

# Memorandum

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**TO: Burke Wind, LLC**

**FROM: Atwell, LLC**

**DATE: February 1, 2019**

**RE: Burke County Wind Energy Center  
Verification of No Impacts to Waters of the United States**

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Based on Atwell, LLC's (Atwell's) review of the Amended Burke County Wind Energy Center Site Plan (Amended Site Plan), dated January 2, 2019 (depicted on **Figure 1**), this memorandum documents that no temporary or permanent impacts to waters of the United States (WOUS) are expected for the Burke County Wind Energy Center (the Project) in Burke County, North Dakota. The Project is also associated with the proposed Burke County Transmission Line, which is being permitted separately and is not discussed herein. The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into all WOUS, which includes navigable waters, perennial and intermittent tributaries (watercourses), and wetlands (jurisdictional wetlands) that have a continuous surface connection or unbroken hydrological connection to navigable waters or watercourses. Thus, no USACE wetland permitting is required or being sought for the proposed Project.

The Project construction easement, collection line corridor, and crane paths as shown on the Amended Site Plan (depicted on **Figure 1**), consists of the areas where all Project infrastructure and construction activities will occur. This includes the wind turbines; access roads; buried, underground electrical collection lines; crane paths; associated batch plant; meteorological towers; temporary construction laydown yard; substation; and operations and maintenance building area. The Project construction easement and collection line corridor contains several areas where WOUS are present, but temporary or permanent impacts will be avoided by boring collection beneath the WOUS (**Table 1**).

As summarized in Atwell's 2017 *Wetland Determination & Delineation Report for the Proposed Burke County Wind Energy Center, Burke County, North Dakota* and its 2019 *Addendum to the Wetland Determination & Delineation Report*, Atwell conducted an initial desktop aerial photograph interpretation and jurisdictional review to identify potential WOUS within the Project area. A meeting was held with the USACE regulatory office in Bismarck on December 13, 2016, to discuss the results and findings of the desktop review. It was determined at the meeting that the majority

of wetlands in the Project area are isolated (i.e., not within the jurisdiction of USACE; non-jurisdictional).

The USACE then requested that Burke Wind, LLC (Burke Wind) conduct an in-field assessment of a representative sample of wetlands to determine WOUS jurisdictional status and verify aerial desktop review methods. Burke Wind conducted an in-field wetland boundary and watercourse determination and delineation of the Project in June, September, and November 2017. In September 2017, Burke Wind met with USACE and conducted a site visit.

Based on the 2017 evaluation, of 6,307 wetland features that were examined within the Project study area at that time for the 300MW Project, approximately 4% were determined to be jurisdictional WOUS. The currently proposed 200-megawatt (MW) Project contains 2,476 wetland features, approximately 6% of which were determined to be jurisdictional WOUS. A Jurisdictional Determination was issued in February 2018.

Additional WOUS fieldwork was conducted between May and November 2018 to delineate WOUS within the Project construction easement, collection line corridor, and crane paths as well as additional areas that were evaluated based on various siting scenarios. WOUS boundaries delineated outside of the growing season were mapped conservatively to ensure WOUS was fully delineated. All WOUS delineated in 2018 that were not identified during the 2017 USACE evaluation of 6,307 wetland features are assumed to be jurisdictional, regardless of whether or not they appear to be isolated.

**Figure 1** depicts the Amended Site Plan dated January 2, 2019 and potential WOUS. The wetland delineations resulted in the identification of 15 areas where any temporary or permanent impacts to WOUS will be avoided by boring beneath the wetland (**Table 1** and depicted on **Figure 1**). Three watercourses, associated with Wetland-21, Wetland-26, and Wetland-29, were also identified and any temporary or permanent impacts to these watercourses will be avoided by boring under the respective wetlands.

Burke Wind has sited the proposed 200 MW Project in a manner that will avoid potential impacts to all WOUS. Based on the Amended Site Plan, no temporary or permanent impacts to WOUS are expected. Additionally, isolated wetlands were identified as part of wetland investigations for the Project. These wetlands have been reviewed by the USACE and were determined to be non-jurisdictional, as documented in the Jurisdictional Determination issued in February 2018. As such, these wetlands are not regulated by the USACE. Burke Wind has voluntarily elected to avoid impacts to isolated wetlands to the maximum extent practicable.

**Table 1. Verification of No Impacts to Waters of the U.S.**

<b>Wetland ID</b>	<b>PLSS Location</b>	<b>Latitude (Dec. Deg.)</b>	<b>Longitude (Dec. Deg.)</b>	<b>Cowardin Classification</b>	<b>Impact Avoidance Action</b>
Wetland-3	Sec. 2 T161N R94W	48.807159	-102.839070	PEMC	Collection Line Boring
Wetland-11	Sec. 34 T162N R94W	48.808190	-102.852858	PEMC	Collection Line Boring
Wetland-12	Sec. 35 T162N R94W	48.807810	-102.851847	PEMC	Collection Line Boring
Wetland-15	Sec. 34 T162N R94W	48.810117	-102.853185	PEMC	Collection Line Boring
Wetland-18	Sec. 2 T161N R94W	48.805033	-102.846296	PEMC	Collection Line Boring
Wetland-20	Sec. 1 T161N R94W	48.803299	-102.808976	PEMB	Collection Line Boring
Wetland-21	Sec. 35 T162N R94W	48.817753	-102.850866	R4SB3	Collection Line Boring
Wetland-26	Sec. 1 T161N R94W	48.803292	-102.809013	R6	Collection Line Boring
Wetland-28	Sec. 2 T161N R94W	48.801411	-102.839734	PEMC	Collection Line Boring
Wetland-29	Sec. 6 T161N R93W	48.803031	-102.807608	PEMB	Collection Line Boring
Wetland-31	Sec. 5 T161N R93W	48.794544	-102.779298	PEMC	Collection Line Boring
Wetland-33	Sec. 26 T161N R93W	48.749149	-102.709299	PEMC	Collection Line Boring
Wetland-39	Sec. 25 T161N R93W	48.752368	-102.693939	PEMC	Collection Line Boring
Wetland-43	Sec. 18 T.161N R.92W	48.806496	-102.848904	PEMA	Collection Line Boring
Wetland-44	Sec. 12 T.161N R.93W	48.783107	-102.683385	PEMA	Collection Line Boring

PLSS = Public Land Survey System

**ATTACHMENT**

Figure 1: Wetland Mapbook

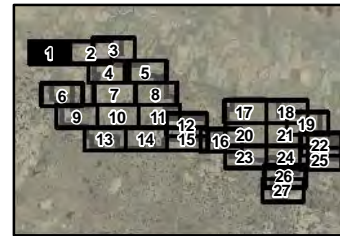


**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 1 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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|--|---------------------------------------|------------------------------------|---------------------------------------|
| Field Delineated Isolated Wetlands           | <b>Amended Site Plan (01/02/2019)</b> | Collection Corridor (12/19/2018)   | Project Area 10/23/2018 (+22,933 Ac.) |
| <b>Waters of the United States:</b>          | Turbine Layout (10/08/2018)           | Construction Easement (12/19/2018) | Townships                             |
| Field Delineated Jurisdictional Watercourses | MET Tower (10/26/2018)                | Laydown Yard                       | Counties                              |
| Field Delineated Jurisdictional Wetlands     | Service Roads (01/02/2019)            | O&M and Substation                 |                                       |
|  | Crane Paths (11/16/2018)              | Batch Plant Area                   |                                       |
|  | Collection Line (12/17/2018)          |                                    |                                       |
|  | Collection Line Bores                 |                                    |                                       |

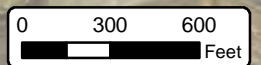
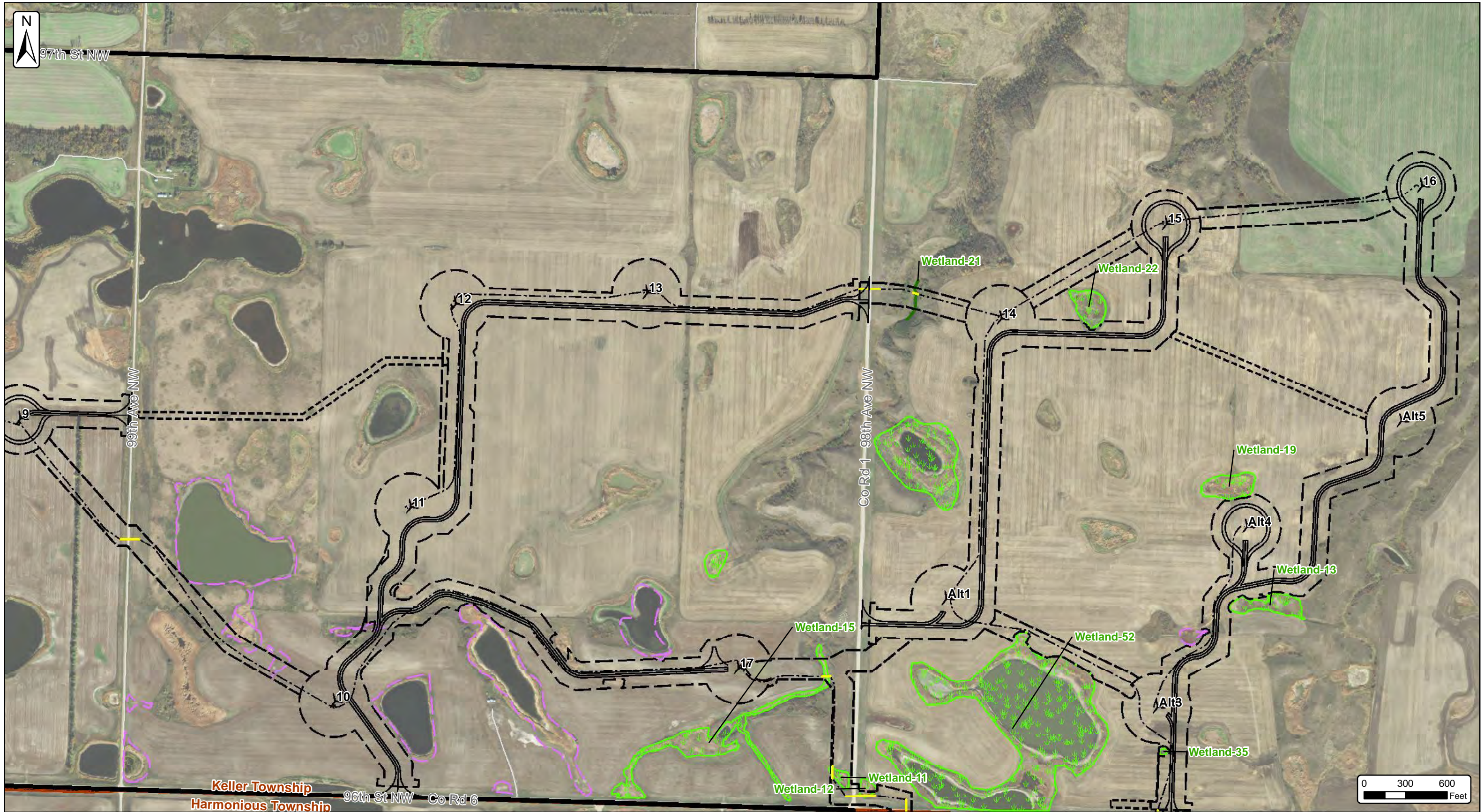
SOURCE: USDA NAIP 2017 IMAGERY



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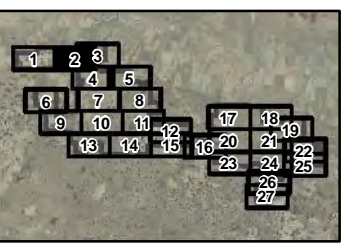
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**Burke County Wind Energy Center**  
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 Atwell, LLC Project:16000947

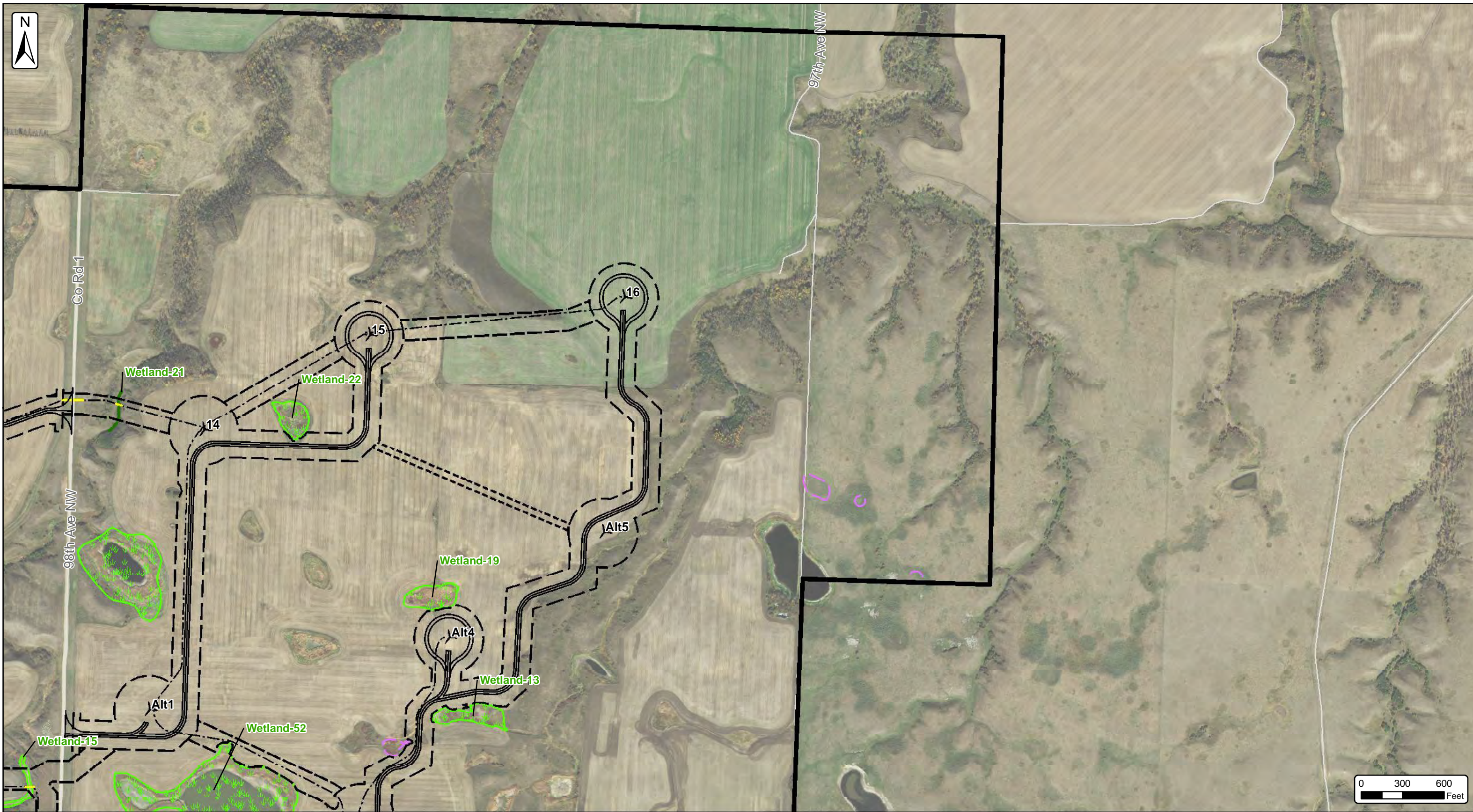
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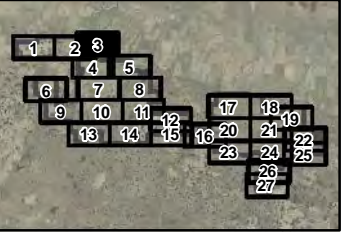


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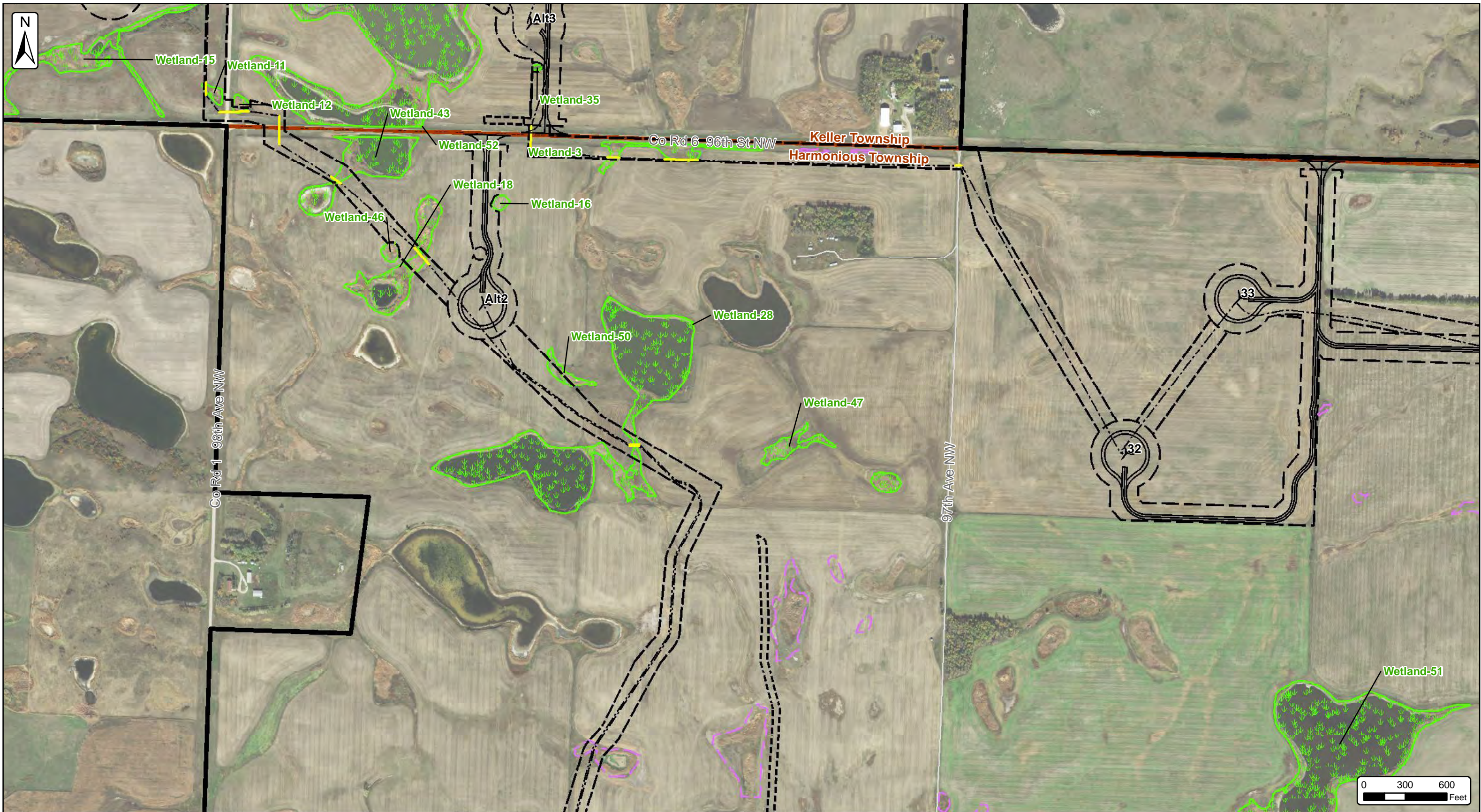
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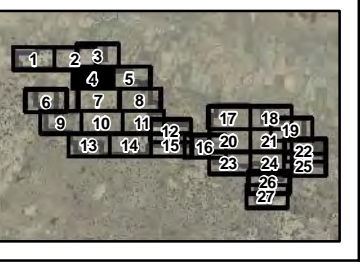
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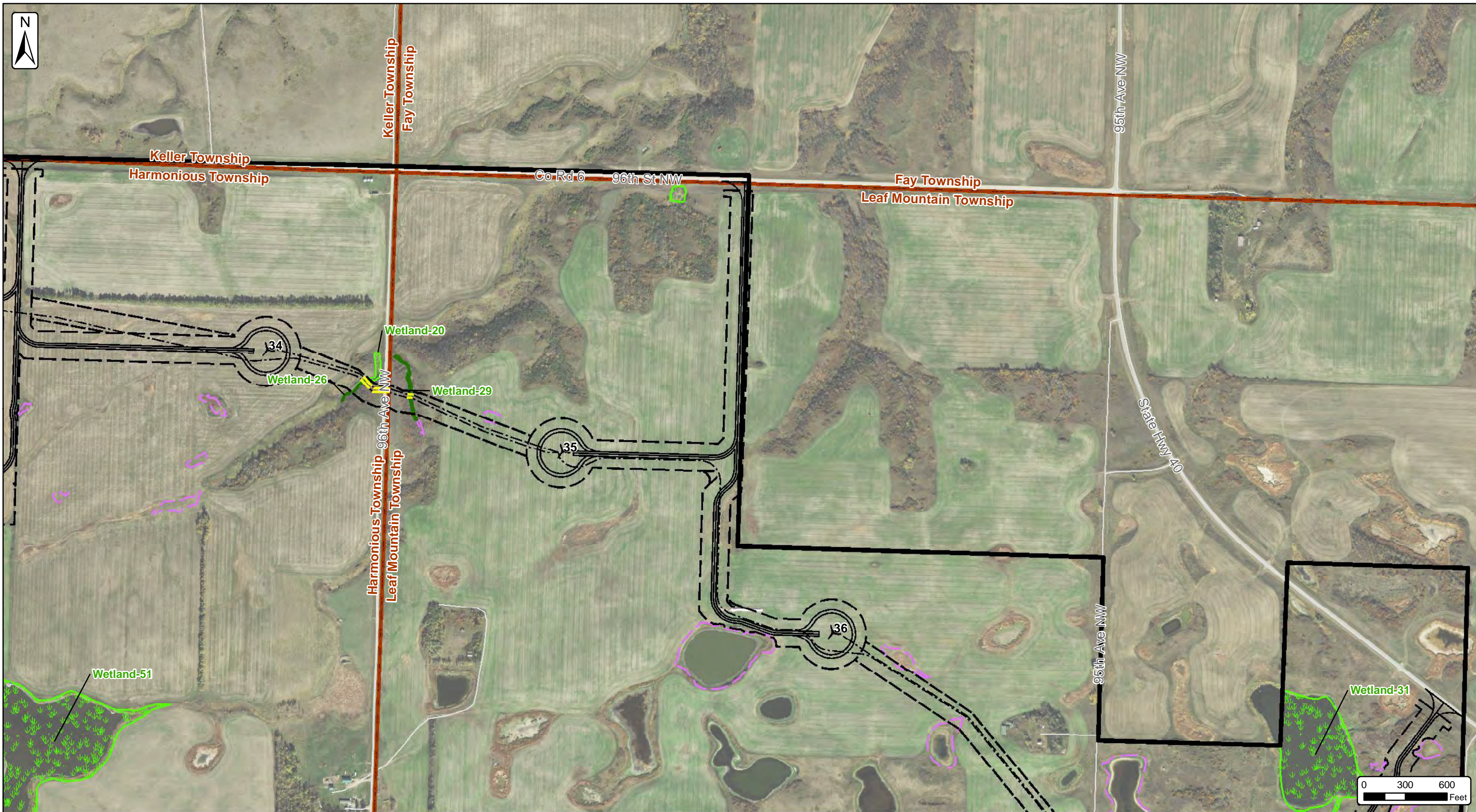
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**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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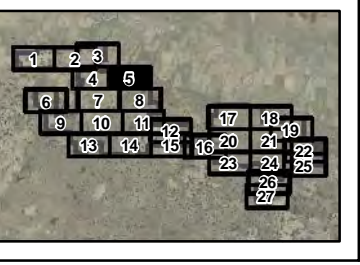

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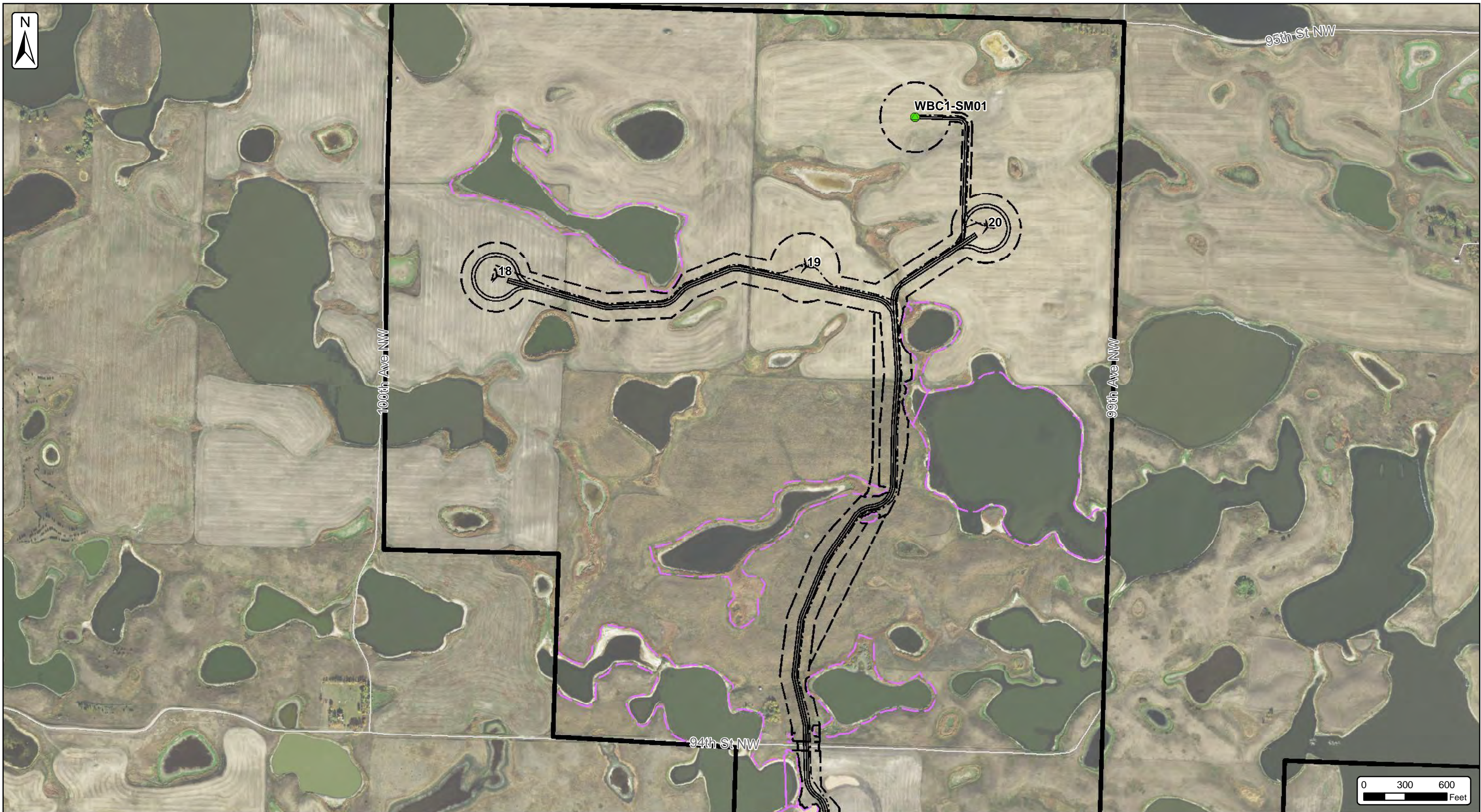
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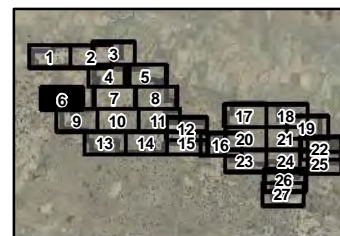
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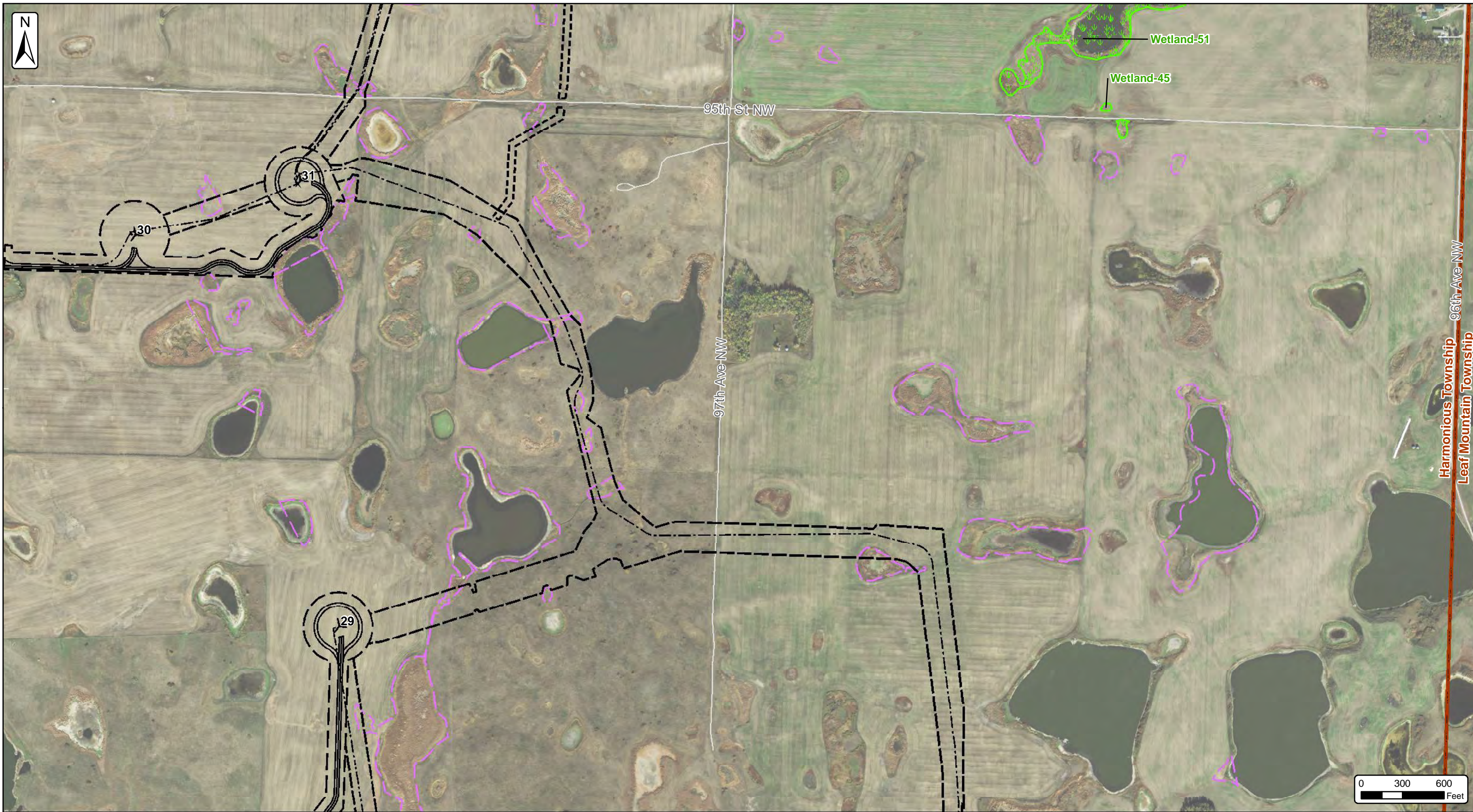
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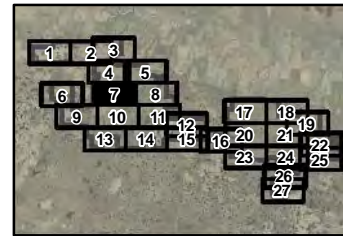
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 Atwell, LLC Project:16000947

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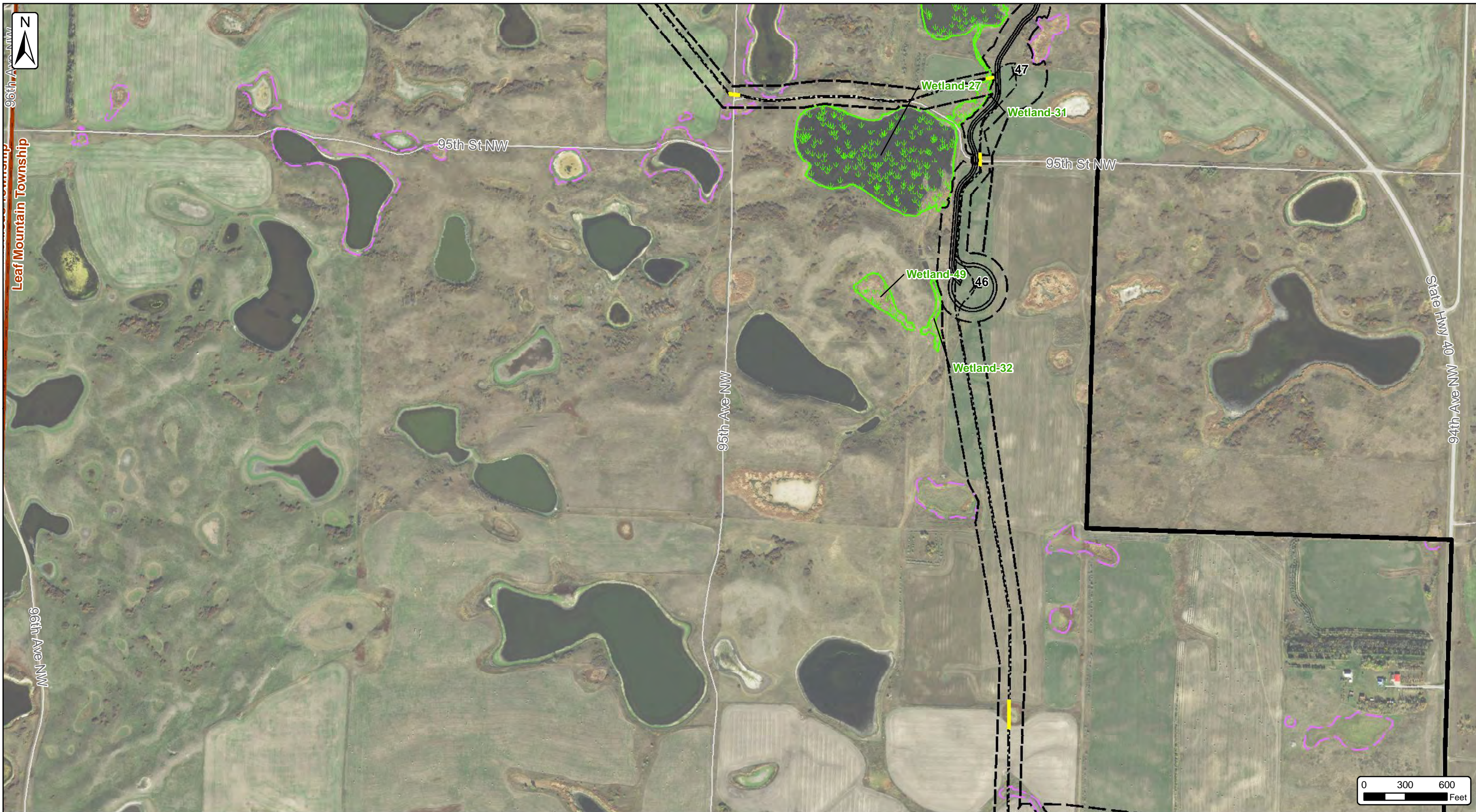


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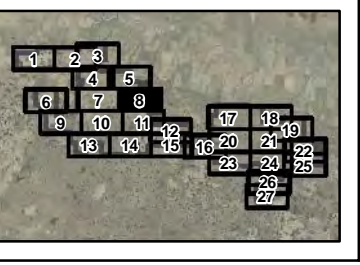

Harmonious Township 96th Ave NW  
 Leaf Mountain Township



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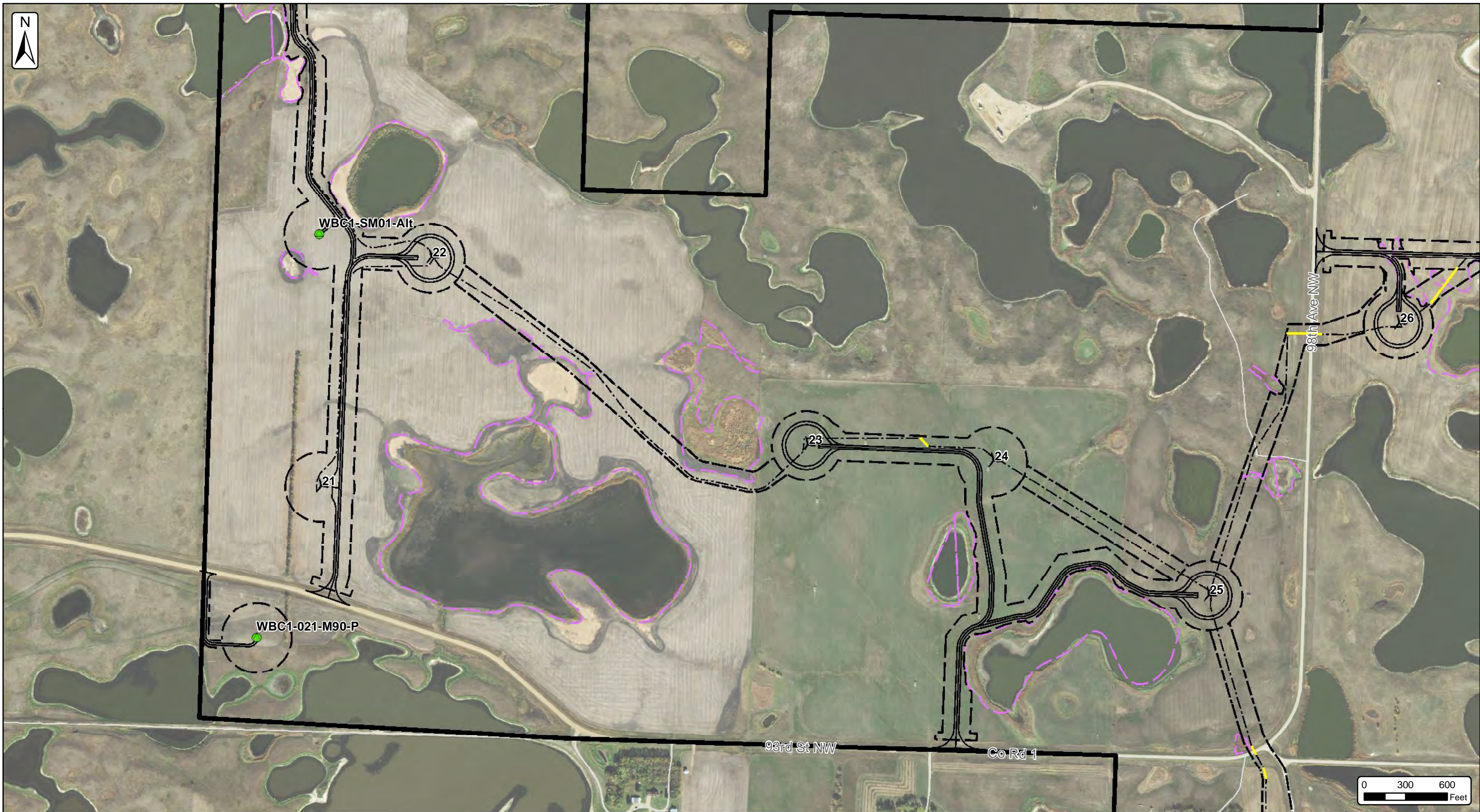
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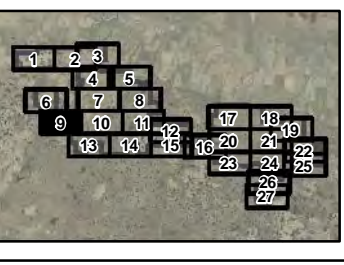

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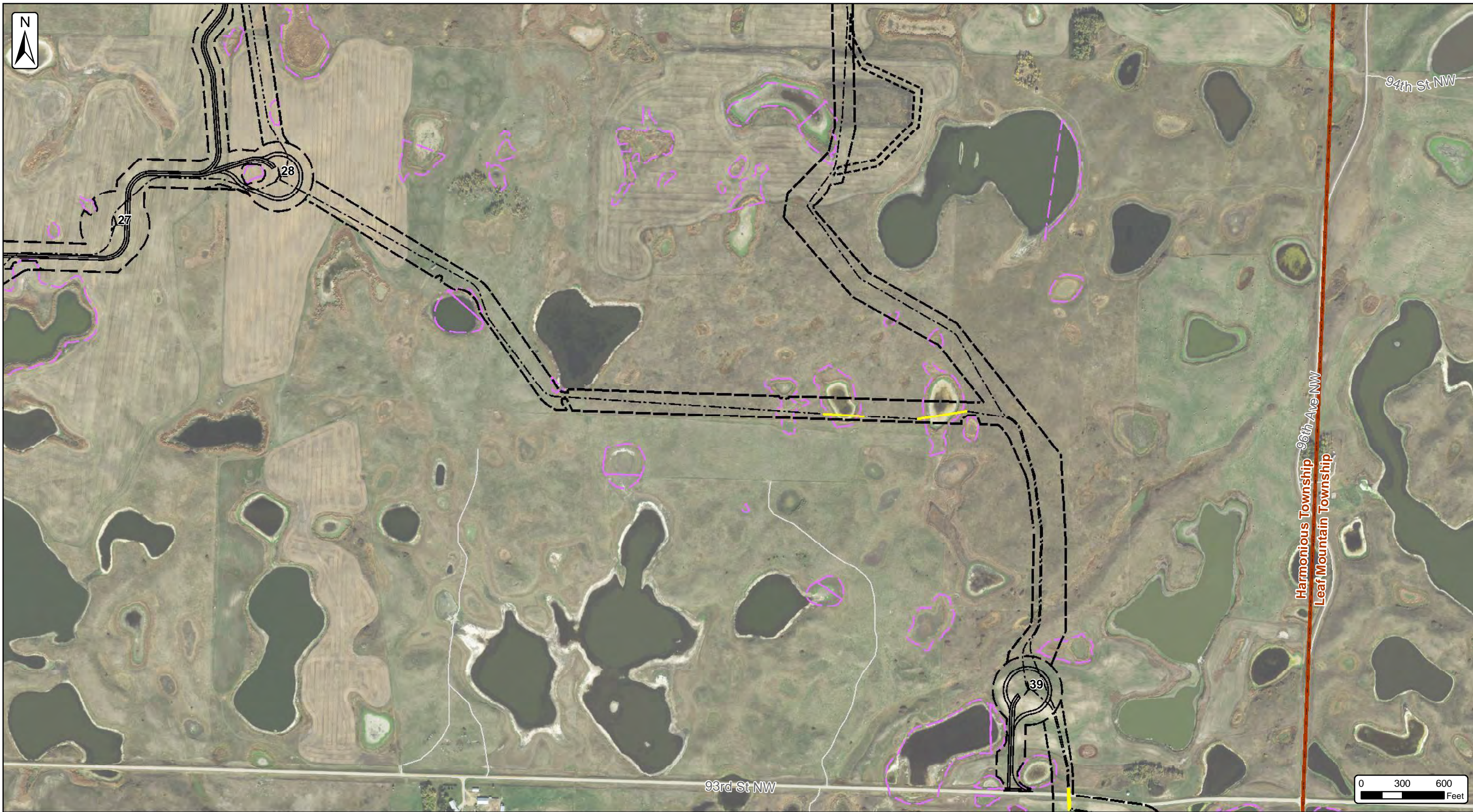
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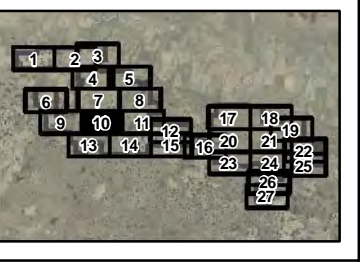
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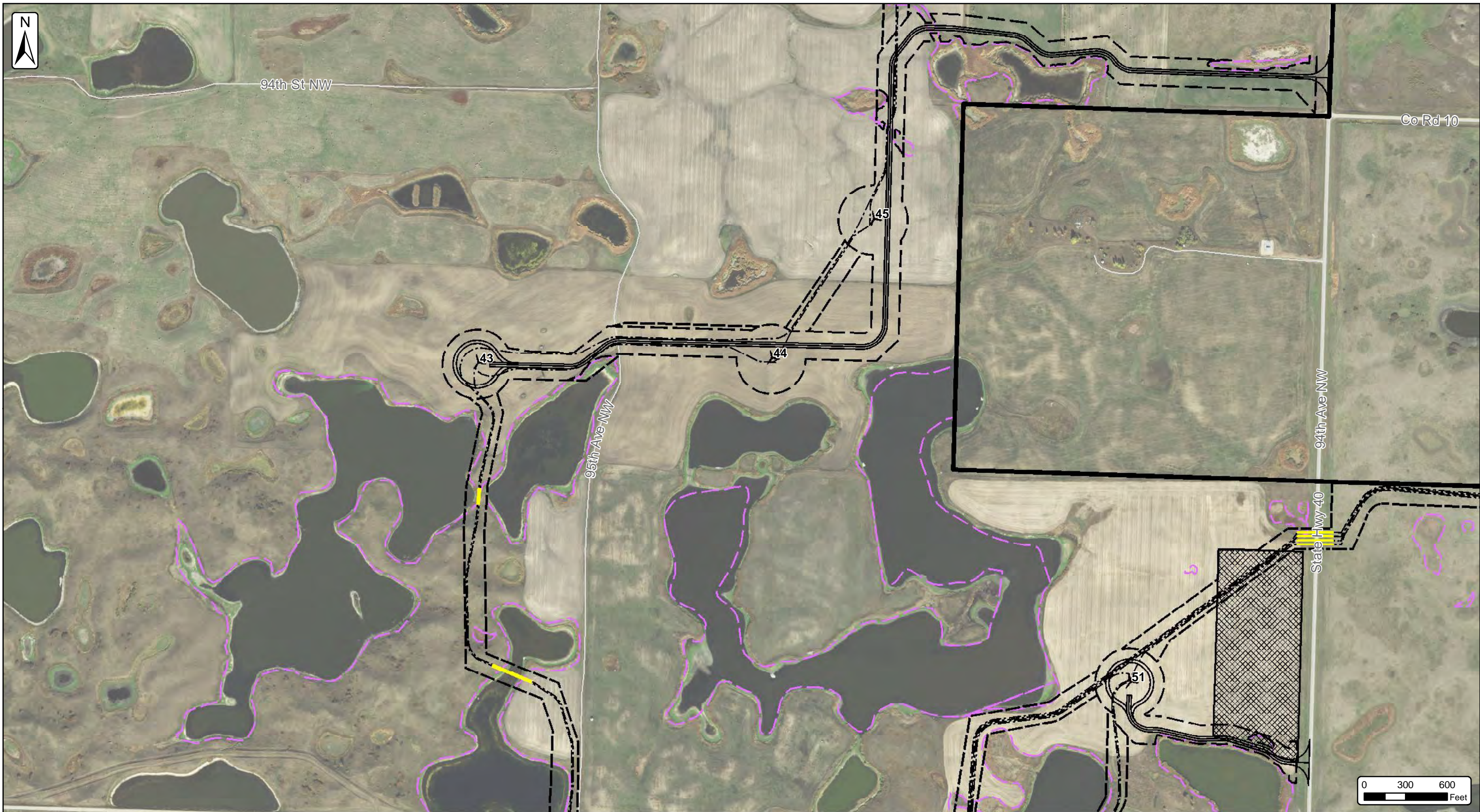
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SOURCE: USDA NAIP 2017 IMAGERY



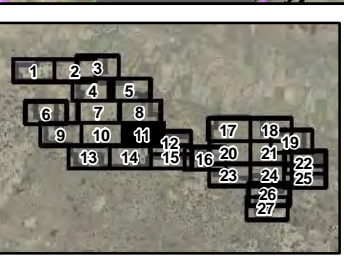

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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 11 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

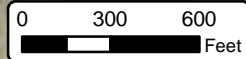
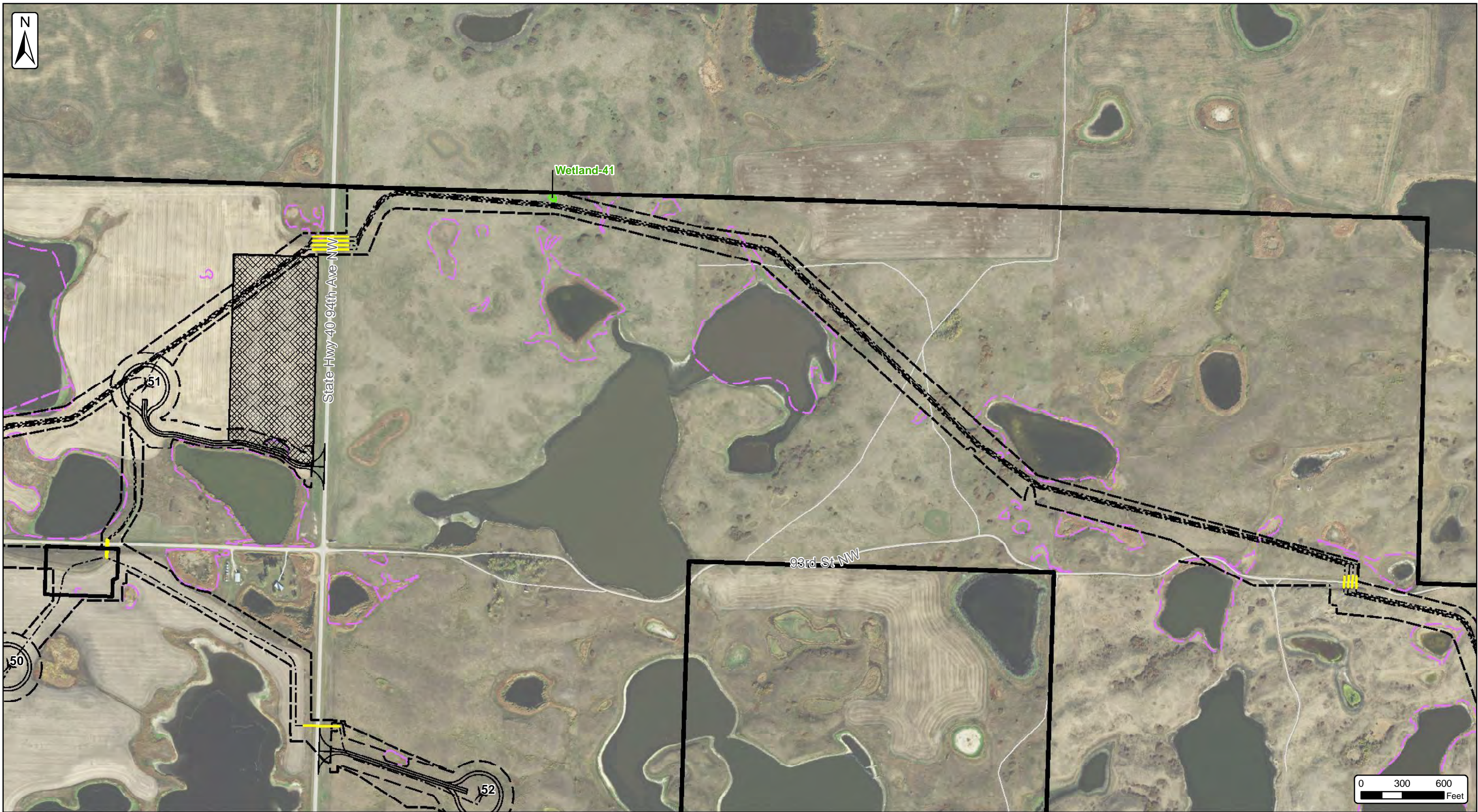
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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|---|---|---|---|
| <ul style="list-style-type: none"> <li> Field Delineated Isolated Wetlands</li> <li> Field Delineated Jurisdictional Watercourses</li> <li> Field Delineated Jurisdictional Wetlands</li> </ul> | <p><b>Amended Site Plan (01/02/2019)</b></p> <ul style="list-style-type: none"> <li> Turbine Layout (10/08/2018)</li> <li> MET Tower (10/26/2018)</li> <li> Service Roads (01/02/2019)</li> <li> Crane Paths (11/16/2018)</li> <li> Collection Line (12/17/2018)</li> <li> Collection Line Bores</li> </ul> | <ul style="list-style-type: none"> <li> Collection Corridor (12/19/2018)</li> <li> Construction Easement (12/19/2018)</li> <li> Laydown Yard</li> <li> O&amp;M and Substation</li> <li> Batch Plant Area</li> </ul> | <ul style="list-style-type: none"> <li> Project Area 10/23/2018 (+22,933 Ac.)</li> <li> Townships</li> <li> Counties</li> </ul> |
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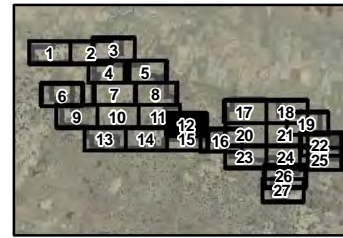
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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 12 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

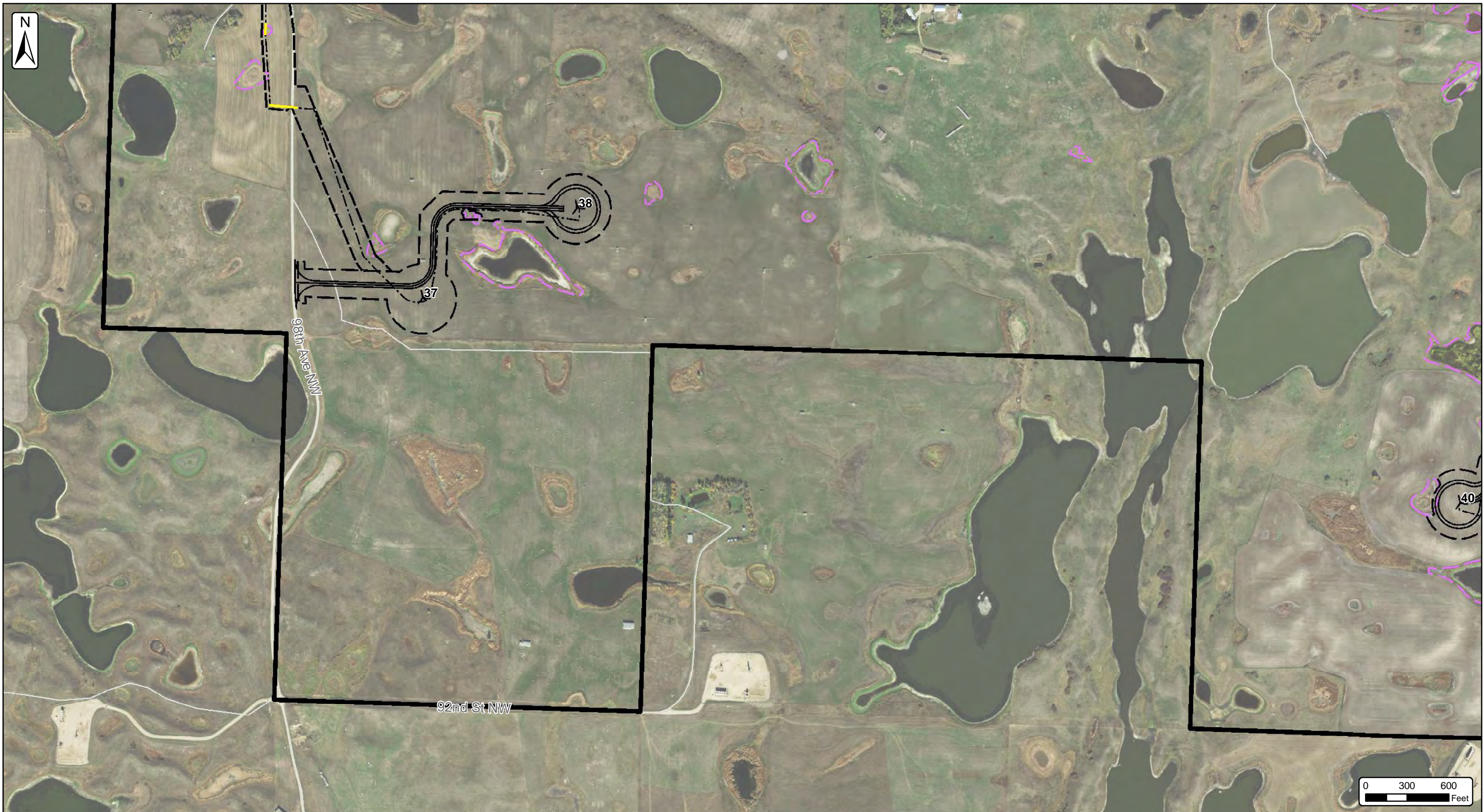
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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|--|---------------------------------------|------------------------------------|---------------------------------------|
| Field Delineated Isolated Wetlands           | <b>Amended Site Plan (01/02/2019)</b> | Collection Corridor (12/19/2018)   | Project Area 10/23/2018 (+22,933 Ac.) |
| <b>Waters of the United States:</b>          | Turbine Layout (10/08/2018)           | Construction Easement (12/19/2018) | Townships                             |
| Field Delineated Jurisdictional Watercourses | MET Tower (10/26/2018)                | Laydown Yard                       | Counties                              |
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|  | Crane Paths (11/16/2018)              | Batch Plant Area                   |                                       |
|  | Collection Line (12/17/2018)          |                                    |                                       |
|  | Collection Line Bores                 |                                    |                                       |



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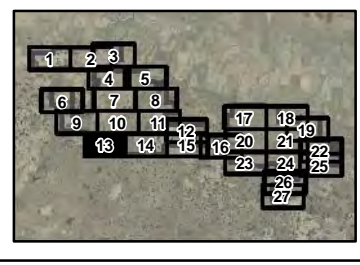



**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 13 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

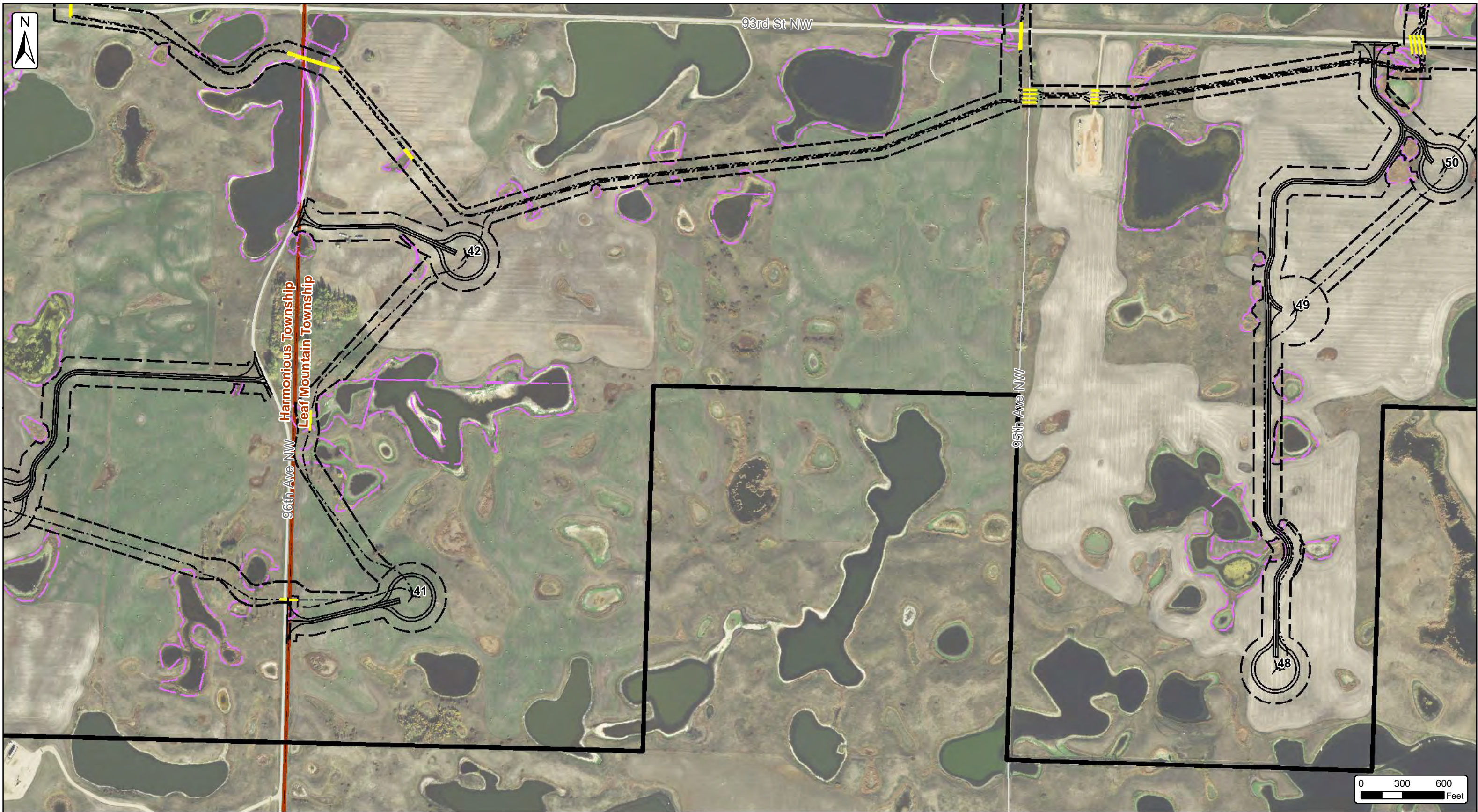
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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| <ul style="list-style-type: none"> <li> Field Delineated Isolated Wetlands</li> <li><b>Waters of the United States:</b></li> <li> Field Delineated Jurisdictional Watercourses</li> <li> Field Delineated Jurisdictional Wetlands</li> </ul> | <p><b>Amended Site Plan (01/02/2019)</b></p> <ul style="list-style-type: none"> <li> Turbine Layout (10/08/2018)</li> <li> MET Tower (10/26/2018)</li> <li> Service Roads (01/02/2019)</li> <li> Crane Paths (11/16/2018)</li> <li> Collection Line (12/17/2018)</li> <li> Collection Line Bores</li> </ul> | <ul style="list-style-type: none"> <li> Collection Corridor (12/19/2018)</li> <li> Construction Easement (12/19/2018)</li> <li> Laydown Yard</li> <li> O&amp;M and Substation</li> <li> Batch Plant Area</li> </ul> | <ul style="list-style-type: none"> <li> Project Area 10/23/2018 (+22,933 Ac.)</li> <li> Townships</li> <li> Counties</li> </ul> |
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SOURCE: USDA NAIP 2017 IMAGERY

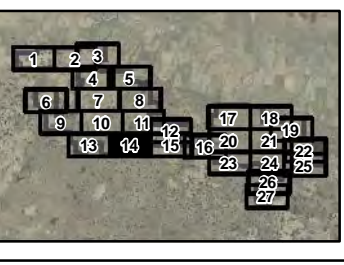

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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 14 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

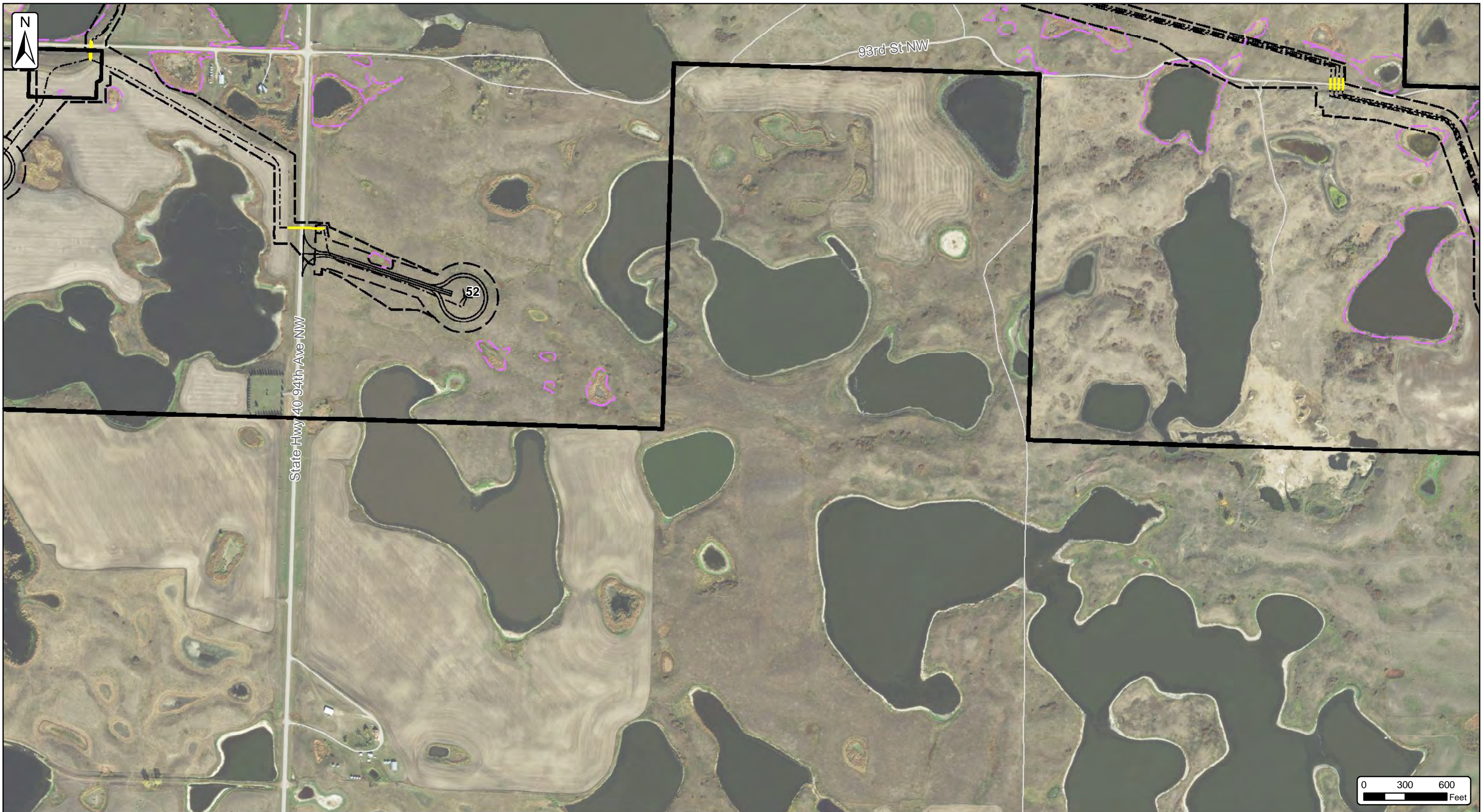
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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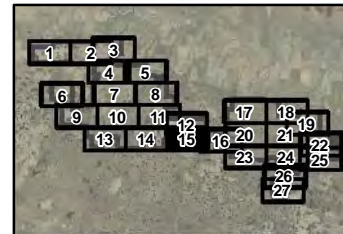
SOURCE: USDA NAIP 2017 IMAGERY




**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 15 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

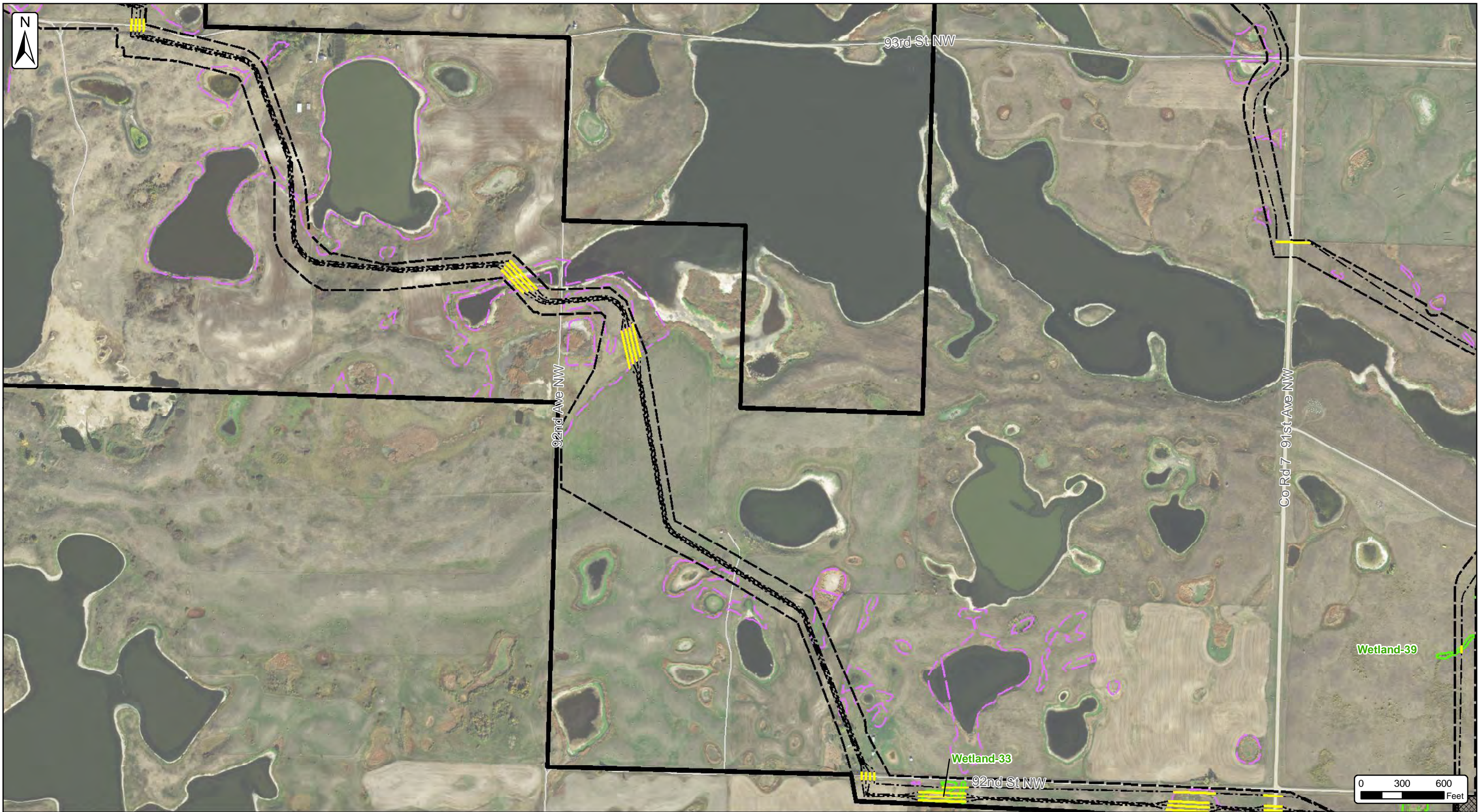
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SOURCE: USDA NAIP 2017 IMAGERY



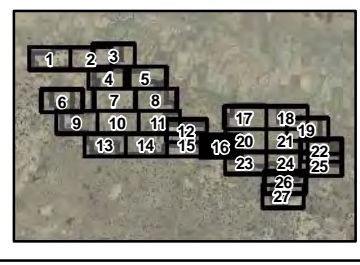

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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 16 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

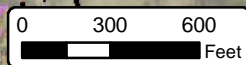
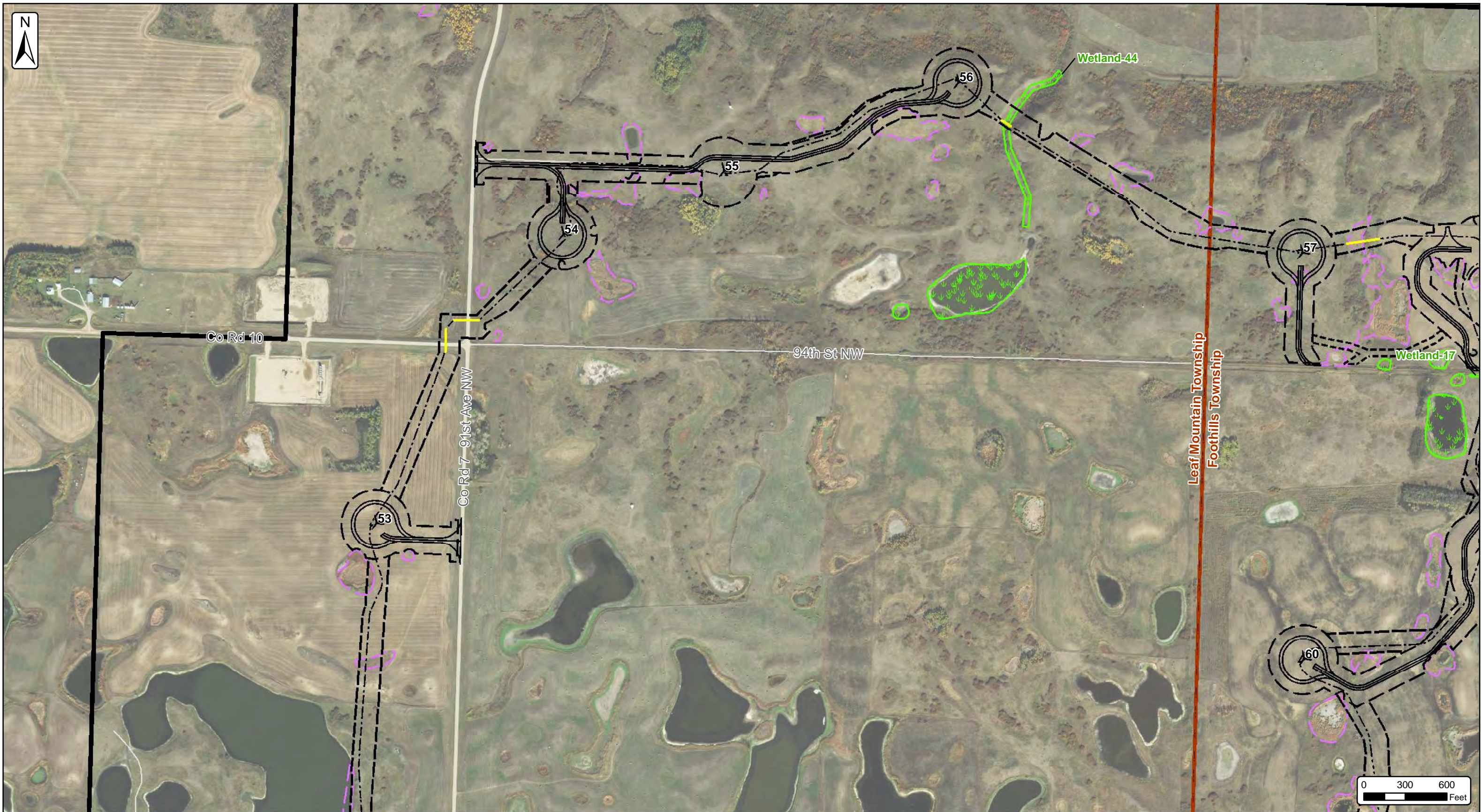
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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|--|---|---|---|
| <ul style="list-style-type: none"> <li> Field Delineated Isolated Wetlands</li> <li><b>Waters of the United States:</b></li> <li> Field Delineated Jurisdictional Watercourses</li> <li> Field Delineated Jurisdictional Wetlands</li> </ul> | <p><b>Amended Site Plan (01/02/2019)</b></p> <ul style="list-style-type: none"> <li> Turbine Layout (10/08/2018)</li> <li> MET Tower (10/26/2018)</li> <li> Service Roads (01/02/2019)</li> <li> Crane Paths (11/16/2018)</li> <li> Collection Line (12/17/2018)</li> <li> Collection Line Bores</li> </ul> | <ul style="list-style-type: none"> <li> Collection Corridor (12/19/2018)</li> <li> Construction Easement (12/19/2018)</li> <li> Laydown Yard</li> <li> O&amp;M and Substation</li> <li> Batch Plant Area</li> </ul> | <ul style="list-style-type: none"> <li> Project Area 10/23/2018 (+22,933 Ac.)</li> <li> Townships</li> <li> Counties</li> </ul> |
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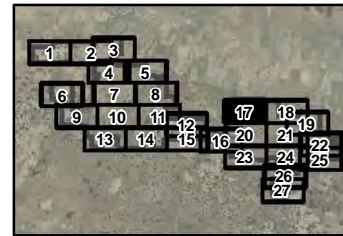
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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 17 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

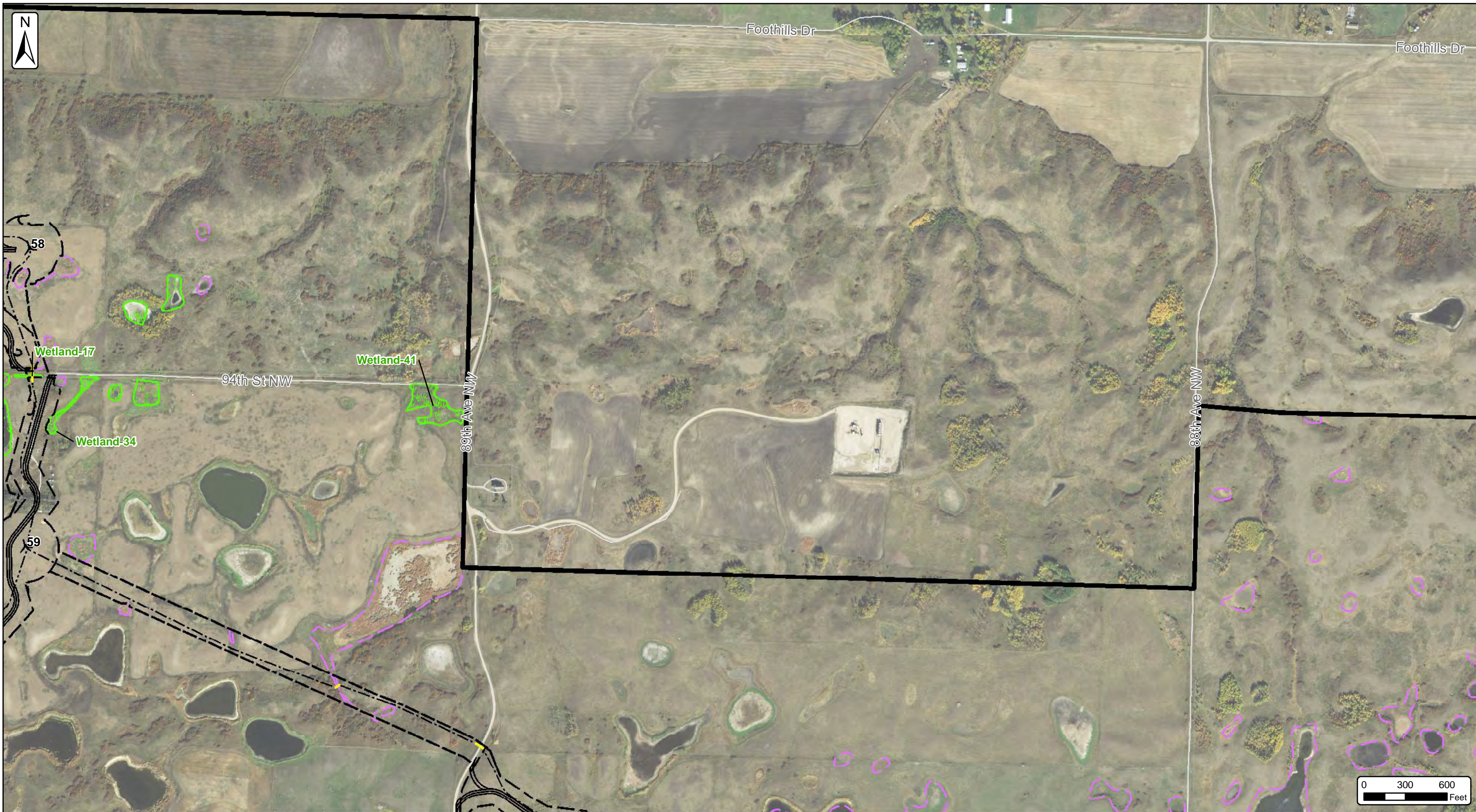
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| Field Delineated Isolated Wetlands           | <b>Amended Site Plan (01/02/2019)</b> | Collection Corridor (12/19/2018)   | Project Area 10/23/2018 (+22,933 Ac.) |
| <b>Waters of the United States:</b>          | Turbine Layout (10/08/2018)           | Construction Easement (12/19/2018) | Townships                             |
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|  | Crane Paths (11/16/2018)              | Batch Plant Area                   |                                       |
|  | Collection Line (12/17/2018)          | Collection Line Bores              |                                       |



SOURCE: USDA NAIP 2017 IMAGERY



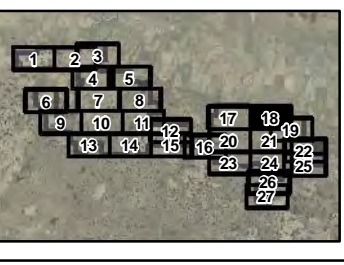

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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 18 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

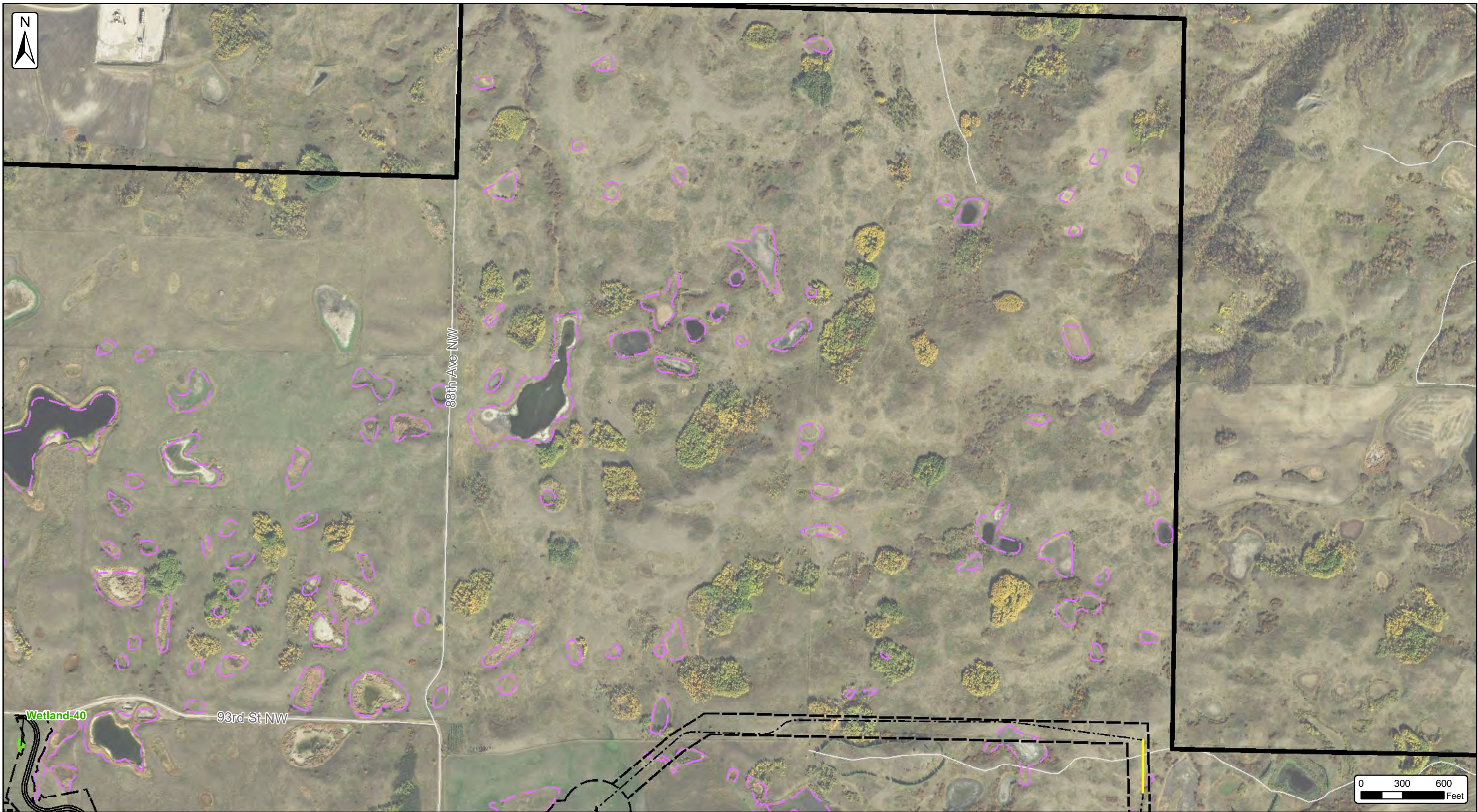
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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| <ul style="list-style-type: none"> <li> Field Delineated Isolated Wetlands</li> <li><b>Waters of the United States:</b></li> <li> Field Delineated Jurisdictional Watercourses</li> <li> Field Delineated Jurisdictional Wetlands</li> </ul> | <p><b>Amended Site Plan (01/02/2019)</b></p> <ul style="list-style-type: none"> <li> Turbine Layout (10/08/2018)</li> <li> MET Tower (10/26/2018)</li> <li> Service Roads (01/02/2019)</li> <li> Crane Paths (11/16/2018)</li> <li> Collection Line (12/17/2018)</li> <li> Collection Line Bores</li> </ul> | <ul style="list-style-type: none"> <li> Collection Corridor (12/19/2018)</li> <li> Construction Easement (12/19/2018)</li> <li> Laydown Yard</li> <li> O&amp;M and Substation</li> <li> Batch Plant Area</li> </ul> | <ul style="list-style-type: none"> <li> Project Area 10/23/2018 (+22,933 Ac.)</li> <li> Townships</li> <li> Counties</li> </ul> |
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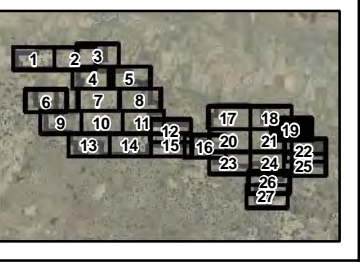
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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 19 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

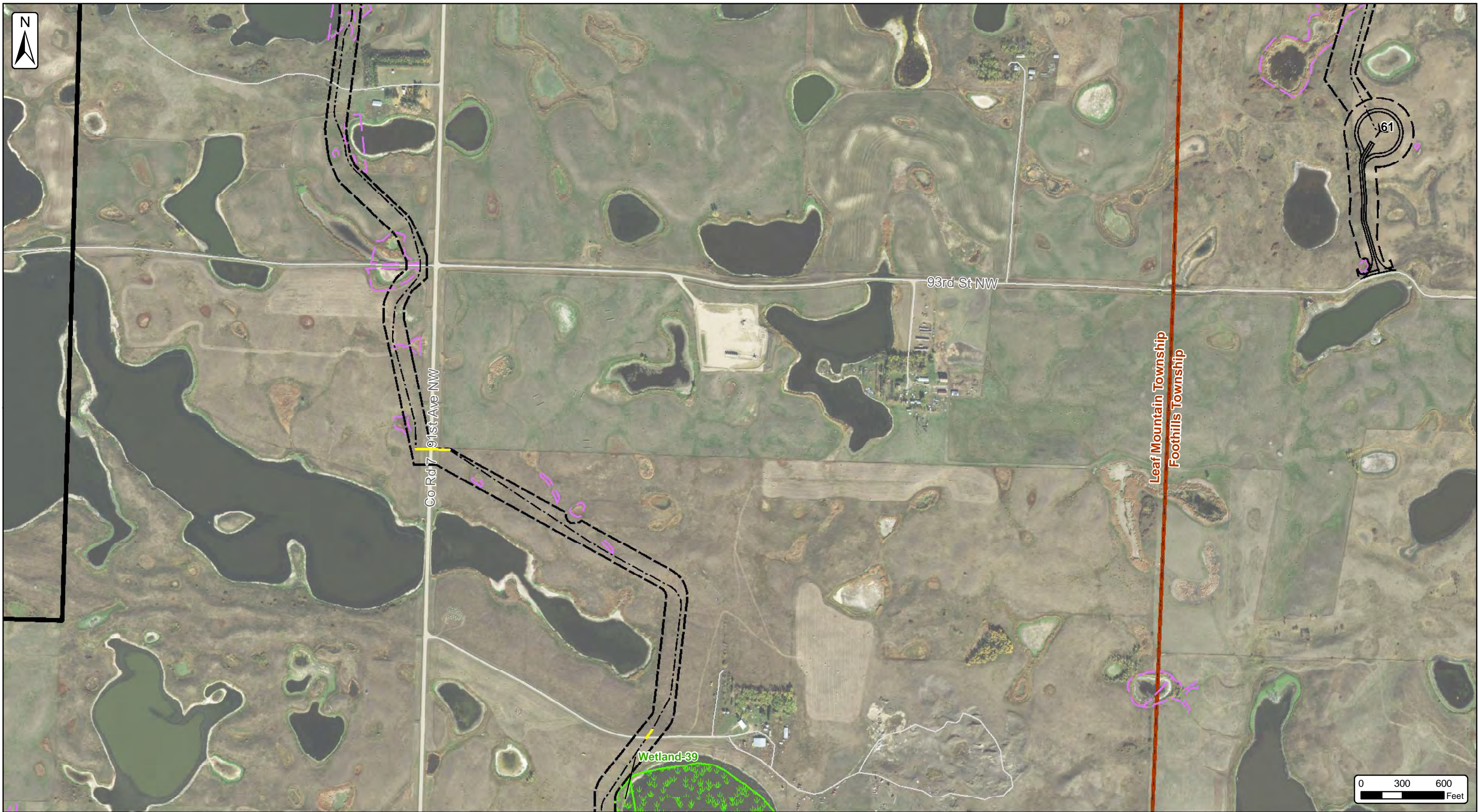
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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|---|---|---|---|
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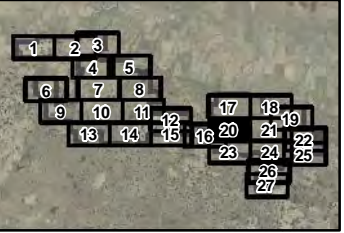



**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 20 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

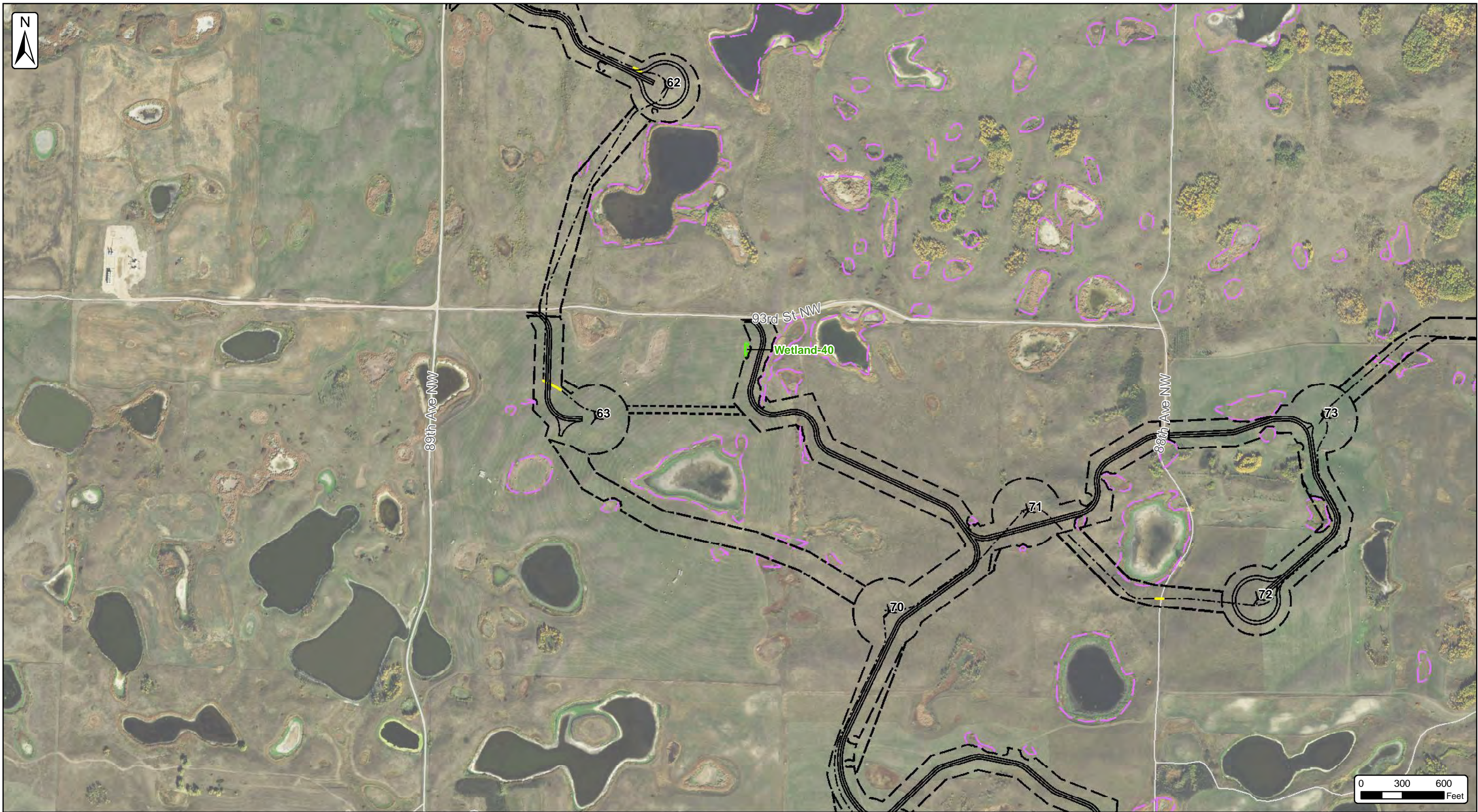
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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|--|---|---|---|
| <ul style="list-style-type: none"> <li> Field Delineated Isolated Wetlands</li> <li><b>Waters of the United States:</b></li> <li> Field Delineated Jurisdictional Watercourses</li> <li> Field Delineated Jurisdictional Wetlands</li> </ul> | <p><b>Amended Site Plan (01/02/2019)</b></p> <ul style="list-style-type: none"> <li> Turbine Layout (10/08/2018)</li> <li> MET Tower (10/26/2018)</li> <li> Service Roads (01/02/2019)</li> <li> Crane Paths (11/16/2018)</li> <li> Collection Line (12/17/2018)</li> <li> Collection Line Bores</li> </ul> | <ul style="list-style-type: none"> <li> Collection Corridor (12/19/2018)</li> <li> Construction Easement (12/19/2018)</li> <li> Laydown Yard</li> <li> O&amp;M and Substation</li> <li> Batch Plant Area</li> </ul> | <ul style="list-style-type: none"> <li> Project Area 10/23/2018 (+22,933 Ac.)</li> <li> Townships</li> <li> Counties</li> </ul> |
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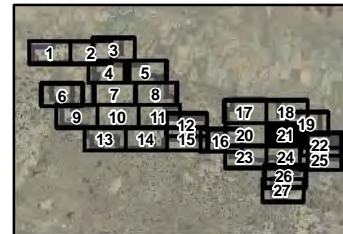
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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 21 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

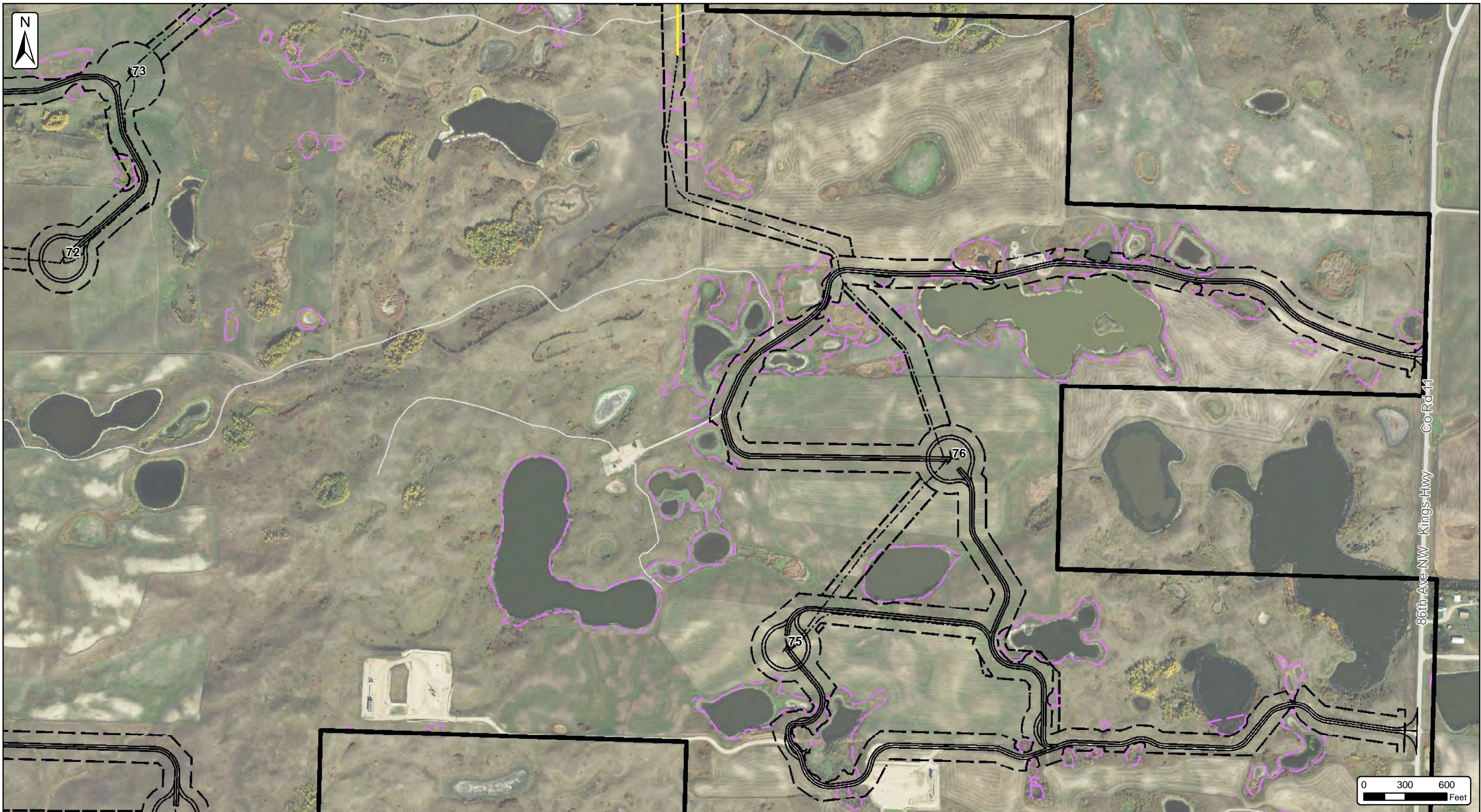
**Client:**  
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 Atwell, LLC Project:16000947

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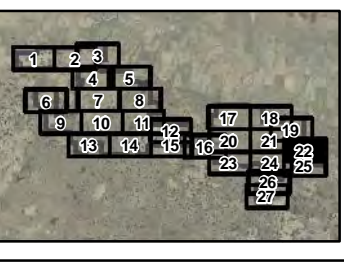
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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 22 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

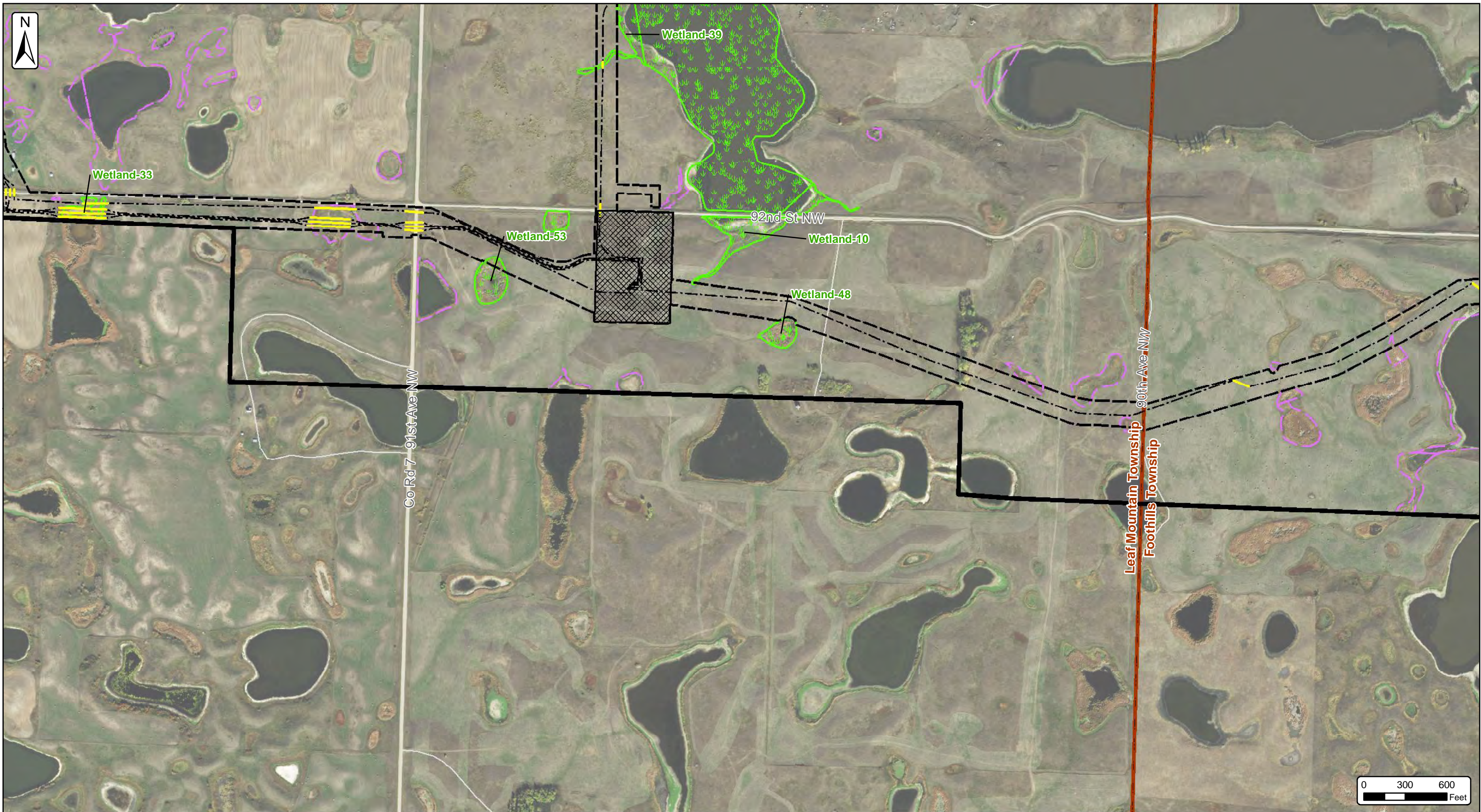
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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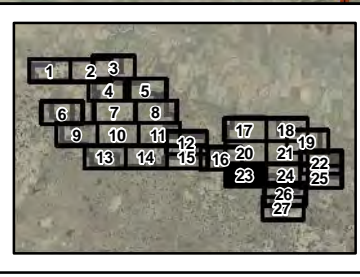
SOURCE: USDA NAIP 2017 IMAGERY



**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 23 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

<ul style="list-style-type: none"> <li> Field Delineated Isolated Wetlands</li> <li><b>Waters of the United States:</b></li> <li> Field Delineated Jurisdictional Watercourses</li> <li> Field Delineated Jurisdictional Wetlands</li> </ul>	<p><b>Amended Site Plan (01/02/2019)</b></p> <ul style="list-style-type: none"> <li> Turbine Layout (10/08/2018)</li> <li> MET Tower (10/26/2018)</li> <li> Service Roads (01/02/2019)</li> <li> Crane Paths (11/16/2018)</li> <li> Collection Line (12/17/2018)</li> <li> Collection Line Bores</li> </ul>	<ul style="list-style-type: none"> <li> Collection Corridor (12/19/2018)</li> <li> Construction Easement (12/19/2018)</li> <li> Laydown Yard</li> <li> O&amp;M and Substation</li> <li> Batch Plant Area</li> </ul>	<ul style="list-style-type: none"> <li> Project Area 10/23/2018 (+22,933 Ac.)</li> <li> Townships</li> <li> Counties</li> </ul>
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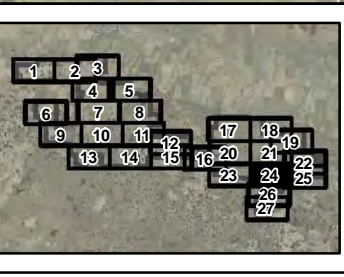

SOURCE: USDA NAIP 2017 IMAGERY



**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
 Page 24 of 27  
 Burke County, North Dakota  
 Date: 2/1/2019

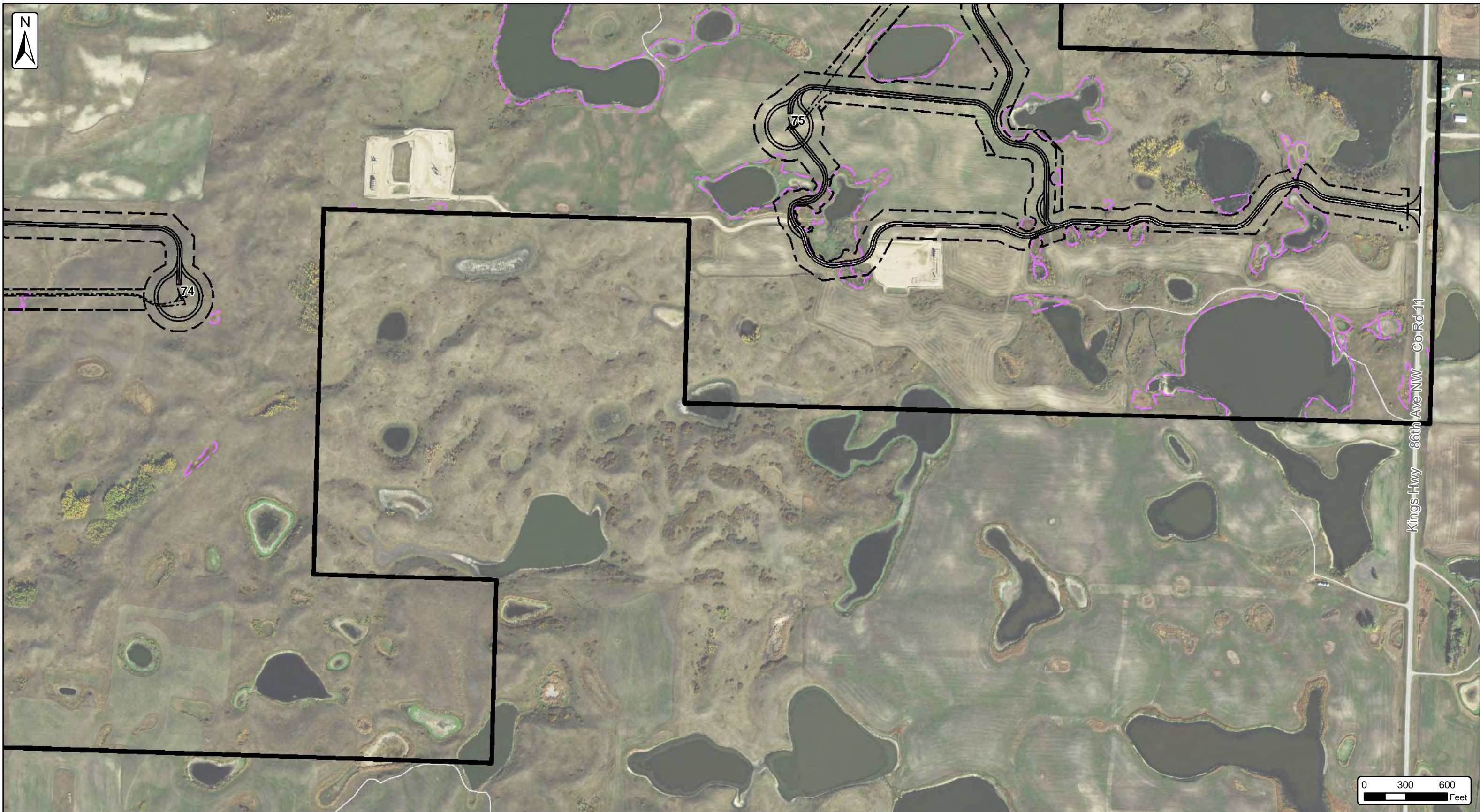
**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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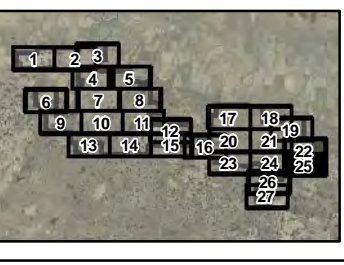

SOURCE: USDA NAIP 2017 IMAGERY



**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
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 Burke County, North Dakota  
 Date: 2/1/2019

**Client:**  
**Burke Wind, LLC**  
 Atwell, LLC Project:16000947

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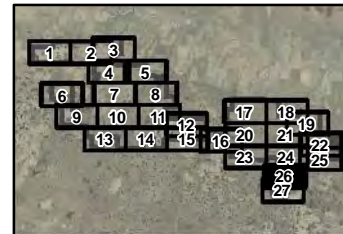
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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
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 Burke County, North Dakota  
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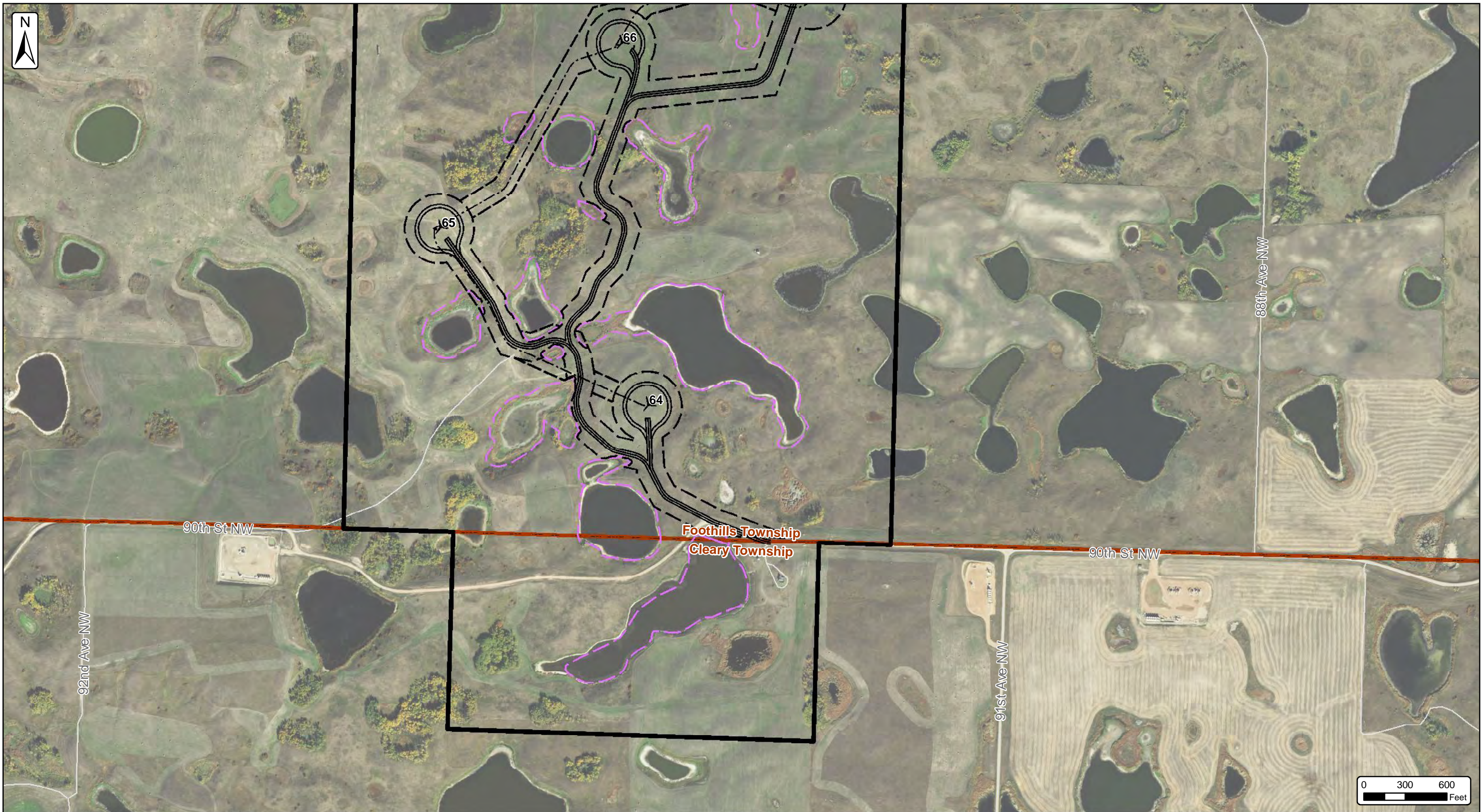
**Client:**  
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 Atwell, LLC Project:16000947

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|--|---------------------------------------|------------------------------------|---------------------------------------|
| Field Delineated Isolated Wetlands           | <b>Amended Site Plan (01/02/2019)</b> | Collection Corridor (12/19/2018)   | Project Area 10/23/2018 (+22,933 Ac.) |
| <b>Waters of the United States:</b>          | Turbine Layout (10/08/2018)           | Construction Easement (12/19/2018) | Townships                             |
| Field Delineated Jurisdictional Watercourses | MET Tower (10/26/2018)                | Laydown Yard                       | Counties                              |
| Field Delineated Jurisdictional Wetlands     | Service Roads (01/02/2019)            | O&M and Substation                 |                                       |
|  | Crane Paths (11/16/2018)              | Batch Plant Area                   |                                       |
|  | Collection Line (12/17/2018)          | Collection Line Bores              |                                       |



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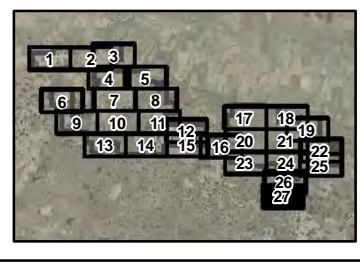
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**Burke County Wind Energy Center**  
**Figure 1: Wetland Mapbook**  
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