year-round? ☒ Likely ☐ Unlikely ☐ Unknown☒ Y ☐ NWater visible on surface? Check all that apply: ☒ small puddles/depressions (1" deep)☐ Y ☒ N☒ rivulets (2" deep) ☐ larger pools/ponds (1" deep)☐ Y ☒ N

Evidence of flooding? If yes, describe indicators _____

Soils Mapping Unit (optional): _____Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown**Soils – PEM Portion of Wetland**

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input checked="" type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>8</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
---	--	--	--

Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

☒ sedges ☐ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☒ sensitive fern ☐ rice cutgrass ☒ tearthumb ☒ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐ _____

Additional dominant species: _____

Japanese Stiffgrass

HerptilesWere any bog turtles observed? ☐ YES⁷ ☒ NO If yes, how many? _____Other herptiles ☐ observed ☐ previously observed: _____**Additional Comments/Observations:** (use additional sheets if necessary)

0.1 Acres of marginal (minimal mucky soils) HABITAT WHICH
 may be desiccated later in growing season

INVESTIGATOR'S OPINION

☐ YES ☐ NO ☐ UNSURE The hydrology criterion⁸ for bog turtle habitat is met.
☐ YES ☐ NO ☐ UNSURE The soils criterion⁸ for bog turtle habitat is met.
☐ YES ☐ NO ☐ UNSURE The vegetation criterion⁸ for bog turtle habitat is met.
☐ YES ☐ NO ☐ UNSURE This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT

Investigator's Name (print)

Kevin S. Keat

Investigator's Signature

4-23-14

Date

Environmental Consultation Services, Inc.

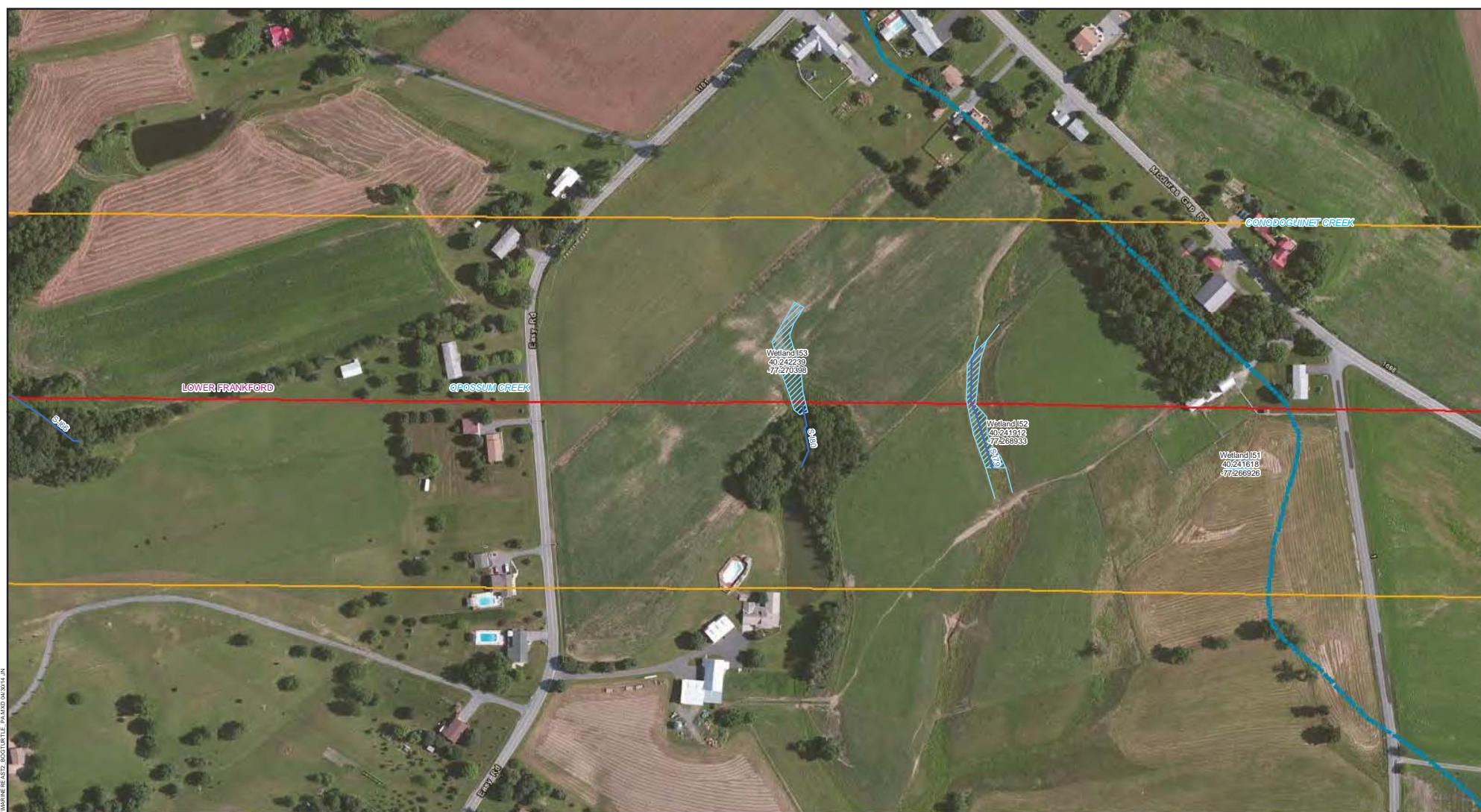
1095 Mill Rd., Pen Argyl, PA 18072



Wetland between J28/29, northeast view. Marginally potential habitat due to minimal muck and spring-fed hydrology.

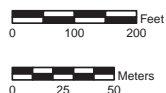


Wetland between J28/29, southeast view.

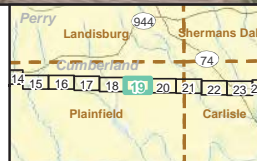


Legend

-
- Legend:
- Stream
 - Alignment Centerline
 - PEM
 - 800-ft ROW
 - PFO
 - USGS Quad Boundary
 - PSS
 - Municipality Boundary
 - Pond
 - Watershed



Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).
2) Coordinate system is NAD 1983 SPCS Pennsylvania South.



BOG TURTLE STUDY AREA

PA PIPELINE

SUNOCO LOGISTICS, L.P.
CUMBERLAND COUNTY, PENNSYLVANIA

DRAWN BY: K. MOORE 2/6/14
CHECKED BY: P. SMITH 04/30/14
APPROVED BY:

CONTRACT NUMBER: 112IC05958

PAGE 19 of 214

REVISION
0



USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Opposum Crk,
Drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO Logistics, INC.
County: CUMBERLAND Quad: _____ Township/Municipality: Lower Frankford
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: 152 PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: ~60 acres

Wetland size estimation – If actual acreage is not known at time of investigation, check one:

☐ < 0.1 acre ☐ 0.1-0.5 acre ☒ > 0.5 to < 1 acre ☒ 1-2 acres ☐ 2-4 acres ☐ 5+ acres ☐ 10+ acres

WETLAND LOCATION: Lat 40.24181 Long -77.26896
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☒ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-23-14 Time In: ~1530 Time Out: ~1630
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?
☐ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☒ some of it – _____ acres or 50 % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?
☐ none of it ☒ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?
☐ all of it ☐ part of it (at least _____ acres) ☒ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☒ Y ☐ N ☐ Unknown
If yes, *could* they be potential bog turtle habitat? ☒ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Grazed Cow-pasture & idle woodland

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☐ Y ☒ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe

Actively grazed cow pasture

Project Name

PA PIPELINE - SUNOCO LOGISTICS

Wetland

152

(con't)

Hydrology☒ Y ☐ NSprings or seeps ☐ visible or ☒ likely? Watercress present? ☐ Yes ☐ No☐ Y ☒ N

Spring houses in or adjacent to wetland?

☒ Y ☐ NSaturated soils present? If yes, year-round? ☒ Likely ☐ Unlikely ☐ Unknown☒ Y ☐ NWater visible on surface? Check all that apply: ☐ small puddles/depressions (___" deep)☒ rivulets (2" deep) ☐ larger pools/ponds (___" deep)☐ Y ☒ N

Evidence of flooding? If yes, describe indicators _____

1 main rivulet

Soils Mapping Unit (optional):Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknown**Soils – PEM Portion of Wetland**

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input checked="" type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: 3 to 10"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: ___ to ___"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
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Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

☒ sedges ☒ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☐ jewelweed ☐ sphagnum moss
☐ sensitive fern ☐ rice cutgrass ☐ tearthumb ☒ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐ _____

Additional dominant species:

Hummocked pasture grass

HerptilesWere any bog turtles observed? ☐ YES⁷ ☒ NO If yes, how many? _____Other herptiles ☐ observed ☐ previously observed: _____**Additional Comments/Observations:** (use additional sheets if necessary)

0.1 AC. Habitat w/ 1 main rivulet that becomes incised further downstream. Muck limited to fringe of seep. Area may become reduced as growing season progresses.

INVESTIGATOR'S OPINION☒ YES☐ NO☐ UNSUREThe hydrology criterion⁸ for bog turtle habitat is met.☒ YES☐ NO☐ UNSUREThe soils criterion⁸ for bog turtle habitat is met.☒ YES☐ NO☐ UNSUREThe vegetation criterion⁸ for bog turtle habitat is met.☒ YES☐ NO☐ UNSURE

This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT

Investigator's Name (print)

Investigator's Signature

4-23-14

Date

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



Wetland i52 – North view of one main rivulet and mucky soils. 4-23-14



Wetland i52 – South view. 4-23-14

USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Conodoguinet
drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO Logistics, INC.
County: CUMBERLAND Quad: _____ Township/Municipality: _____
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: J44 PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: 5+ acres

Wetland size estimation – If actual acreage is not known at time of investigation, check one:

☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☐ 1-2 acres ☐ 2-4 acres ☒ 5+ acres ☐ 10+ acres

WETLAND LOCATION: Lat 40.24256 Long -77.26415
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☒ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-26-14 Time In: 1130 Time Out: 1230
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?

☐ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☒ some of it – _____ acres or 30 % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?

☒ none of it ☐ all of it ☐ part of it (30 % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?

☐ all of it ☐ part of it (at least _____ acres) ☒ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☐ Y ☒ N ☐ Unknown

If yes, could they be potential bog turtle habitat? ☐ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

Rolling Topo-Ag Fields & Idle Woodland

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☐ Y ☒ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe

mowing

Project Name

PA PIPELINE - SUNOCO LOGISTICS

Wetland 544 (con't)

Hydrology☒ Y ☐ NSprings or seeps ☐ visible or ☒ likely? Watercress present? ☐ Yes ☐ No☐ Y ☒ N

Spring houses in or adjacent to wetland?

☐ Y ☐ NSaturated soils present? If yes, year-round? ☒ Likely ☐ Unlikely ☐ Unknown☐ Y ☐ NWater visible on surface? Check all that apply: ☒ small puddles/depressions (1" deep)☒ rivulets (3" deep) ☐ larger pools/ponds (" deep)☒ Y ☐ NEvidence of flooding? If yes, describe indicators matted PHALARIS suggests**Soils Mapping Unit (optional):**Field observations confirm mapped type? ☐ YES ☐ NO ☒ Unknownepisodes of High flow during storm events**Soils - PEM Portion of Wetland**

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: <u>3</u> to <u>12</u> "	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils - PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
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Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

☐ sedges ☐ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☒ sensitive fern ☐ rice cutgrass ☐ tearthumb ☒ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐ _____

Additional dominant species: _____

HerpetilesWere any bog turtles observed? ☐ YES⁷ ☐ NO If yes, how many? _____Other herpetiles ☐ observed ☐ previously observed: _____**Additional Comments/Observations:** (use additional sheets if necessary)

0.2 AC. HABITAT - THOUGH MARGINAL DUE TO
LIMITED MUCK & APPARENT EPISODES OF FLOODING DURING
MAJOR STORM EVENTS


INVESTIGATOR'S OPINION☒ YES ☐ NO ☐ UNSUREThe hydrology criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe soils criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe vegetation criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSURE

This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT

Investigator's Name (print)



Investigator's Signature

4-26-14

Date

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



**Wetland J44 – Marginal habitat limited to one rivulet that transitions to incised channel, west view.
4-26-14**



Wetland J44 – Marginal habitat, east view. 4-26-14

USFWS / PFBC Bog Turtle Habitat Evaluation Field Form¹
(revised 06/01/2006)

Conodoguinet
drainage

Project/Property Name: PA PIPELINE
Project type: 16" DIAMETER PIPELINE INSTALLATION
Applicant/Landowner Name: SUNOCO LOGISTICS, INC.
County: CUMBERLAND Quad: _____ Township/Municipality: _____
PNDI # _____ Potential conflict with USFWS species? ☒ Y ☐ N

ACTION AREA²

Action area size: _____ Does the Phase 1 survey include all wetlands in the action area? ☒ Y ☐ N³

WETLAND ID: J20 PHOTOS TAKEN: ☒ Yes ☐ No WETLAND SIZE: ~2 acres

Wetland size estimation – If actual acreage is not known at time of investigation, check one:

☐ < 0.1 acre ☐ 0.1-0.5 acre ☐ > 0.5 to < 1 acre ☐ 1-2 acres ☒ 2-4 acres ☐ 5+ acres ☐ 10+ acres

WETLAND LOCATION: Lat 40,24188,- Long -77,25990
(approximate center of wetland) GPS Datum (check one): ☐ NAD 27 ☒ NAD 83 ☐ WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 4-26-14 Time In: 1330 Time Out: 1430
Last precipitation: ☐ < 24 hours ☐ 1-7 days ☐ > 1 week ☐ unknown Drought conditions? ☒ Y ☐ N ☐ Unknown

How much of this wetland is located *off-site* (i.e., outside the property boundaries or right-of-way)?

- ☒ none of it – the entire wetland is within the property boundaries (skip next 2 questions)
☐ some of it – _____ acres or _____ % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the *off-site portion* was surveyed (on foot)?

- ☐ none of it ☐ all of it ☐ part of it (_____ % or _____ acres of the off-site portion)

How much of the *off-site portion* of this wetland is visible (e.g., from the subject property or from a public road)?

- ☐ all of it ☐ part of it (at least _____ acres) ☐ none of it

Are there any wetlands located off-site and close enough to be affected by this project? ☐ Y ☐ N ☐ Unknown

If yes, *could* they be potential bog turtle habitat? ☐ Y ☐ N ☐ Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: ☒ PEM 100 ☐ PSS _____ ☐ PFO _____ ☐ POW _____

☒ Y ☐ N Are there any signs of disturbance to *hydrology* (ditching, filling, ponds, roads, etc.)? If yes, describe

☒ Y ☐ N Are there any signs of disturbance to *vegetation* (mowing, pasturing, burning, etc.)? If yes, describe

Project Name

PA PIPELINE - SONOCO LOGISTICS

Wetland

J20 (con't)

Hydrology☒ Y ☐ NSprings or seeps ☒ visible or ☐ likely? Watercress present? ☐ Yes ☐ No☐ Y ☒ N

Spring houses in or adjacent to wetland?

☒ Y ☐ NSaturated soils present? If yes, year-round? ☒ Likely ☐ Unlikely ☐ Unknown☒ Y ☐ NWater visible on surface? Check all that apply: ☐ small puddles/depressions (3" deep)☒ Y ☐ N☒ rivulets (2" deep) ☒ larger pools/ponds (2" deep)☒ Y ☐ NEvidence of flooding? If yes, describe indicators MATTED PHALARIS suggests episodes of Flooding during MARCH**Soils Mapping Unit (optional):**Field observations confirm mapped type? ☐ YES ☐ NO ☒ UnknownStorm Events**Soils – PEM Portion of Wetland**

<i>Mucky</i> ⁴ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: 3 to 12"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input checked="" type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
<i>Non-mucky</i> ⁶ ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils – PSS and PFO Portions of Wetland

<i>Mucky</i> ⁴ ? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it is mucky ? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____"	Most of the mucky part(s) of the wetland can be probed ⁵ : <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
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Wetland Vegetation (characterize the wetland as a whole)

Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).

- ☐ sedges ☐ rushes ☐ skunk cabbage ☐ cattail ☐ sweet flag ☒ jewelweed ☐ sphagnum moss
☐ sensitive fern ☐ rice cutgrass ☐ tearthumb ☒ reed canary grass ☐ *Phragmites* ☐ purple loosestrife
☐ alder ☐ dogwood ☐ red maple ☐ willow ☐ poison sumac ☐ multiflora rose ☐

Additional dominant species:

Japanese stiltgrass**Herptiles**Were any bog turtles observed? ☐ YES⁷ ☒ NO If yes, how many? _____Other herptiles ☐ observed ☐ previously observed: _____**Additional Comments/Observations:** (use additional sheets if necessary)**INVESTIGATOR'S OPINION**☒ YES ☐ NO ☐ UNSUREThe hydrology criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe soils criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSUREThe vegetation criterion⁸ for bog turtle habitat is met.☒ YES ☐ NO ☐ UNSURE

This wetland is potential bog turtle habitat.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

KEVIN S. KEAT

Investigator's Name (print)

Kevin S. Keat

Investigator's Signature

4-26-14

Date

Environmental Consultation Services, Inc.

1095 Mill Rd., Pen Argyl, PA 18072



Wetland J20 – West view of potential habitat. 4-26-14



Wetland J20 – East view of potential habitat. 4-26-14