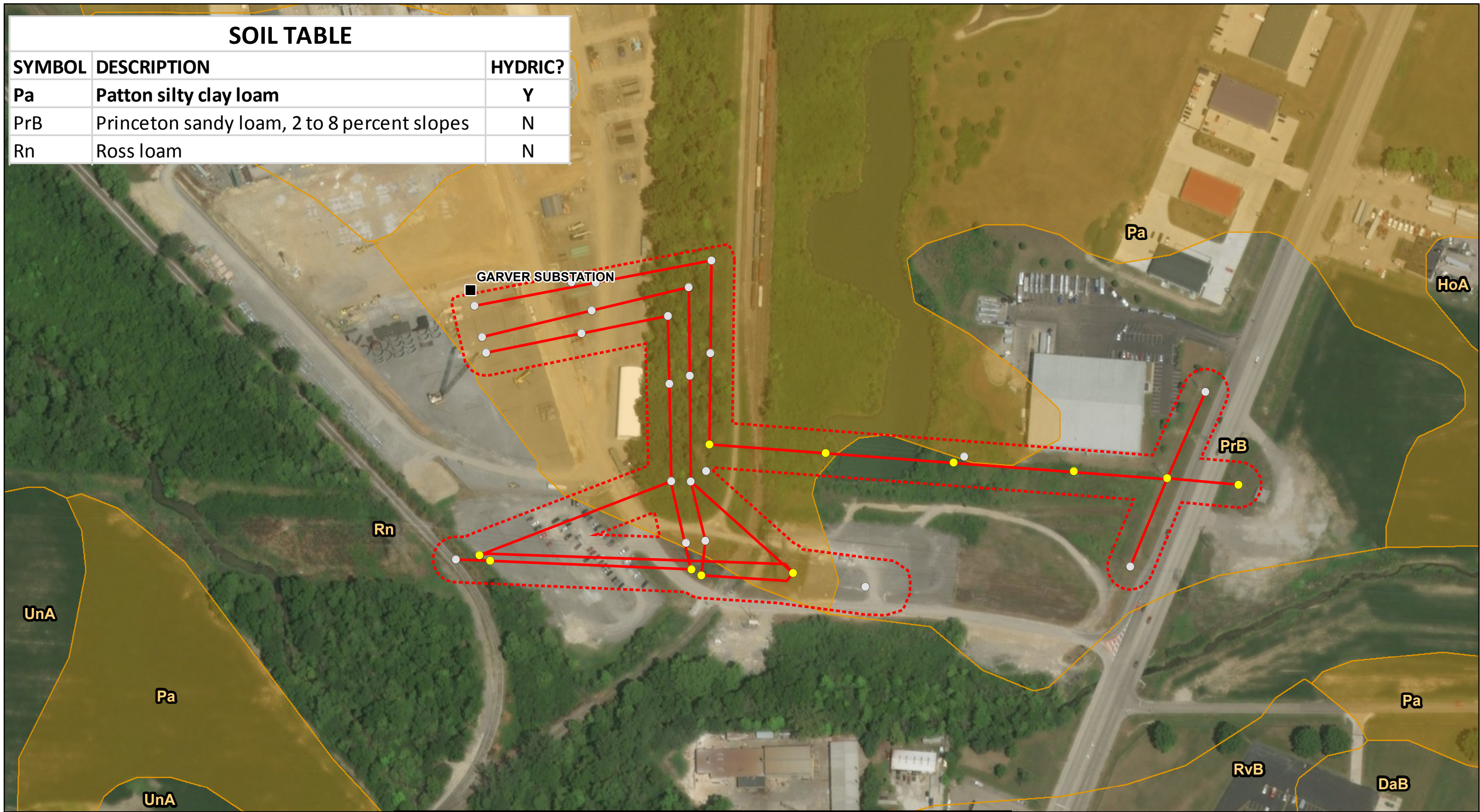


## SOIL TABLE

SYMBOL	DESCRIPTION	HYDRIC?
Pa	Patton silty clay loam	Y
PrB	Princeton sandy loam, 2 to 8 percent slopes	N
Rn	Ross loam	N



REFERENCE:  
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGRY MICROSOFT CORPORATION, ACCESSED 10/2018

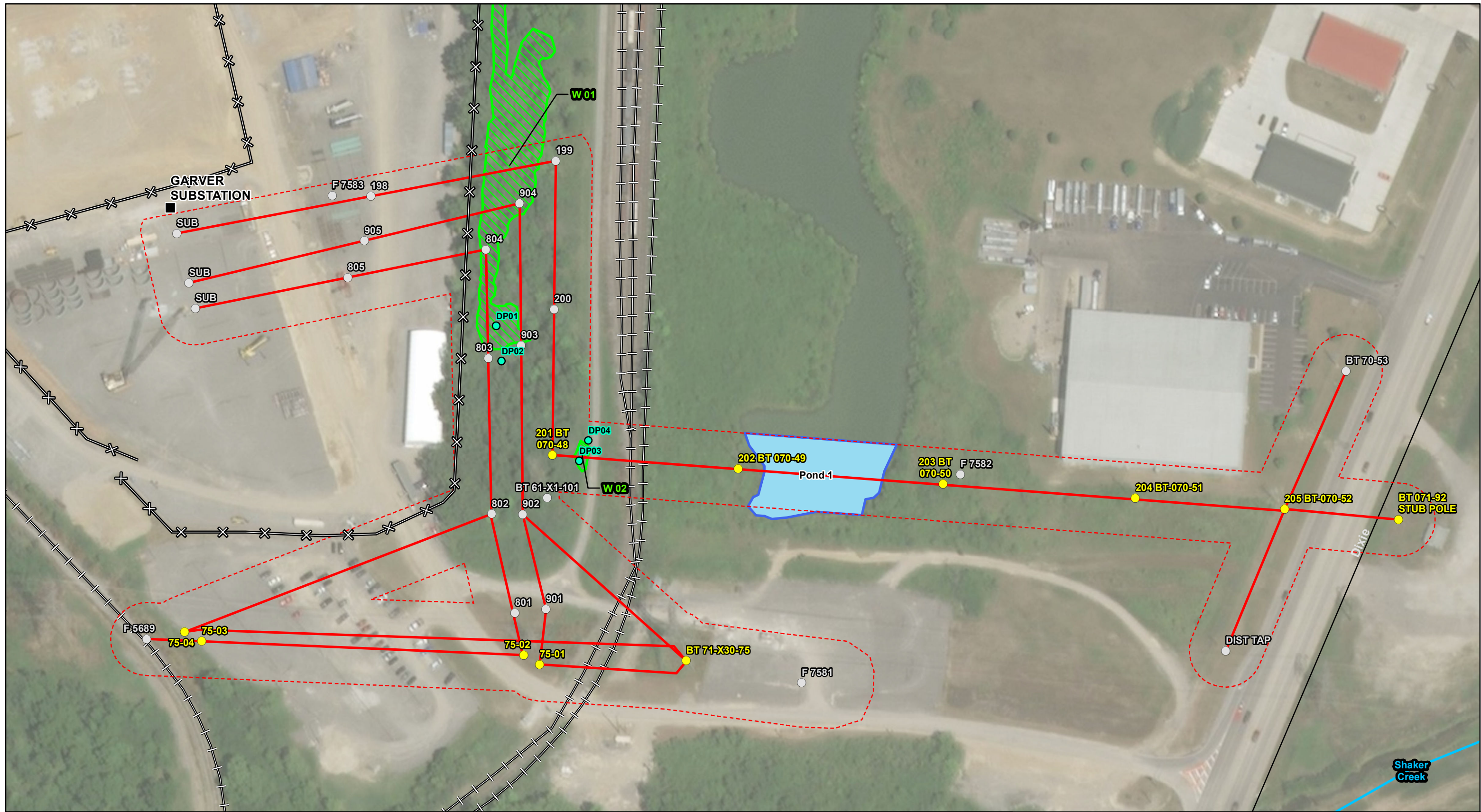
■ Existing Facility	— Interstate	⋯ Study Area
○ Proposed Structure	— State Highway	□ Soil Unit
● Existing Structure	— US Highway	■ Soil Unit - Hydric
— Project Centerline	⚓ Railroad	

0 95 190 Feet

FIGURE 2  
REGULATED WATERS DELINEATION REPORT  
F7581/F7582/F5689 -138kV Garver Substation TLoop

DUKE ENERGY  
SOIL SURVEY MAP

DRAWN BY: DKT      DATE: 1/10/2019  
CHECKED: DKT      APPROVED: MWW



**PROJECT LOCATION**

BUTLER COUNTY, OHIO

**REFERENCE:**  
 ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGRY MICROSOFT CORPORATION, ACCESSED 10/2018

■ Existing Facility	— Project Centerline	— State Highway
● Wetland Data Point	- - - Study Area	— US Highway
● Existing Structure	▨ Delineated Wetland	— Railroad
○ Proposed Structure	— Local Road	— Delineated Pond
⊗ Fence Line	— Interstate	
— Shaker Creek		

0 30 60 120 Feet

**FIGURE 3**  
 REGULATED WATERS DELINEATION REPORT  
 F7581/F7582/F5689 -138kV Garver Substation TLoop

DUKE ENERGY  
 REGULATED WATERS DELINEATION

DRAWN BY: DKT  
 CHECKED: DKT

DATE: 1/14/2019  
 APPROVED: MWW

DUKE ENERGY  
F7581/F7582/F5689—138kV  
GARVER SUBSTATION TLOOP

APPENDIX

A

SITE PHOTOGRAPHS



Photo 1. Data Point 1, View Facing North, 11/17/2018.



Photo 2. Data Point 1, View Facing South, 11/17/2018.



Photo 3. Data Point 2, View Facing East, 11/17/2018.



Photo 4. Data Point 2, View Facing South, 11/17/2018.



Photo 5. Data Point 3, View Facing North, 11/17/2018.



Photo 6. Data Point 3, View Facing South, 11/17/2018.



Photo 7. Data Point 4, View Facing North, 11/17/2018.



Photo 8. Data Point 4, View Facing South, 11/17/2018.

DUKE ENERGY  
F7581/F7582/F5689—138kV  
GARVER SUBSTATION

APPENDIX

**B**

OHIO RAPID ASSESSMENT METHOD 5.0  
FORM AND USACE WETLAND  
DELINEATION DATA SHEETS

Site: Duke Energy Garver Substation	Rater(s): K. Hillier and D. Thom	Date: November 7, 2018
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<b>2</b>	<b>2</b>
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

Project: Garver Substation Weltaud 1
--------------------------------------

Select one size class and assign score.

- >50 acres (>20.2ha) ( 6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

<b>5</b>	<b>7</b>
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<b>20</b>	<b>27</b>
max 30 pts.	subtotal

**Metric 3. Hydrology**

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

<b>18</b>	<b>45</b>
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

<b>45</b>
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subtotal this page

Site: Duke Energy Garver Substation	Rater(s): K. Hillier and D. Thom	Date: November 7, 2018
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15

subtotal this page

5	5
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max 10 pts subtotal

**Metric 5. Special Wetlands**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)
- Not Applicable (0)

Site: Garver Substation Wetland 1

10	15
----	----

max 20 pts subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- 0 Aquatic bed
- 1 Emergent
- 0 Shrub
- 3 Forest
- 0 Mudflats
- 0 Open water
- 0 Other

6b. Horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 0 Vegetated hummocks/tussocks
- 1 Coarse woody debris >15cm (6in)
- 1 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but no always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1ha (0.247 acres)
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

60

Grand Total (max 100 pts)

Comments:



Site: Duke Energy Garver Substation	Rater(s): K. Hillier and D. Thom	Date: November 7, 2018
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<b>0</b>	<b>0</b>
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

Project: Garver Substation Wetland 2
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Select one size class and assign score.

- >50 acres (>20.2ha) ( 6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

<b>7</b>	<b>7</b>
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<b>10</b>	<b>17</b>
max 30 pts.	subtotal

**Metric 3. Hydrology**

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

<b>11</b>	<b>28</b>
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

<b>28</b>
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subtotal this page

Site: Duke Energy Garver Substation	Rater(s): K. Hillier and D. Thom	Date: November 7, 2018
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-11

subtotal this page

-10	-10
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max 10 pts subtotal

**Metric 5. Special Wetlands**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)
- Not Applicable (0)

Site: Garver Substation Wetland 2

-1	-11
----	-----

max 20 pts subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- 0 Aquatic bed
- 1 Emergent
- 0 Shrub
- 0 Forest
- 0 Mudflats
- 0 Open water
- 0 Other

6b. Horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 0 Vegetated hummocks/tussocks
- 0 Coarse woody debris >15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

Vegetation Community	Cover Scale
0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality	Quality
low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but no always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality	Quality
0	Absent <0.1ha (0.247 acres)
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

17

 Grand Total (max 100 pts)

Comments:

**WETLAND DETERMINATION DATA FORM -- Midwest Region**

Project/Site: Garver Substation City/County: Middletown/Butler Sampling Date: 11/7/2018  
 Applicant/Owner: Duke Energy State: OH Sampling Point: DP01  
 Investigator(s): Kaitlin Hillier and Danielle Thompson Section, Township, Range: S7 T2E R4N  
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave  
 Slope (%): \_\_\_\_\_ Lat: 39.46665 Long: -84.35136 Datum: NAD83 UTM16N  
 Soil Map Unit Name: Patton silty clay loam (Pa) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____		Yes <u>X</u>	No _____
Wetland Hydrology Present?	Yes <u>X</u>	No _____		Yes <u>X</u>	No _____
Remarks:					

**VEGETATION -- Use scientific names of plants.**

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Carya laciniosa</i>	60%	Yes	FACW	<b>Dominance Test worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <i>Celtis occidentalis</i>	20%	Yes	FAC	
3. _____				
4. _____				
5. _____				
80% = Total Cover				

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status																			
1. <i>Carya laciniosa</i>	5%	Yes	FACW	<b>Prevalence Index worksheet:</b>  <table border="0" style="width:100%;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>That Are OBL, FACW, or FAC:</td> <td align="center">A/B</td> </tr> <tr> <td>OBL species <u>3%</u></td> <td>x1 = <u>0.03</u></td> </tr> <tr> <td>FACW species <u>141%</u></td> <td>x2 = <u>2.82</u></td> </tr> <tr> <td>FAC species <u>20%</u></td> <td>x3 = <u>0.6</u></td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species <u>1%</u></td> <td>x5 = <u>0.05</u></td> </tr> <tr> <td>Column Totals: <u>1.65</u> (A)</td> <td><u>3.5</u> (B)</td> </tr> <tr> <td align="center" colspan="2">Prevalence Index = B/A = <u>2.12</u></td> </tr> </table>	Total % Cover of:	Multiply by:	That Are OBL, FACW, or FAC:	A/B	OBL species <u>3%</u>	x1 = <u>0.03</u>	FACW species <u>141%</u>	x2 = <u>2.82</u>	FAC species <u>20%</u>	x3 = <u>0.6</u>	FACU species _____	x4 = _____	UPL species <u>1%</u>	x5 = <u>0.05</u>	Column Totals: <u>1.65</u> (A)	<u>3.5</u> (B)	Prevalence Index = B/A = <u>2.12</u>	
Total % Cover of:	Multiply by:																					
That Are OBL, FACW, or FAC:	A/B																					
OBL species <u>3%</u>	x1 = <u>0.03</u>																					
FACW species <u>141%</u>	x2 = <u>2.82</u>																					
FAC species <u>20%</u>	x3 = <u>0.6</u>																					
FACU species _____	x4 = _____																					
UPL species <u>1%</u>	x5 = <u>0.05</u>																					
Column Totals: <u>1.65</u> (A)	<u>3.5</u> (B)																					
Prevalence Index = B/A = <u>2.12</u>																						
2. <i>Lonicera maackii</i>	1%	No	UPL																			
3. _____																						
4. _____																						
5. _____																						
6% = Total Cover																						

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Leersia virginica</i>	70%	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b>  _____ 1-Rapid Test for Hydrophytic Vegetation <u>X</u> 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 <sup>1</sup> _____ 4-Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Fraxinus pennsylvanica</i>	5%	No	FACW	
3. <i>Carex muskingumensis</i>	3%	No	OBL	
4. <i>Carex granularis</i>	1%	No	FACW	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
13. _____				
14. _____				
15. _____				
16. _____				
17. _____				
18. _____				
19. _____				
20. _____				
79% = Total Cover				

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____				
_____ = Total Cover				

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

**SOIL**

Sampling Point: DP01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16"	10YR 4/2	85	10YR 4/4	15	C	M	Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators <sup>3</sup> :			Test Indicators of Hydric Soils:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Iron-Manganese Masses (F12)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Very Shallow Dark Surface (F22)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)				
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)				
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input checked="" type="checkbox"/> Redox Depressions (F8)				

<sup>3</sup>The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

**Restrictive Layer (if observed):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes       No

Remarks:

**HYDROLOGY**

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

<b>Field Observations:</b> Surface Water Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Water Table Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>8"</u> Saturation Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**SOIL**

Sampling Point: DP02

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14"	10YR 4/2	85					Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators <sup>3</sup> :	Test Indicators of Hydric Soils:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)
	<input type="checkbox"/> Iron-Manganese Masses (F12)
	<input type="checkbox"/> Very Shallow Dark Surface (F22)
	<input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

**Restrictive Layer (if observed):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

<p><b>Field Observations:</b></p> <p>Surface Water Present?      Yes _____ No <u>X</u>      Depth (inches): <u>NA</u></p> <p>Water Table Present?      Yes _____ No <u>X</u>      Depth (inches): <u>NA</u></p> <p>Saturation Present?      Yes _____ No <u>X</u>      Depth (inches): <u>NA</u></p> <p>(includes capillary fringe)</p>	<p><b>Wetland Hydrology Present?</b>      Yes _____ No <u>X</u></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM -- Midwest Region**

Project/Site: Garver Substation City/County: Middletown/Butler Sampling Date: 11/7/2018  
 Applicant/Owner: Duke Energy State: OH Sampling Point: DP03  
 Investigator(s): Kaitlin Hillier and Danielle Thompson Section, Township, Range: S7 T2E R4N  
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): concave  
 Slope (%): \_\_\_\_\_ Lat: 39.46613 Long: -84.35096 Datum: NAD83 UTM16N  
 Soil Map Unit Name: Patton silty clay loam (Pa) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

**VEGETATION -- Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30' radius)				
1. _____				<b>Dominance Test worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Sapling/Shrub Stratum</b> (Plot size: 15' radius)				
1. <i>Robinia pseudoacacia</i>	10%	Yes	FACU	<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: _____ That Are OBL, FACW, or FAC: _____ A/B  OBL species _____ x1 = _____ FACW species <u>93%</u> x2 = <u>1.86</u> FAC species <u>21%</u> x3 = <u>0.63</u> FACU species <u>16%</u> x4 = <u>0.64</u> UPL species _____ x5 = _____ Column Totals: <u>1.30</u> (A) <u>3.13</u> (B)  Prevalence Index = B/A = <u>2.41</u>
2. <i>Morus alba</i>	3%	No	FAC	
3. <i>Fraxinus pennsylvanica</i>	3%	No	FACW	
4. <i>Acer negundo</i>	1%	No	FAC	
5. _____				
17% = Total Cover				

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Herb Stratum</b> (Plot size: 5' radius)				
1. <i>Phalaris arundinacea</i>	90%	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b>  _____ 1-Rapid Test for Hydrophytic Vegetation _____ 2-Dominance Test is >50% <u>X</u> 3-Prevalence Index is ≤3.0 <sup>1</sup> _____ 4-Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Apocynum cannabinum</i>	15%	No	FAC	
3. <i>Symphotrichum ericoides</i>	5%	No	FACU	
4. <i>Rumex crispus</i>	1%	No	FAC	
5. <i>Dipsacus fullonum</i>	1%	No	FACU	
6. <i>Quercus macrocarpa</i>	1%	No	FAC	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
13. _____				
14. _____				
15. _____				
16. _____				
17. _____				
18. _____				
19. _____				
20. _____				
113% = Total Cover				

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Woody Vine Stratum</b> (Plot size: 30' radius)				
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____				
_____ = Total Cover				

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

**SOIL**

Sampling Point: DP03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16"	10YR 4/2	90	10YR 4/4	10	C	M	Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators <sup>3</sup> :			Test Indicators of Hydric Soils:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Iron-Manganese Masses (F12)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Very Shallow Dark Surface (F22)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)				
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)				
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input checked="" type="checkbox"/> Redox Depressions (F8)				

<sup>3</sup>The hydric soil indicators have been updated to comply with the *Field Indicators of Hydric Soils in the United States*, Version 8.0, 2016.

**Restrictive Layer (if observed):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes       No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
	<input type="checkbox"/> Thin Muck Surface (C7)
	<input type="checkbox"/> Gauge or Well Data (D9)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Water Table Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Saturation Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**WETLAND DETERMINATION DATA FORM -- Midwest Region**

Project/Site: Garver Substation City/County: Middletown/Butler Sampling Date: 11/7/2018  
 Applicant/Owner: Duke Energy State: OH Sampling Point: DP04  
 Investigator(s): Kaitlin Hillier and Danielle Thompson Section, Township, Range: S7 T2E R4N  
 Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): convex  
 Slope (%): \_\_\_\_\_ Lat: 39.46621 Long: -84.35092 Datum: NAD83 UTM16N  
 Soil Map Unit Name: Patton silty clay loam (Pa) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

**VEGETATION -- Use scientific names of plants.**

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Robinia pseudoacacia</i>	25%	Yes	FACU
2. <i>Populus tremuloides</i>	5%	No	FAC
3. _____			
4. _____			
5. _____			
	30% = Total Cover		

<b>Dominance Test worksheet:</b>	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>4</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>25%</u> (A/B)

Sapling/Shrub Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Robinia pseudoacacia</i>	5%	Yes	FACU
2. _____			
3. _____			
4. _____			
5. _____			
	5% = Total Cover		

<b>Prevalence Index worksheet:</b>	
Total % Cover of: That Are OBL, FACW, or FAC:	Multiply by: <u>A/B</u>
OBL species _____	x1 = _____
FACW species <u>23%</u>	x2 = <u>0.46</u>
FAC species <u>7%</u>	x3 = <u>0.21</u>
FACU species <u>95%</u>	x4 = <u>3.8</u>
UPL species <u>5%</u>	x5 = <u>0.25</u>
Column Totals: <u>1.30</u> (A)	<u>4.72</u> (B)
Prevalence Index = B/A = <u>3.63</u>	

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Solidago canadensis</i>	55%	Yes	FACU
2. <i>Phalaris arundinacea</i>	20%	Yes	FACW
3. <i>Symphotrichum ericoides</i>	10%	No	FACU
4. <i>Lonicera maackii</i>	5%	No	UPL
5. <i>Lysimachia nummularia</i>	3%	No	FACW
6. <i>Morus alba</i>	1%	No	FAC
7. <i>Toxicodendron radicans</i>	1%	No	FAC
8. _____			
9. _____			
10. _____			
11. _____			
12. _____			
13. _____			
14. _____			
15. _____			
16. _____			
17. _____			
18. _____			
19. _____			
20. _____			
	95% = Total Cover		

**Hydrophytic Vegetation Indicators:**

\_\_\_\_ 1-Rapid Test for Hydrophytic Vegetation  
 \_\_\_\_ 2-Dominance Test is >50%  
 \_\_\_\_ 3-Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

Woody Vine Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
	_____ = Total Cover		

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

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