Firelands Wind, LLC
Case No. 18-1607-EL-BGN

Application Part 10 of 17

Part 10 includes:

- **Exhibit Z Ecological Assessment (Part 1 of 8)**

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Exhibit Z
Ecological Assessment

A complete copy of Exhibit Z can be found on the enclosed USB. Due to the large size, not all attachments were hard copied.

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ECOLOGICAL ASSESSMENT

EMERSON CREEK WIND FARM

ERIE, HURON AND SENECA COUNTIES, OHIO

JANUARY 2019

PREPARED BY:
THE MANNIK & SMITH GROUP, INC.
1800 INDIAN WOOD CIRCLE
MAUMEE, OHIO 43537

ECOLOGICAL ASSESSMENT

EMERSON CREEK WIND FARM

ERIE, HURON AND SENECA COUNTIES, OHIO

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1.0 INTRODUCTION

The Mannik & Smith Group, Inc. (MSG) prepared an ecological assessment for the proposed Emerson Creek Wind Farm (Project) (Figure 1, Appendix A). The area evaluated (Study Area) is comprised of 23,024 acres located within rural portions of Erie, Huron, and Seneca Counties, Ohio, including all areas within 100-feet of the potential construction impact area of the facility.

The ecological assessment included a review of readily available Geographic Information Systems (GIS) data, as well as review of data and field observations from vegetation and surface water surveys completed in 2018. GIS data sources included, but were not limited to, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Surveys for Erie, Huron, and Seneca Counties; historical aerial photographs and farmed wetland maps from the USDA Farm Service Agency (FSA); U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps; Ohio Wetland Inventory (OWI) maps; U.S. Geological Survey (USGS) topographic maps; the USGS National Hydrography Dataset (NHD); Multi Resolution Land Characteristics Consortium (MRLC; Ohio Department of Natural Resources (ODNR) State-listed Plant and Wildlife Species by County lists; USFWS Ohio County Distribution lists; Audubon Important Bird Areas data; The Cornell Lab of Ornithology eBird data; and recent aerial imagery. Figures and ODNR species lists are provided in Appendices A and B, respectively.

2.0 LAND USE

The land use categories within the Study Area are classified according to the predominant land use based on MRLC data (MRLC 2014), as follows:

- Cultivated Crops: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.

- Deciduous Forest: Areas dominated by trees generally greater than five meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.

- Developed, High Intensity: Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to 100 percent of the total cover.

- Developed, Low Intensity: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

- Developed, Medium Intensity: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

- Developed, Open Space: Areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

- Evergreen Forest: Areas dominated by trees generally greater than five meters tall, and greater than 20% of total vegetation cover. More than 75 percent of the tree species maintain their leaves all year. Canopy is never without green foliage.

- Grassland/Herbaceous: Areas dominated by grammanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.

- Hay/Pasture: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.

- Mixed Forest: Areas dominated by trees generally greater than five meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75 percent of total tree cover.

- Open Water: All areas of open water, generally with less than 25% cover or vegetation or soil.

- Scrub Shrub: Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions and the soil or substrate is periodically saturated or covered with water.

- Woody Wetlands: Areas where forest or shrub land vegetation accounts for greater than 20 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

The Study Area consists mainly of Cultivated Crops (87%); followed by Deciduous Forest (6%); Developed, Open Space (~5%); and Hay/Pasture (2%; Table 2.1, Figure 2). All other land uses accounted for 1% or less of the total acreage in the Study Area. A summary is provided in Table 2.1 below.

Land Use of the Study Area is illustrated in Figure 2.

Table 2.1 Land Use within the Study Area

Type	Study Area (acres)	Study Area (%)
Agriculture, Cultivated Crops	19,580.75	87%
Deciduous Forest	1,422.76	6%
Developed, High Intensity	4.99	<1%
Developed, Low Intensity	224.90	1%
Developed, Medium Intensity	26.02	<1%
Developed, Open Space	728.38	3%
Evergreen Forest	1.63	<1%
Grassland / Herbaceous	8.73	<1%
Hay/Pasture	422.68	2%
Mixed Forest	2.58	<1%
Open Water	50.57	<1%
Scrub Shrub	3.12	<1%
Woody Wetlands	2.98	<1%
TOTAL	23,024	

3.0 GEOLOGY

The Study Area is located within the Huron-Erie Lake Plains and Till Plains Sections of the Central Lowland Physiographic Province of Ohio. The Study Area includes three Physiographic Regions: the Bellevue-Castalia Karst Plain, Erie Lake Plain, and Central Ohio Clayey Till Plain, which are described as follows:

- The Bellevue-Castalia Karst Plain is composed of Columbus and Delaware Limestone overlain by thin clay till and wave-planed clay till. Elevations range from 570 to 825 feet above sea level (Ohio Division of Geological Survey, 1998, Physiographic Regions of Ohio).

- The Erie Lake Plain is comprised of Pleistocene-age lacustrine sand, silt, clay, and wave-planed till over Devonian-and Mississippian-age shales and sandstones. Elevations range from 570 to 800 feet above sea level (Ohio Division of Geological Survey, 1998, Physiographic Regions of Ohio).

- The Central Ohio Clayey Till Plain is comprised of clayey, high-lime Wisconsinan-age till from the Erie glacial lobe and lacustrine materials over Lower Paleozoic-age carbonate rocks and shales. Elevations range from 700 to 1,150 feet above sea level (Ohio Division of Geological Survey, 1998, Physiographic Regions of Ohio).

The Study Area is underlain by four bedrock groups within the Devonian bedrock formation, specifically, the Ohio Shale, Plum Brook Shale member, Delaware Limestone and Columbus Limestone (Ohio Division of Geological Survey, 2006, Bedrock Geologic Map of Ohio). The Devonian bedrock formation is comprised of sedimentary rocks, mainly shale and siltstone with some sandstone.

Bedrock geology of the Study Area is illustrated in Figure 3.

3.1 Glacial Drift

Glacial drift depths are considered during the engineering phase of the Project, for subsidence and foundation requirements. Glacial drift is defined as the thickness and distribution of glacially derived sediments and post-glacial stream sediments overlying the buried bedrock surface. Glacial drift depths were calculated by subtracting bedrock-surface elevations from land-surface elevations. The glacial drift thickness within the Study Area varies from zero to 150 feet. The majority of glacial drift throughout the Study Area is between 0 and 20 feet thick.

Glacial drift thickness of the Study Area is depicted in Figure 4.

3.2 Karst Terrain

The dissolution of limestone, dolomite, and gypsum forms a type of landform known as karst. Karst is characterized by the presence of features such as sinkholes, underground drainage through solution-enlarge fracture and caves. Karst landforms and features provide habitat to some of Ohio's rarest fauna. Karst terrain can also be a significant geologic hazard.

The westernmost portions of the Study Area are located near probable karst areas.

4.0 SOILS

A total of 75 soil types are present within the Study Area (Table 4.1, Figure 5). Project soil information was obtained from the Web Soil Survey, an application of the NRCS, and from the Soil Surveys of Huron, Erie, and Seneca Counties, Ohio (USDA, 1988, 1992, and 1977, respectively). The dominant soil series are the

Bennington series (27%), Pewamo series (26%), Blount series (12%), and Cardington series (10%). The remaining soil series accounted for less than 2% of the Study Area. Soil series within the Study Area were identified as primarily low slope.

The Bennington series, approximately 27% of the total Study Area, consists of very deep, somewhat poorly drained soils formed in loamy till of medium lime content. Permeability in the soil series is slow. Most areas are cultivated. Corn, soybeans, small grain, and hay are the principal crops. Some areas are in pasture or woodland. Native vegetation is mixed hardwoods.

The Pewamo series, approximately 26% of the total Study Area, consists of very deep, very poorly drained soils formed in till on moraines, near-shore zones (relict), and lake plains. Slope ranges from 0 to 2 percent. The potential for surface runoff is negligible to low and permeability is moderately slow. Most areas are used to grow corn, soybeans, small grains, and hay.

The Blount series, approximately 12% of the total Study Area, consists of very deep, somewhat poorly drained soils that are moderately deep or deep to dense till. Permeability is slow in the solum and slow or very slow in the dense till. Almost all areas of Blount soils are cultivated. Corn, soybeans, small grain, and meadow are the principal crops. Native vegetation is hardwood forest.

The Cardington series, approximately 10% of the total Study Area, consists of very deep, moderately well drained soils formed in loamy till of medium lime content. Permeability is slow. Most areas are cultivated. Corn, soybeans, small grain, and hay are the principal crops. Some areas are in pasture or woodland. Native vegetation is mixed hardwoods.

The Glynwood series, approximately 2% of the total Study Area, consists of very deep, moderately well drained soils that are moderately deep or deep to dense till. Permeability is slow in the solum and slow or very slow in the dense till. A large proportion is under cultivation, primarily corn, grass-legume hay, oats, soybeans, and wheat. A relatively small proportion is in permanent bluegrass pasture or in woodland. Native vegetation is deciduous forest, principally ash, beech, elm, hickory, oak, and maple.

The Condit series, approximately 2% of the total Study Area, consists of very deep, very poorly drained soils formed in loamy till on ground moraines. Permeability is slow. Most areas are cultivated. Some areas are in pasture or woodland. Corn, soybeans, small grain, and hay are the principal crops. Native vegetation is mixed hardwoods.

The Lobdell series, approximately 2% of the total Study Area, consists of very deep, moderately well drained soils that formed in recent loamy alluvium. Permeability is moderate in the solum and moderate or moderately rapid in the underlying material. Some areas of the soil are used for cultivation, chiefly corn, small grain, hay, and improved pasture. Other areas are in woodland or permanent pasture. The native vegetation consists of deciduous forest, chiefly beech, ash, elm, sugar maple, and sycamore.

The Mermill series, approximately 2% of the total Study Area, consists of very deep, very poorly drained soils on lake plains and till plains. They formed in loamy glaciolacustrine or water-sorted material 51 to 102 cm (20 to 40 inches) thick and in the underlying till. Slope ranges from 0 to 2 percent. Permeability is moderate in the loamy material and slow or very slow in the underlying till. The potential for surface runoff is negligible or very low. Nearly all of the Mermill soils have been drained and are used for cropland.

The Hornell series, approximately 2% of the total Study Area, consists of moderately deep, somewhat poorly drained soils formed in till overlying shale or siltstone. Permeability is moderate in the surface layer and slow or very slow in the subsoil and substratum. Cleared areas are used at low intensity levels for

growing small grains, hay, potatoes, and pasture. Native vegetation is sugar maple, red maple, white ash, black cherry, oak, eastern hemlock, and eastern white pine.

The Millsdale series, approximately 2% of the total Study Area, consists of moderately deep, very poorly drained soils formed in till overlying limestone or dolostone. They are on till plains, lake plains, and terraces. Slope ranges from 0 to 2 percent. The potential for surface runoff is negligible to high. Saturated hydraulic conductivity is moderately high. Permeability is moderately slow. Most areas are cultivated.

The Haskins series, approximately 1% of the total Study Area, consists of very deep, somewhat poorly drained soils that are moderately deep or deep to dense till. Permeability is moderate in the loamy material and slow or very slow in the underlying till. A large proportion is under cultivation, primarily corn, soybeans, wheat, oats, and hay. Some areas are used for tomatoes and sugar beets. Native vegetation is deciduous, mixed hardwood forest.

The Pandora series, approximately 1% of the total Study Area, consists of very deep, poorly drained soils formed in moderately fine textured till. These soils are on nearly level to slightly depressional till plains. Slope ranges from 0 to 2 percent. These soils have frequent, brief surface ponding in late winter or early spring. The potential for surface runoff in negligible to low and permeability is moderately slow. Most areas are cultivated

The Colwood series, approximately 1% of the total Study Area, consists of very deep, poorly drained or very poorly drained soils formed in stratified silty and loamy glaciolacustrine deposits or outwash. Permeability is moderate or moderately slow. Most areas are cultivated. Corn, beans, small grain, and alfalfa hay are the principal crops. A few areas are in truck crops. A small part, including areas that lack adequate drainage, is in permanent pasture or forest. Native vegetation is chiefly red maple, American elm, quaking aspen, alder, and marsh grasses.

The Castalia series, less than 1% of the total Study Area, consists of moderately deep, well drained soils formed in beach or eolian deposits mixed with glacially displaced limestone or dolostone fragments of local origin. Permeability is rapid. This soil is used for pasture, woodland, and idle land. Some areas are used for cropland. Small grains and hay are the principal crops in the cropland areas. Native vegetation is hardwood forest with a dense cover of grasses.

The Chili series, less than 1% of the total Study Area, consists of very deep, well drained soils on outwash plains, terraces, kames, and beach ridges. The potential for surface runoff is negligible to high. Permeability is moderately rapid in the subsoil and rapid in the underlying material. Most areas having less than 12 percent slopes are cleared and used for general farming, specialty crops, or pasture. Principal crops are corn, oats, wheat, and mixed hay. Steeper areas are mostly wooded, mainly to oaks and hickories. Native vegetation was deciduous hardwood forest.

The Dunbridge series, less than 1% of the total Study Area, consists of moderately deep, well drained soils formed in sandy and loamy drift overlying limestone or dolostone bedrock. Permeability is moderately rapid. A large part has been cleared and is cultivated. Corn, soybeans, wheat, and hay are the principal crops. Some areas are in woodland, permanent pasture, or are idle. Native vegetation is deciduous forest.

The Elliott series, less than 1% of the total Study Area, consists of very deep, somewhat poorly drained soils on till plains. Permeability is slow. Most areas are cultivated. Corn, soybeans, small grain, and meadow are the principal crops. Native vegetation is prairie grasses.

The Fries series, less than 1% of the total Study Area, consists of moderately deep, very poorly drained, slowly permeable soils formed in fine textured glacial till over shale bedrock on till plains and lake plains.

Permeability is slow. Most areas are used for cropland. Principal crops are corn, soybeans, and small grains. Native vegetation is marsh grasses and some swamp deciduous forest, principally of elm, red maple, sycamore, and cottonwood.

The Holly series, less than 1% of the total Study Area, consists of very deep, very poorly and poorly drained soils formed in loamy alluvium on flood plains. Some areas of Holly soils have been cleared and used for pasture or cultivation. Many areas are used as natural areas for wetland wildlife habitat. Native vegetation is soft maple, elder, willow, and other trees tolerant of wet sites.

The Jimtown series, less than 1% of the total Study Area, consists of very deep, somewhat poorly drained soils formed in outwash deposits on stream terraces, outwash terraces, outwash plains, and beach ridges. Permeability is moderate in the solum and moderate or moderately rapid in the substratum. Soils are used for row crops, pasture, and woodland. Native vegetation is mixed hardwoods where ash, elm, sugar maple, and beech are dominant species.

The Joliet series, less than 1% of the total Study Area, consists of shallow, poorly drained soils formed in loamy drift overlying limestone or dolostone bedrock. Permeability is moderate. Most areas are in pasture; some areas are used for general farming. Native vegetation is water-tolerant prairie grasses and sedges.

The Kibbie series, less than 1% of the total Study Area, consists of very deep, somewhat poorly drained soils on lake plains, ground moraines, outwash plains, and deltas. Permeability is moderate. Most areas are cultivated. Corn, small grains, beans, and hay are the principal crops. A small part is in permanent pasture or in woodland. Native vegetation is forests of American elm, American beech, red maple, and American basswood.

The Milford series, approximately <1% of the total Study Area, consists of very deep, poorly drained and very poorly drained soils formed in lacustrine sediments. These soils are on glacial lake plains. Slope ranges from 0 to 2 percent. The potential for surface runoff is negligible to low. Permeability is moderately slow. Most areas are used for cultivated crops.

The Millgrove series, approximately <1% of the total Study Area, consists of very deep, very poorly drained soils on outwash plains and terraces. They formed in loamy and gravelly outwash overlying sandy, gravelly, and loamy outwash deposits. Slope ranges from 0 to 2 percent. The potential for surface runoff is negligible to low. Permeability is moderate in the solum and moderately rapid in the underlying material. Nearly all areas are drained and used for cropland.

The Milton series, approximately <1% of the total Study Area, consists of moderately deep, well drained soils formed in loess and the underlying till and residuum from limestone or dolomite. They are on till plains. The potential for surface runoff is negligible to high. Permeability is moderate or moderately slow, but water movement is rapid in the underlying limestone where it is fractured and porous. A large part is cultivated but steep areas remain in woodland or permanent pasture.

The Miner series, approximately <1% of the total Study Area, consists of very deep, very poorly drained soils formed in low-lime till principally derived from acid shale on lake plains and till plains. Slope ranges from 0 to 2 percent. The potential for surface runoff is negligible or low. Frequent long duration ponding occurs during extended wet periods. Cleared areas are used for small grain, soybeans, hay, and pasture with smaller amounts of corn. A large acreage remains in woodland in which elm, soft maple, and ash are the major species. Many areas adjacent to urban areas are in nonagricultural uses.

The Orrville series, approximately <1% of the total Study Area, consists of very deep, somewhat poorly drained soils formed in loamy alluvium on flood plains. Permeability is moderate in the upper solum and

moderate or moderately rapid in the lower solum and underlying material. Slope ranges from 0 to 3 percent. The potential for surface runoff is low. Use is dependent on frequency of flooding and the accessibility. Areas in wider valleys are cropped to corn, soybeans, and hay. Narrow areas and those dissected by old stream channels are in woodland and permanent pasture.

The Oshtemo series, approximately <1% of the total Study Area, consists of very deep, well drained soils formed in stratified loamy and sandy deposits on outwash plains, valley trains, moraines, and beach ridges. Slope ranges from 0 to 55 percent. The potential for surface runoff is negligible to medium. Permeability is moderately rapid in the upper loamy materials and very rapid in the lower sandy materials. Most areas are cultivated.

The Otisville series, approximately <1% of the total Study Area, consists of very deep, excessively drained soils formed in outwash on Wisconsinan age terraces, kames, eskers, and beaches. Permeability is rapid in the solum and rapid or very rapid in the substratum. Slope ranges from 0 to 60 percent. The potential for surface runoff ranges from negligible to low. The soils are mainly idle or used for pasture, hay, corn, and small grain.

The Prout series, approximately <1% of the total Study Area, consists of moderately deep, somewhat poorly drained soils formed in loamy till overlying residuum from shale. These soils are on lake plains and till plains. Slopes range from 0 to 2 percent. Permeability is moderately slow and the potential for surface runoff is negligible to low. Most areas are cultivated.

The Randolph series, approximately <1% of the total Study Area, consists of moderately deep, somewhat poorly drained soils formed in till overlying residuum from limestone or dolostone. They are on till plains. Slope ranges from 0 to 6 percent. The potential for surface runoff is negligible to medium and permeability is moderately slow. Most areas are used as cropland.

The Rawson series, approximately <1% of the total Study Area, consists of very deep, moderately well drained soils that formed in loamy sediments and till on till plains, outwash plains and lake plains. They are moderately deep or deep to dense till. Slope ranges from 0 to 12 percent. Potential for surface water runoff is low to very high. Permeability is moderate in the loamy sediments, moderately slow in the 2B horizons, and slow or very slow in the underlying dense till. Nearly all areas are cultivated.

The Rimer series, approximately <1% of the total Study Area, consists of very deep, somewhat poorly drained soils that are deep or moderately deep to dense till. These soils formed in sandy glaciolacustrine deposits and in the underlying till. They are on lake plains, wave-worked till plains, till-floored lake plains, and till plains. Slope ranges from 0 to 6 percent. The potential for surface runoff is low to high. Permeability is rapid in the sandy material, slow in the lower part of the subsoil, and slow or very slow in the substratum. Most areas of Rimer soils are cultivated.

The Ritchey series, approximately <1% of the total Study Area, consists of shallow, well drained soils formed in till over limestone or dolostone bedrock on till plains. Slope ranges from 0 to 60 percent. Potential for surface runoff ranges from negligible to high and permeability is moderate. Some areas are cultivated and the remainder is used as pasture or woodland.

The Shoals series, approximately <1% of the total Study Area, consists of very deep, somewhat poorly drained soils that formed in alluvium on flood plains. Slope ranges from 0 to 2 percent. Potential for surface runoff is negligible or very low. Permeability is moderate in the solum and moderate or moderately rapid in the substratum. These soils are subject to rare to frequent flooding. Mainly used to grow corn and soybeans, but some areas are used for forest or pasture.

The Spinks series, approximately <1% of the total Study Area, consists of very deep, well drained soils formed in sandy eolian or outwash material. They are on dunes, moraines, till plains, outwash plains, beach ridges, and lake plains. Slope ranges from 0 to 70 percent. Potential for surface runoff is negligible to medium depending on slope gradient. Permeability is moderately rapid. Spinks soils are used mostly for hay production or pasture.

The Tioga series, approximately <1% of the total Study Area, consists of very deep, well drained soils formed in alluvium on higher positions in flood plains. Permeability is moderate or moderately rapid in the solum and moderate to rapid in the underlying material. Slope ranges from 0 to 3 percent. The potential for surface runoff is negligible to low. Most areas have been cleared and are used for growing corn, small grains, hay, or vegetables. Woodlots contain maple, ash, red oak, and elm.

The Tiro series, approximately <1% of the total Study Area, consists of very deep, somewhat poorly drained soils formed in silty lacustrine deposits, a thin layer of loamy water-sorted material, and the underlying loamy till on water modified till plains. Slope ranges from 0 to 6 percent. The potential for surface runoff is low to high depending upon slope gradient. Permeability is moderate in the upper part of the solum and moderately slow or slow in the lower part. Most areas have been cleared and are used for cropland or permanent pasture.

The Tuscola series, approximately <1% of the total Study Area, consists of very deep, moderately well drained soils on lake plains and deltas. They formed in stratified loamy and silty lacustrine deposits. Slope ranges from 0 to 12 percent. Potential for surface runoff is negligible to medium and permeability is moderate. Most areas are cultivated.

Table 4.1 Soils within the Study Area

Type	Map Unit Description	Acres	Percentage of Area	Hydric Rating	Wind Erodibility Group
AdD2	Alexandria silty clay loam, 12 to 18 percent slopes, eroded	13.56	<1%	5	6
BgA	Bennington silt loam, 0 to 2 percent slopes	5614.9	24	8	6
BgB	Bennington silt loam, 2 to 6 percent slopes	598.97	3	6	6
BkA	Bixler loamy fine sand, 0 to 2 percent slopes	48.64	<1%	4	2
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	575.13	3	6	6
Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	531.62	2	6	6
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	1184.10	5	9	6
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	466.54	2	9	6
CaA	Cardington silt loam, 0 to 2 percent slopes	2.85	<1%	0	5
CcA	Castalia very channery loam, 0 to 2 percent slopes	78.81	<1%	5	6
CcB	Castalia very channery loam, 2 to 6 percent slopes	2.51	<1%	3	6
CgB	Castalia channery silt loam, 2 to 6 percent slopes	2.23	<1%	3	5
ChB	Chili loam, loamy substratum, 2 to 6 percent slopes	18.78	<1%	0	5

Type	Map Unit Description	Acres	Percentage of Area	Hydric Rating	Wind Erodibility Group
Cm	Colwood silt loam	124.86	<1%	99	5
CmA	Colwood loam, 0 to 1 percent slopes	7.90	<1%	90	5
CnA	Colwood silt loam, bedrock substratum, 0 to 1 percent slopes	138.88	<1%	90	5
Co	Condit silty clay loam	486.24	2	98	6
Crd1B1	Cardington silt loam, 2 to 6 percent slopes	1473.52	6	7	5
Crd1C2	Cardington silt loam, 6 to 12 percent slopes, eroded	104.71	<1%	4	6
DuA	Dunbridge loamy sand, 0 to 2 percent slopes	8.66	<1%	0	2
EcA	Elliott silt loam, bedrock substratum, 0 to 2 percent slopes	108.96	<1%	10	6
EnA	Elnora loamy fine sand, 1 to 3 percent slopes	10.07	<1%	1	2
Fr	Fries silty clay loam	92.13	<1%	93	6
FrA	Fries silty clay loam, 0 to 1 percent slopes	11.15	<1%	90	6
Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	68.63	<1%	0	6
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	295.90	1	6	6
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	3.47	<1%	6	6
Gwg5B2	Glynwood clay loam, ground moraine, 2 to 6 percent slopes, eroded	171.70	<1%	6	6
HkA	Haskins loam, 0 to 2 percent slopes	326.3	1	15	5
Ho	Holly silt loam, frequently flooded	17.2	<1%	92	6
HpB	Hornell loam, 2 to 6 percent slopes	2.02	<1%	10	6
HsA	Hornell silty clay loam, 0 to 2 percent slopes	485.74	2	10	6
JtA	Jimtown loam, 0 to 2 percent slopes	117.69	<1%	15	5
JuA	Joliet silt loam, 0 to 1 percent slopes	157.7	<1%	95	4L
KbA	Kibbie fine sandy loam, 0 to 2 percent slopes	10.79	<1%	10	3
Ln	Lobdell silt loam, rarely flooded	65.51	<1%	5	6
Lo	Lobdell silt loam, frequently flooded	353.83	2	6	6
MeA	Mermill silty clay loam, 0 to 1 percent slopes	421.8	2	90	6
MfA	Milford silty clay loam, 0 to 1 percent slopes	91.02	<1%	95	4
MgA	Millgrove loam, 0 to 1 percent slopes	4.65	<1%	90	6
MkA	Millsdale silty clay loam, 0 to 1 percent slopes	90.24	<1%	90	6
Mm	Millsdale silty clay loam	153.03	<1%	95	6
MmA	Millsdale silty clay loam, 0 to 1 percent slopes	505.83	2	90	6
MnA	Milton silt loam, 0 to 2 percent slopes	97.51	<1%	0	6
MnB	Milton silt loam, 2 to 6 percent slopes	136.78	<1%	0	6
MsA	Miner silt loam, shale substratum, 0 to 2 percent slopes	60.61	<1%	100	6
Or	Orrville silt loam, frequently flooded	46.1	<1%	3	5
OsB	Oshtemo loamy sand, 0 to 6 percent slopes	85.38	<1%	0	2
OtB	Otisville gravelly sandy loam, 2 to 6 percent slopes	13.5	<1%	2	5
Pa	Pandora silty clay loam	271.66	1	95	6

Type	Map Unit Description	Acres	Percentage of Area	Hydric Rating	Wind Erodibility Group
Pb	Pandora silty clay loam	22.23	<1%	95	6
PcA	Pewamo silty clay loam, 0 to 1 percent slopes	2734.81	12	90	6
Pk	Pits, quarry	349.51	2	0	-
PkA	Pewamo silty clay loam, 0 to 1 percent slopes	66.00	<1%	91	6
Pm	Pewamo silty clay loam	3295.44	14	98	6
PuA	Prout silt loam, 0 to 2 percent slopes	69.43	<1%	8	6
RaA	Randolph silt loam, 0 to 2 percent slopes	38.95	<1%	10	6
RcA	Rawson sandy loam, 0 to 2 percent slopes	2.56	<1%	5	3
RcB	Rawson sandy loam, 2 to 6 percent slopes	8.81	<1%	5	3
RgA	Rimer loamy fine sand, 0 to 2 percent slopes	3.37	<1%	5	2
RhA	Ritchey loam, 0 to 2 percent slopes	101.94	<1%	0	6
RhB	Ritchey loam, 2 to 6 percent slopes	73.87	<1%	0	6
Sd	Shoals silt loam, 0 to 2 percent slopes, frequently flooded	7.86	<1%	8	6
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded	78.29	<1%	8	6
SpB	Spinks loamy fine sand, 2 to 6 percent slopes	88.52	<1%	0	2
SrB	Spinks loamy fine sand, 2 to 6 percent slopes	0.53	<1%	0	2
Tg	Tioga loam, occasionally flooded	157.21	<1%	0	5
TrA	Tiro silt loam, 0 to 2 percent slopes	10.04	<1%	8	5
TrB	Tiro silt loam, 2 to 6 percent slopes	5.96	<1%	3	5
TuA	Tuscola fine sandy loam, 0 to 2 percent slopes	11.95	<1%	10	3
TuB	Tuscola fine sandy loam, 2 to 6 percent slopes	6.81	<1%	0	3
Ud	Udorthents, loamy	6.43	<1%	0	-
UdB	Udorthents, loamy, 0 to 6 percent slopes	43.07	<1%	0	-
W	Water	45.12	<1%	0	-

4.2 Highly Erodible Soils / Steep Slopes

Based on a review of the NRCS Web Soil Survey, the Study Area soils are not classified as highly erodible soils, all with Wind Erodibility Group (WEG) ratings between 2 and 6 (1 being highly erodible; 8 being least erodible). Additionally, no soil types within the Study Area are found to have 18% slopes or greater.

4.3 Hydric Soils

Approximately one third of the Study Area is located in areas of predominantly hydric soils, as listed in Table 4.1 above. The poor draining qualities of hydric soils combined with local flat or bowl-shaped topography make these locations predisposed to containing wetland areas.

5.0 BIOLOGICAL / CONSERVATION

Information on biological resources in the Study Area and the area within 100-feet of potential construction impact was obtained from a variety of sources, including observations during field surveys, and publicly available data from federal and state agencies as outlined above. Based on the current land use, species

present in the vicinity of the Study Area and the area within 100-feet of potential construction impact are primarily associated with agricultural fields, pasture grasslands, isolated wooded lots, and remote wetland areas.

5.1 Vegetative Community

Vegetative communities within the Study Area and the area within 100-feet of potential construction impact were characterized based on the analysis of aerial photography and field surveys completed during fall 2018 and winter 2019. The field survey confirmed the land use analysis in Section 2.0 in that the Study Area is comprised predominantly of agricultural land with small patches of forestland and areas of disturbed/developed land. Successional communities (e.g., old fields and shrub land) do not appear to comprise a significant portion of the Study Area. All of the major plant communities found within the Study Area are common to Ohio. Brief descriptions of each of the vegetative communities in the Study Area are provided below.

5.1.1 Agricultural Land

The majority of the Study Area and the area within 100-feet of potential construction impact is used for agricultural production. Soy beans and corn were observed as the dominant crops on the agricultural lands within the Study Area. During the winter months, fields may be planted in a cover crop such as winter wheat (*Triticum aestivum*) to control erosion and restore soil nutrients. Most agricultural fields within the Study Area are currently active or recently fallowed.

5.1.2 Forestland

Forestland observed within the Study Area and the area within 100-feet of potential construction impact included windrows and isolated woodlots. Windrows were comprised of narrow forested strips between cultivated areas, and likely served as property boundaries historically. Typically ranging between 30 and 60 feet in depth, windrows occasionally contained man-made ditches which may have been originally constructed to improve drainage along adjacent agricultural fields. The woodlots observed within the Study Area ranged in size, but were often surrounded by agricultural land along at least two sides. Larger woodlots are likely utilized for recreational purposes.

Both the windrows and woodlots have a dominance of weedy vegetation along the edges including blackberry (*Rubus* spp.), and poison ivy (*Toxicodendron radicans*). Mature trees along windrows and inside of the woodlots included: maples (*Acer* spp.), oaks (*Quercus* spp.), American elm (*Ulmus americana*), American beech (*Fagus grandifolia*), American sycamore (*Platanus occidentalis*) and hickories (*Carya* spp.).

5.1.3 Disturbed / Developed

Disturbed/developed lands are found in low densities throughout the Study Area and within 100 feet of proposed disturbance. These areas are characterized by the presence of buildings, parking lots, paved and unpaved roads, and lawns/landscaped areas. Vegetation in these areas is generally either lacking or highly managed including ornamental plantings and managed lawns of tall fescue (*Festuca arundinacea*). In areas that are not intensely managed, weedy herbaceous species such as dandelion (*Taraxacum officinale*), thistle (*Cirsium vulgare*), ragweed (*Ambrosia artemesiifolia*), clover (*Trifolium* spp.), and common purslane (*Portulaca oleracea*) were observed.

5.2 Wetlands and Waterbodies

MSG completed a desktop review of wetlands using NWI (USFWS, 2018) and NHD (USGS, 2018) data prior to a field survey of the Study Area and the area within 100-feet of potential construction impact. A field survey was also completed, the results of which are presented below and in the Surface Water Delineation Report included as Appendix C.

5.2.1 Navigable Waters

There are no navigable waterways within the Study Area and the area within 100-feet of potential construction impact (USACE, 2018). The Study Area is located within the Huron-Vermilion and Sandusky Drainage Basins (Hydrologic Unit Code [HUC]-8), which flow into Lake Erie via the Huron, Sandusky, and Vermilion Rivers. The nearest navigable waterway to the Study Area is the Huron River, which is located approximately two miles to the east. The Huron River is navigable from the mouth at Lake Erie to Milan, Ohio, approximately 10 miles upstream. However, tributaries to the Huron River are located within the Study Area including Frink Run, Megginson Creek, Mud Run, Seymour Creek and Slate Run.

5.2.2 Floodplains

The majority (90%) of the Study Area and the area within 100-feet of potential construction impact is outside areas designated as 100-Year Floodplains by Federal Emergency Management Agency (FEMA) Flood Insurance Maps (FEMA, 2018). The portions of the Study Area located within 100-Year Floodplains are depicted on Figure 7.

5.2.3 Surface Water Delineation

A total of 129 wetlands, 115 streams, and 24 waterbodies were delineated within the Study Area during field surveys, totaling approximately 577 acres. Based on the current design, it is anticipated that construction of the facility will results in 0.142 acres of permanent impacts to wetlands, 1.983 acres of temporary impacts to wetlands, 0.146 acres of permanent impacts to streams, 0.631 acres of temporary impacts to streams and 0.001 acre temporary impacts to waterbodies. As currently designed, facility impacts from the construction of this project can be authorized under NWP 12.

5.2.4 Ohio EPA 401 Water Quality Certification (WQC)

The 401 WQC and IWP Section of the Ohio EPA reviews applications for projects that propose the placement of fill or dredged material into WOTUS as well as isolated waterbodies and wetlands that do not have a significant nexus to a WOTUS, which are considered waters of Ohio (as defined under OAC Rule 3745-1-02 (b)(77)[1]). Areas where projects are eligible, ineligible, or may be eligible to use a NWP for 401 coverage are identified in OEPA's Stream Eligibility Map (Figure 8). The Study Area has proposed infrastructure in all three water quality areas; however, impacts are limited to Eligible and Possibly Eligible areas as follows:

1. Eligible Areas: The majority of the Study Area (approximately 16,779 acres) falls within the "Eligible Area" (Figure 8); therefore, as long as the Study Area meets the

Ohio 401 Certification Special Limitation and Conditions described below, no individual WQC is needed.

2. Possibly Eligible Areas: Some of the Study Area (approximately 6,168 acres) is within area designated as Possibly Eligible (depicted as yellow in Figure 8); however, all stream impacts in this area will be avoided by utilizing horizontal boring methods for stream crossings. Therefore, as long as the Study Area meets the Ohio 401 Certification Special Limitation and Conditions described below, no individual WQC is needed.

3. Ineligible Areas: Some of the Study Area (approximately 77 acres) is within area designated as Ineligible (depicted as purple in Figure 8); however, there are no impacts planned to streams in this designation area.

The 2017 NWP 12 Ohio 401 Certification special limitations and conditions are:

1. Ohio State certification general limitations and conditions apply to this NWP.
2. Except for maintenance activities authorized under this NWP, individual 401 WQC is required for use of this NWP when temporary or permanent impacts are proposed on or in any of the following waters:
   a. Category 1 or 2 wetlands when impacts exceed 0.50 acre;
   b. streams located in ineligible areas as depicted in the Geographic Information System (GIS) NWPs Stream Eligibility Map (see Figure 8: OEPA Stream Eligibility (2017) for the Study Area);
   c. streams located in possibly eligible areas as depicted in the GIS NWPs Stream Eligibility Map determined to be high quality through one of the NWP eligibility flowcharts;
   d. State wild and scenic rivers;
   e. national wild and scenic rivers; and
   f. general high quality water bodies which harbor Federally- and State-listed threatened or endangered aquatic species.
3. Temporary or permanent impacts to Category 3 wetlands are limited to less than 0.10 acre for activities involving the repair, maintenance, replacement, or safety upgrades to existing infrastructure that meets the definition of public need. OEPA will make the determination if a project meets public need during the ORAM verification process.
4. Temporary or permanent impacts as a result of stream crossings shall not exceed a total of three per stream mile per stream.
5. For an individual stream, while the repair or replacement of an existing culvert of any length is not limited by this certification, any culvert extension shall not exceed 300 linear feet (l.f.)
6. All hydric soils up to 12 inches in depth within wetlands shall be stockpiled and replaced as the topmost backfill layer. Best management practices, such as silt fencing and soil stabilization, shall be implemented to reduce erosion and sediment runoff into adjacent wetlands.
7. Buried utility lines shall be installed at a 90-degree angle to the stream bank to the maximum extent practicable. When a 90-degree angle is not possible, the length of

any buried utility line within any single water body shall not exceed twice the width of that water body at the location of the crossing.

8. The total width of any excavation, grading or mechanized clearing of vegetation and soil shall not exceed a maximum of 50 feet.

If the Project cannot meet the 2017 NWP 12 Ohio 401 Certification special limitations and conditions, then an Individual 401 WQC Permit will need to be obtained.

5.3 Wildlife Resources

Wildlife resources such as, birds, bats, terrestrial, and aquatic organisms have the potential to occur within the Study Area and the area within 100-feet of potential construction impact. Generally, these species will be adapted to the human disturbance associated with agricultural activities prominent within the Study Area. Typical wildlife species that were observed during field surveys included white-tailed deer and common woodland and grassland songbirds.

Major species, as defined by Ohio Administrative Code (OAC) Chapter 4906-17, are those species with recreational or commercial value, or are listed as Federal- or State-listed threatened or endangered species. A discussion of potential rare, threatened, and endangered (RTE) species is found below in Section 5.4. Common game species in northern Ohio include cottontail rabbit (*Sylvilagus floridanus*), northern bobwhite (*Colinus virginianus*), Canada goose (*Branta canadensis*), gray and fox squirrel (*Sciurus carolinensis, Sciurus niger*), mallard (*Anas platrhynchos*) and other ducks, mourning dove (*Zenaida macroura*), ring-necked pheasant (*Phasianus colchicus*), ruffed grouse (*Bonasa umbellus*), white-tailed deer (*Odocoileus virginianus*), and wild turkey (*Meleagris gallopavo*). Other than the agricultural crops and livestock in the area, no commercially valuable species are anticipated to be present in the Study Area.

Results of the literature review pertaining to for birds, raptors and bald eagles, and bats in relation to the Study Area are provided below.

5.3.1 Birds

The Audubon Society designates Important Bird Areas (IBA) around the globe as places of international significance for the conservation of birds and other biodiversity. IBAs include sites for breeding, wintering, and/or migrating birds. IBAs are afforded no special regulatory protection other than that provided by its current land use or ownership. IBAs range from a few acres to thousands of acres in size. There is one recognized IBA, Lake Erie Central Basin, located adjacent to the north Study Area boundary (Figure 6). This IBA provides open water habitat for migrating land birds. As discussed above, the Study Area is primarily agricultural in nature, considered low quality habitat, and therefore is not expected to have any adverse effects to the bird populations using this area.

MSG also reviewed eBird, which provides a real-time online program that aggregates basic bird data provided by recreational and professional bird watchers (https://ebird.org/home). The program was launched in 2002 by the Cornell Lab of Ornithology and National Audubon Society. An eBird “hotspot” is a public birding location created by eBird users, where multiple birders can enter data into the same shared location. Hotspots often present unique areas where many species, or unique species, may be observed at certain times of year and thus are useful in characterizing the bird

community at that location; however, a "hotspot" does not necessarily have to be an outstanding location for birds or birding – the goal is to have a set of public locations that people regularly visit for birding, somewhat regardless of how amazing they are for birds. eBird “hotspots” are afforded no special regulatory protection other than that provided by the current land use or ownership at the location. Eight eBird hotspots were identified near the Study Area (Figure 6 of Appendix A), and each is described as follows:

1. Attica Reservoir is located approximately three miles from the southwest corner of the Study Area. Thirty-six (36) bird species have been identified in this area, none are designated as state listed.

2. Bellevue Reservoir #3 is located approximately 0.5 mile west of the western Study Area. Seventy-four (74) bird species have been identified in this area, including one state-listed species of concern (great egret, *Ardea alba*).

3. Bellevue Reservoir #4 is located approximately 0.5 mile west of the western Study Area. Seventy-eight (78) bird species have been identified in this area, including one state-listed species of concern (Great Egret).

4. Bellevue Reservoir #5 is located immediately east of the eastern Study Area. Sixty-eight (68) bird species have been identified in this area, including one state-listed endangered species (Northern harrier, *Circus hudsonius*) and one state-listed species of special interest (American Black Duck, *Anas rubripes)*.

5. Billman Road Skypools is located approximately one mile west of the western Study Area. Sixty-five (65) bird species have been identified in this area, including one state-listed species of concern (Great Egret).

6. Erie Sand Barrens Nature Preserve is located approximately 1.4 mile north of the northern Study Area. One hundred and two (102) bird species have been identified in this area, none are designated as state listed.

7. Monroeville Reservoir is located approximately one mile east of the eastern Study Area. Eighteen (18) bird species have been identified in this area, none are designated as state listed.

8. OH 269 Skypools is located approximately 1.8 miles west from the western Study Area. Two (2) bird species have been identified in this area, none are designated as state listed.

No Federal- or State-listed bird species were observed during the field efforts completed by MSG. It is likely that many of the bird species would opt for higher quality habitat in the region, such as the IBAs listed above for roosting, foraging and breeding.

5.3.2 Bats

Of the 46 listed bat species in the United States, nine potentially occur in the Study Area based on the Ohio Department of Natural Resources (ODNR) Erie, Huron and Seneca County listings:

- Indiana bat – *Myotis sodalis* (Federally-listed and State-listed endangered)

- Northern-long-eared bat – *Myotis septentrionalis* (Federally-listed and State-listed threatened)
- Silver-haired bat – *Lasionycteris noctivagans* (Ohio species of concern)
- Big Brown bat – *Eptesicus fuscus* (Ohio species of concern)
- Red bat – *Lasiurus borealis* (Ohio species of concern)
- Hoary bat – *Lasiurus cinereus* (Ohio species of concern)
- Little brown bat – *Myotis lucifugus* (Ohio species of concern)
- Tri-colored bat – *Perimyotis subflavus* (Ohio species of concern)
- Evening bat – *Nycticeius humeralis* (Ohio special interest)

MSG observed no evidence of bat activity during the ecological assessment field surveys; however, these were not the purpose of these surveys. Acoustic and mist-netting surveys were completed separately to evaluate bat species composition, activity and location of important bat resources and are appended in full to the OPSB application.

5.3.3 Bald Eagles and Raptors

The bald eagle is protected under the Bald and Golden Eagle Protection Act (BGEPA). This Act was passed in 1940 to prevent the extinction of the bald eagle and was amended in 1962 to include protection of golden eagles. In addition, the Migratory Bird Treaty Act (MBTA) establishes provisions for the protection of migratory birds that are not necessarily threatened or endangered, which includes all raptors likely to occur in the Study Area. One State-listed endangered raptor, the northern harrier, was identified as potentially occurring in Huron and Erie Counties.

MSG observed no evidence of bald eagle or other raptor species nests or activity during the ecological assessment field surveys; however, these were not the purpose of these surveys. Raptor use and nest surveys were completed separately to evaluate raptor use of the Project area and are appended in full to the OPSB application.

5.4 Rare, Threatened, and Endangered Species

The federal Endangered Species Act (ESA) and related state regulations (Ohio Rev. Code. §1518) were designed to protect and recover imperiled species and the ecosystems upon which they depend. Under these regulations, it is unlawful to "take" a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct." Significant changes to the habitats of protected species can be considered "harm" to the species and may require special permitting from the USFWS and/or the state of Ohio. Significant changes to the habitats of protected species is not expected to occur from the construction and operation of the Facility.

5.4.1 Federal Listings

The USFWS distributes information on federally-listed species by county. The distribution lists for Erie, Huron and Seneca Counties, Ohio (USFWS, updated January 29, 2018) included one endangered bat species, one threatened bat species, one threatened snake species, two endangered bird species, one threatened bird species and one threatened plant species (Table 5.1 below).

Table 5.1 USFWS Ohio County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species – Erie, Huron and Seneca Counties

County	Species	Federal Status	Habitat
Erie Huron Seneca	Indiana Bat (*Myotis sodalis)*	Endangered	Hibernates in caves and mines; Maternity and foraging habitat includes small stream corridors with well-developed riparian woods and upland forests
	Northern Long-Eared Bat (*Myotis septentrionalis)*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During late spring and summer roosts and forages in upland forests.
Erie Huron	Eastern Massasauga (*Sistrurus catenatus)*	Threatened	Wetlands and adjacent uplands
Erie	Kirtland's warbler (*Dendroica kirtlandii*)	Endangered	Kirtland's warblers are known to migrate along the Lake Erie shoreline counties (Ashtabula, Cuyahoga, Erie, Lake, Lorain, Lucas, Ottawa, Sandusky counties) through Ohio in late April-May and late August-early October.
	Lakeside daisy *(Hymenoxys herbacea*) (Formerly *H. acaulis) var. glabra*)	Threatened	Dry rocky prairies; limestone rock surfaces including outcrops and quarries
	Piping plover *(Charadrius melodus)*	Endangered	Beaches along shorelines of the Great Lakes
	Red Knot (Rufa) *Calidris canutus rufa*	Threatened	Present in Ohio during spring and fall migration

5.4.2 State Listings

MSG reviewed the available ODNR Division of Wildlife (DOW) State species listings from ODNR's State-listed Plant and Wildlife Species by County lists, dated June 2016, for Erie and Huron Counties.

ODNR's State-listed Plant Species list for Erie County includes 15 State-listed endangered species, 37 State-listed threatened species, and 46 State-listed potentially endangered species (ODNR, 2016). The ODNR State-listed Plant Species list for Huron County includes one State-listed threatened species and seven State-listed potentially endangered species (ODNR, 2016). The ODNR State-listed Plant Species list for Seneca County includes four State-listed endangered species, three State-listed threatened species and seven State-listed potentially endangered species (ODNR, 2016). None of the listed plants were observed by MSG during the ecological assessments; however, MSG did not complete species-specific surveys.

Given that the majority of the Study Area and the area within 100-feet of potential construction impact is located within active agricultural lands in Erie, Huron and Seneca Counties, significant populations of these State-listed plant species are unlikely to occur in the Study Area and the area within 100-feet of potential construction impact. A complete listing of State-listed plant species for Erie, Huron and Seneca Counties is included in Appendix B.

APPENDIX A
FIGURES

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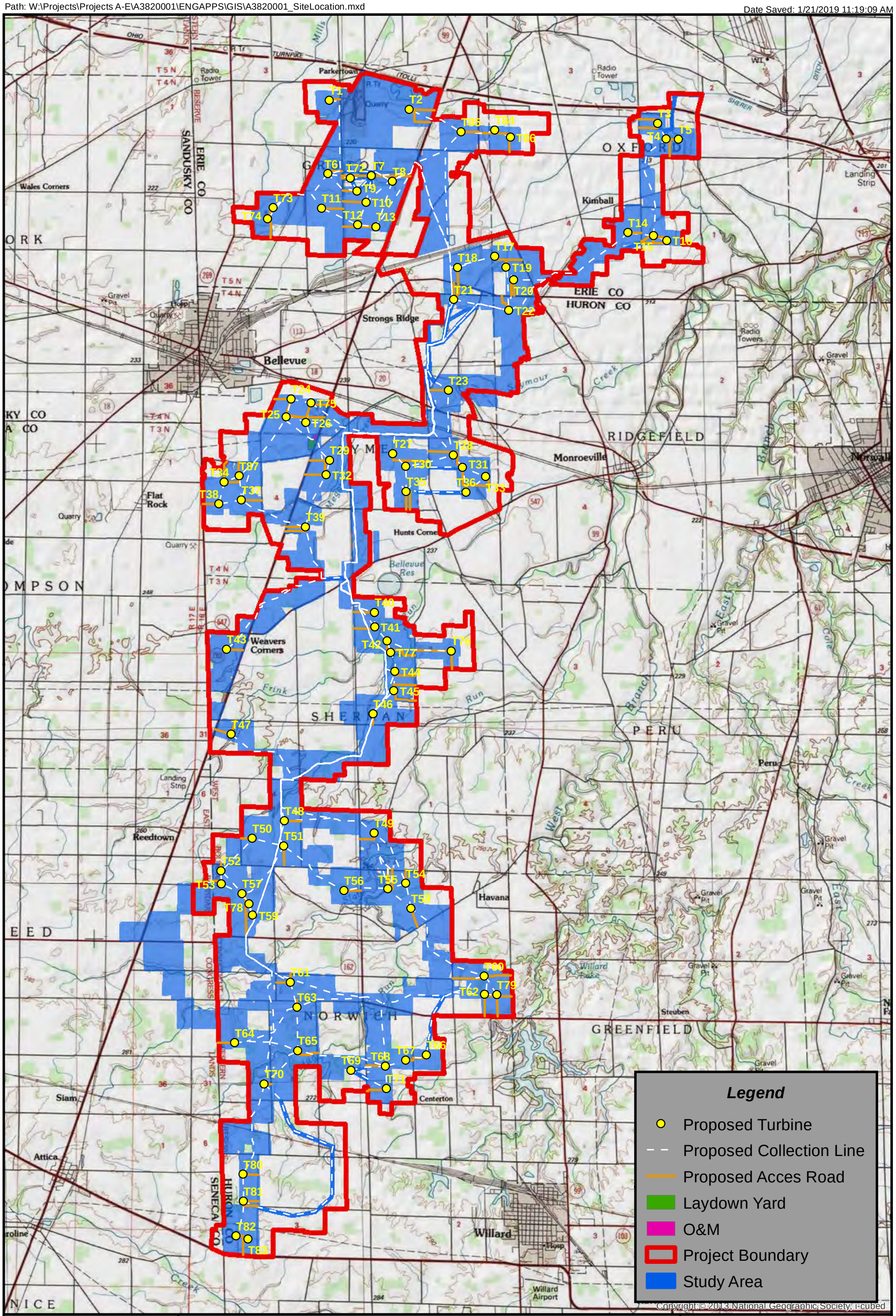

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Figure 1: Site Location
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes
USGS, 30 x 60 Minute Series Topographic
Lorain, OH 1986

Feet
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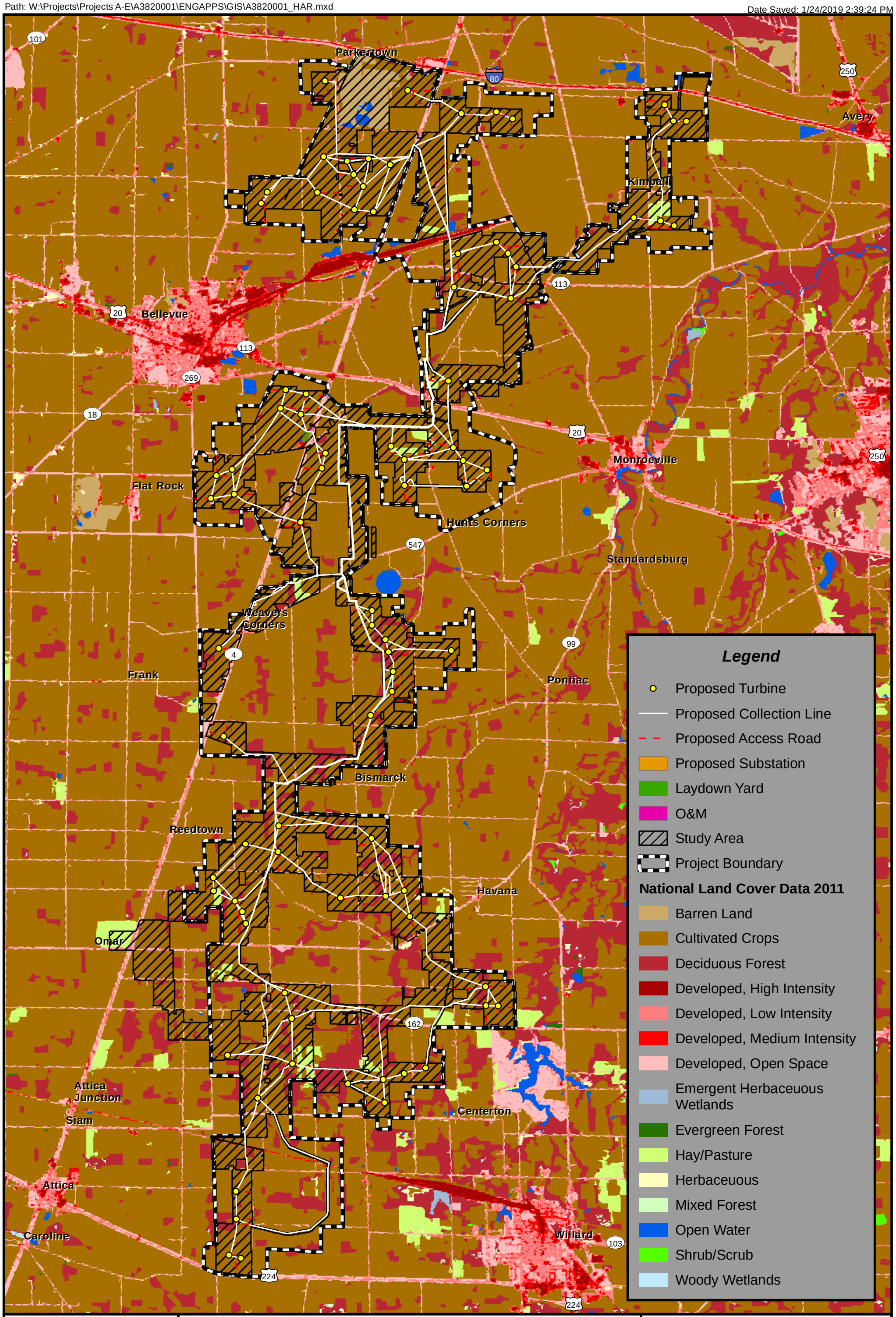

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Figure 2: Land Use (NLCD)
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes

Land Use data derived from the NLCD 2011.

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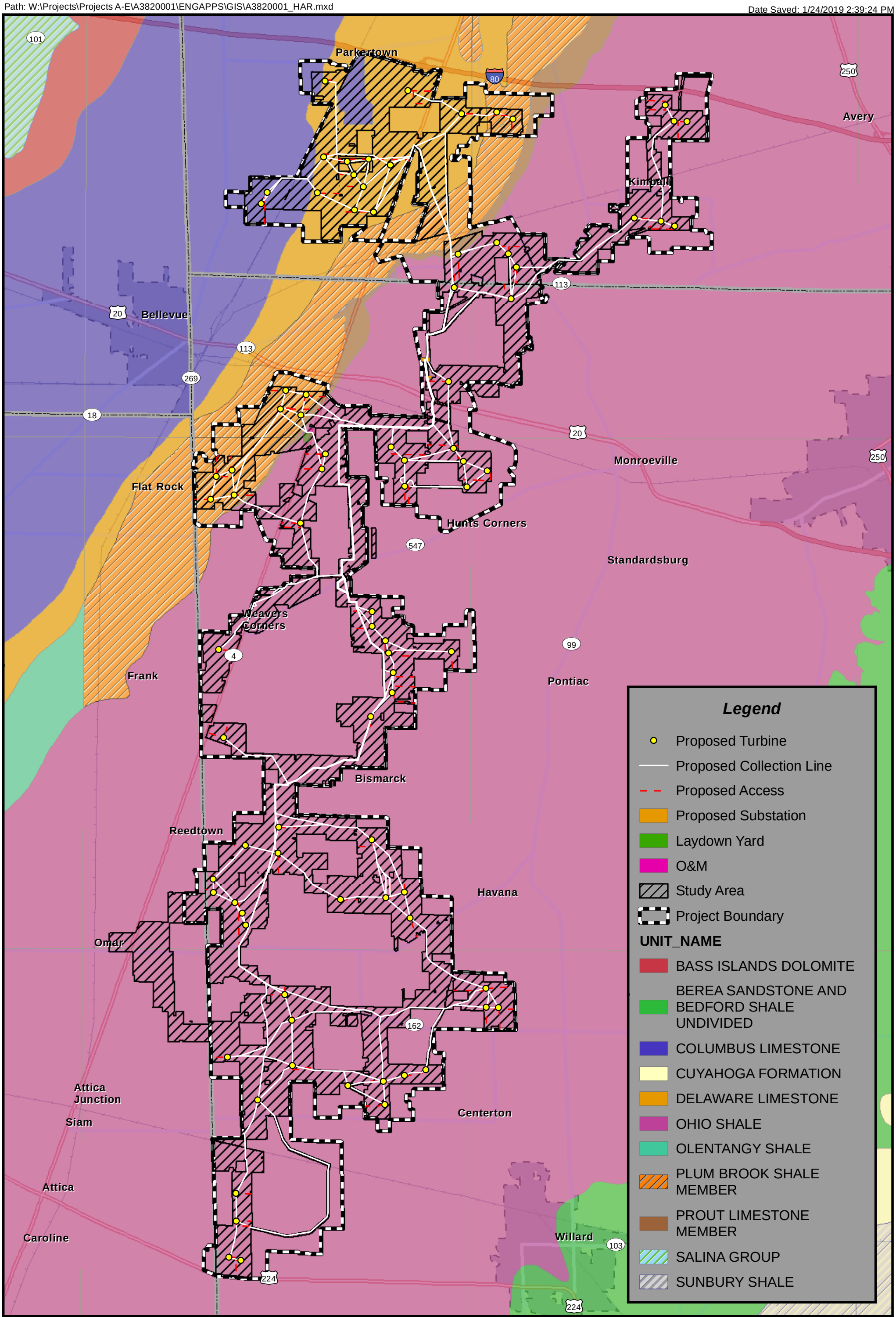

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Figure 3: Bedrock Geology
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes

Bedrock Geology data provided by the Ohio DNR

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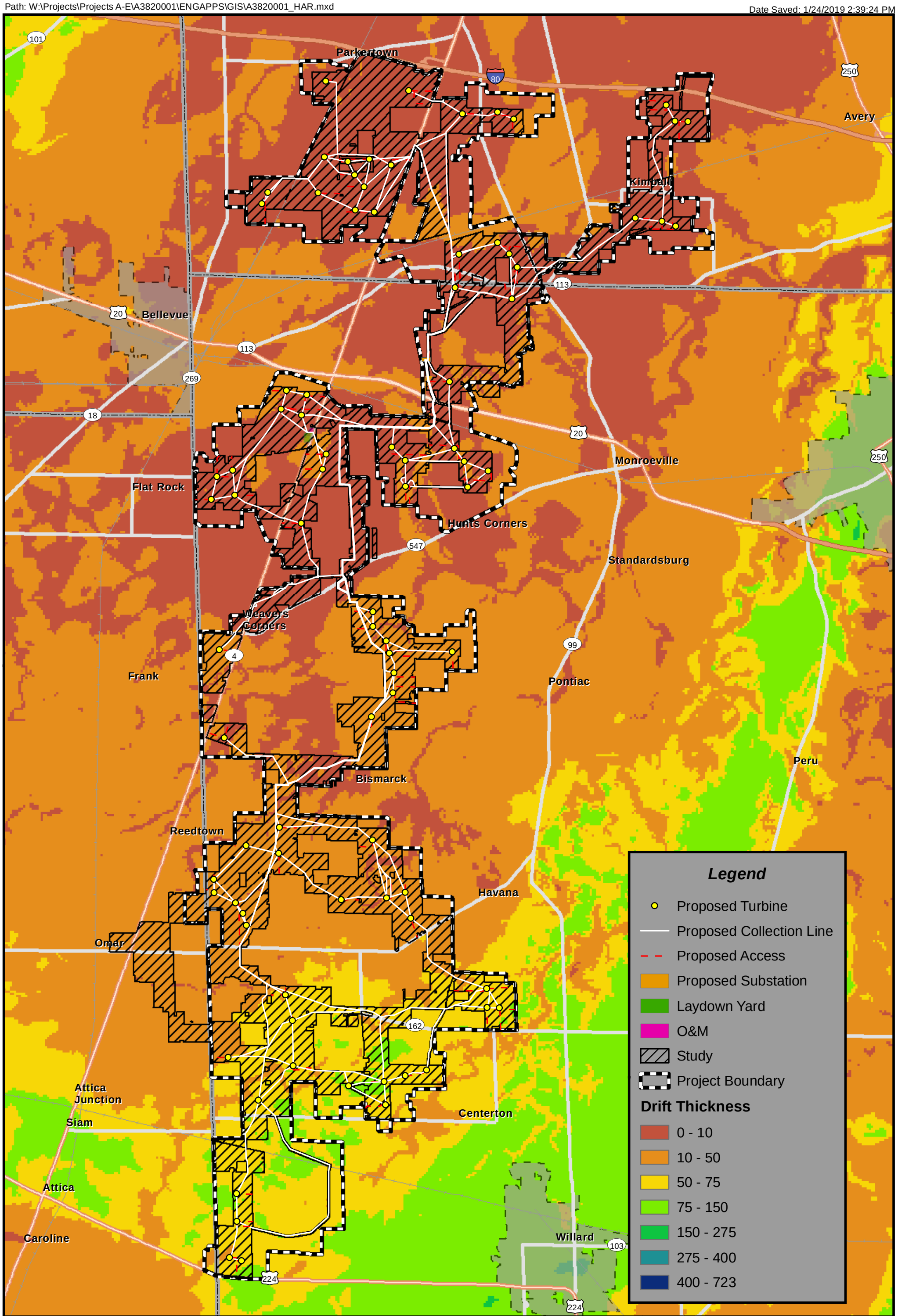

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Figure 4: Glacial Drift
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes

Glacial Drift data is provided by the ODNR Division of Geological Survey

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Figure 5.1: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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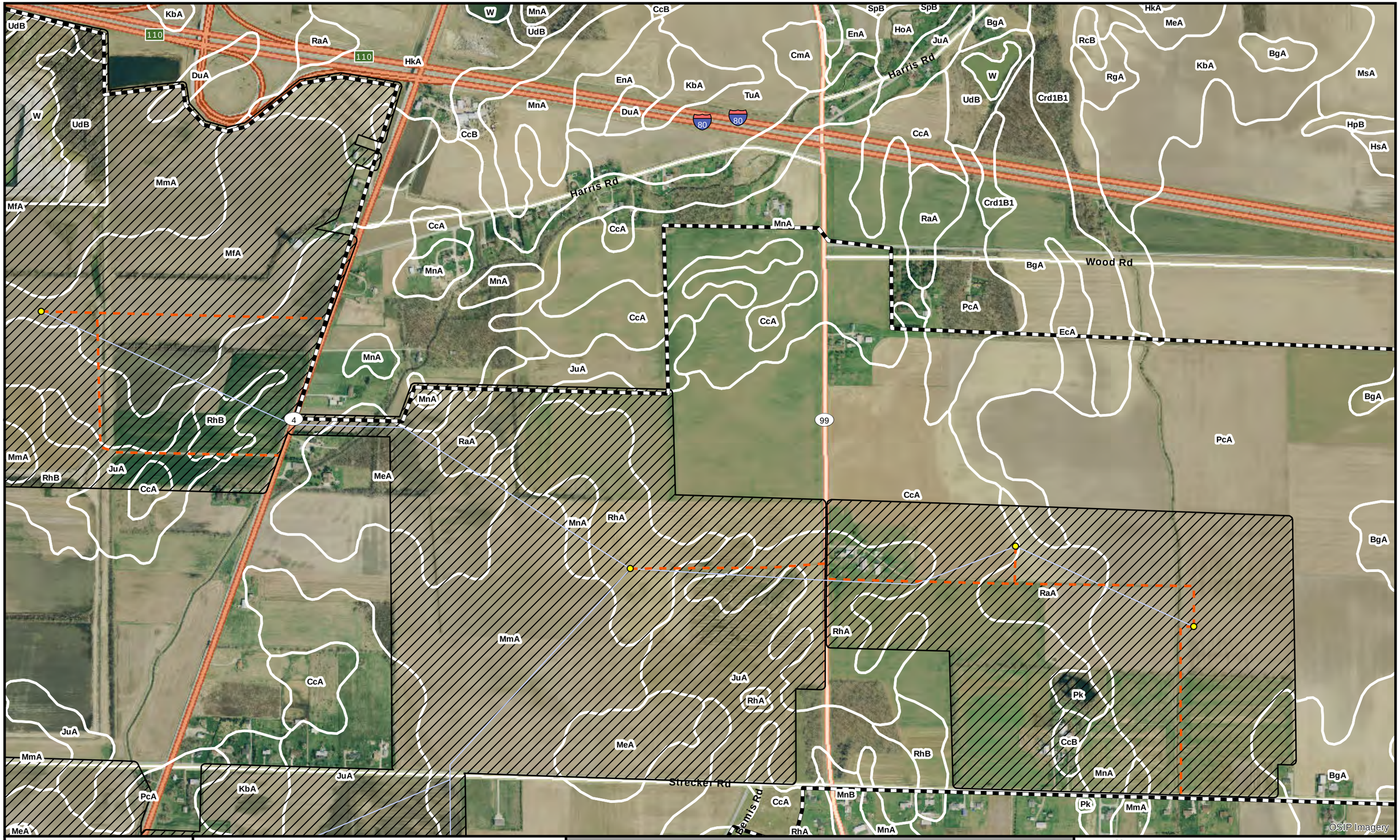

Figure 5.2: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Strecker Rd
CR 15
Strecker Rd
Bragg Rd
Billings Rd
JuA
MnA
BkA
Pk
PcA
RaA
W
BgA
RhA
CcA
MmA
KbA
MeA
JtA
HkA
EcA
4
OSIP Imagery

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Figure 5.3: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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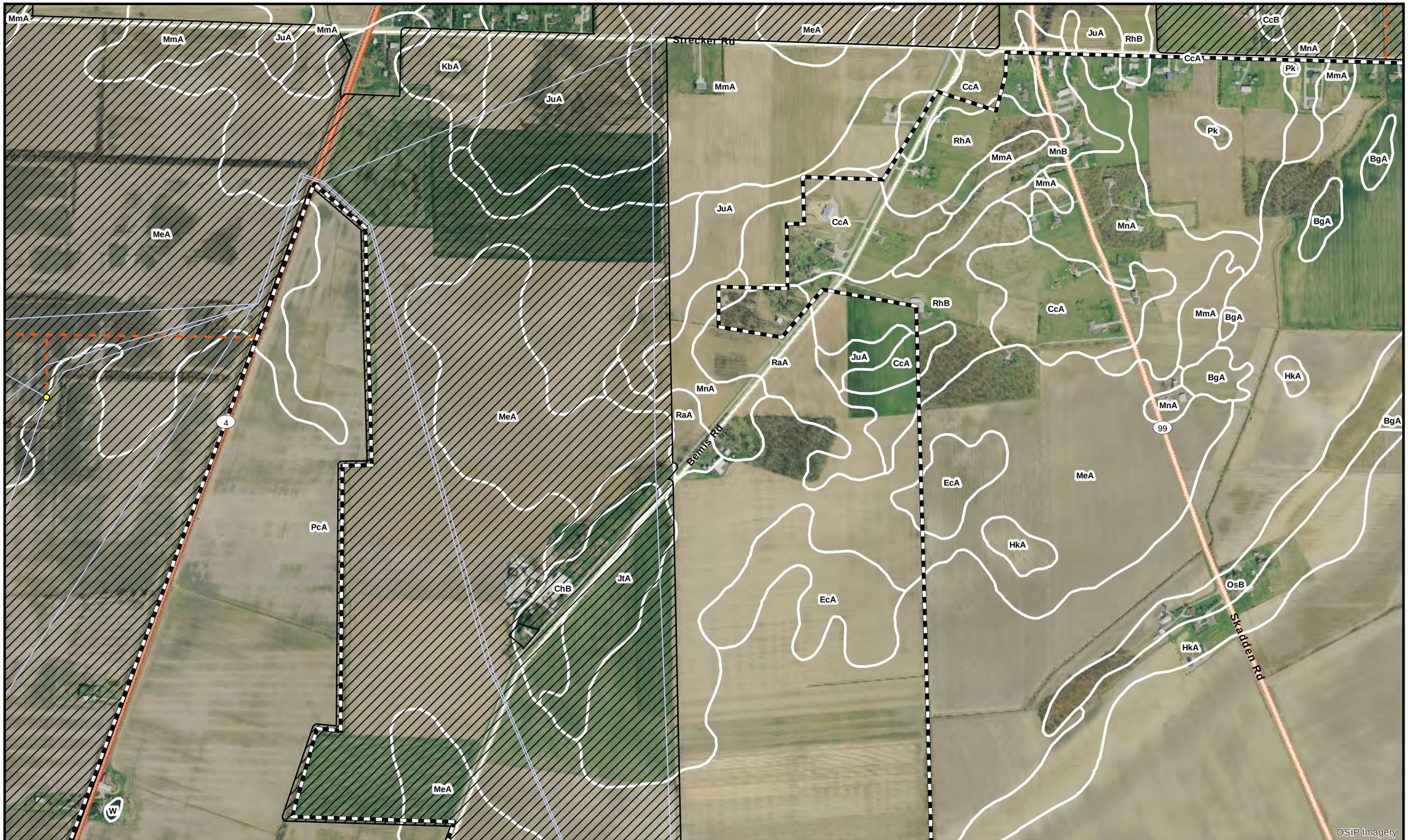

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Figure 5.4: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.5: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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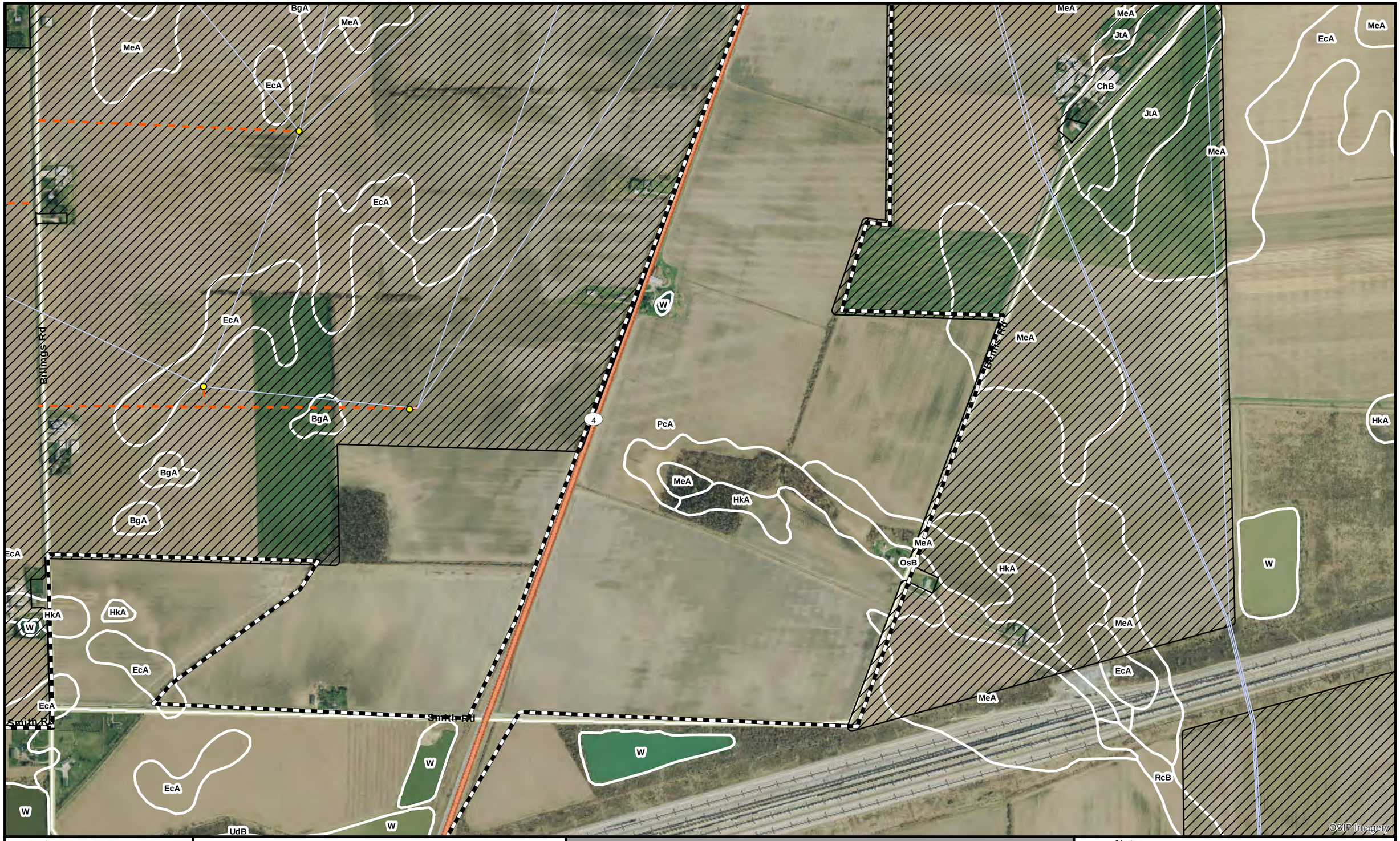

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Figure 5.6: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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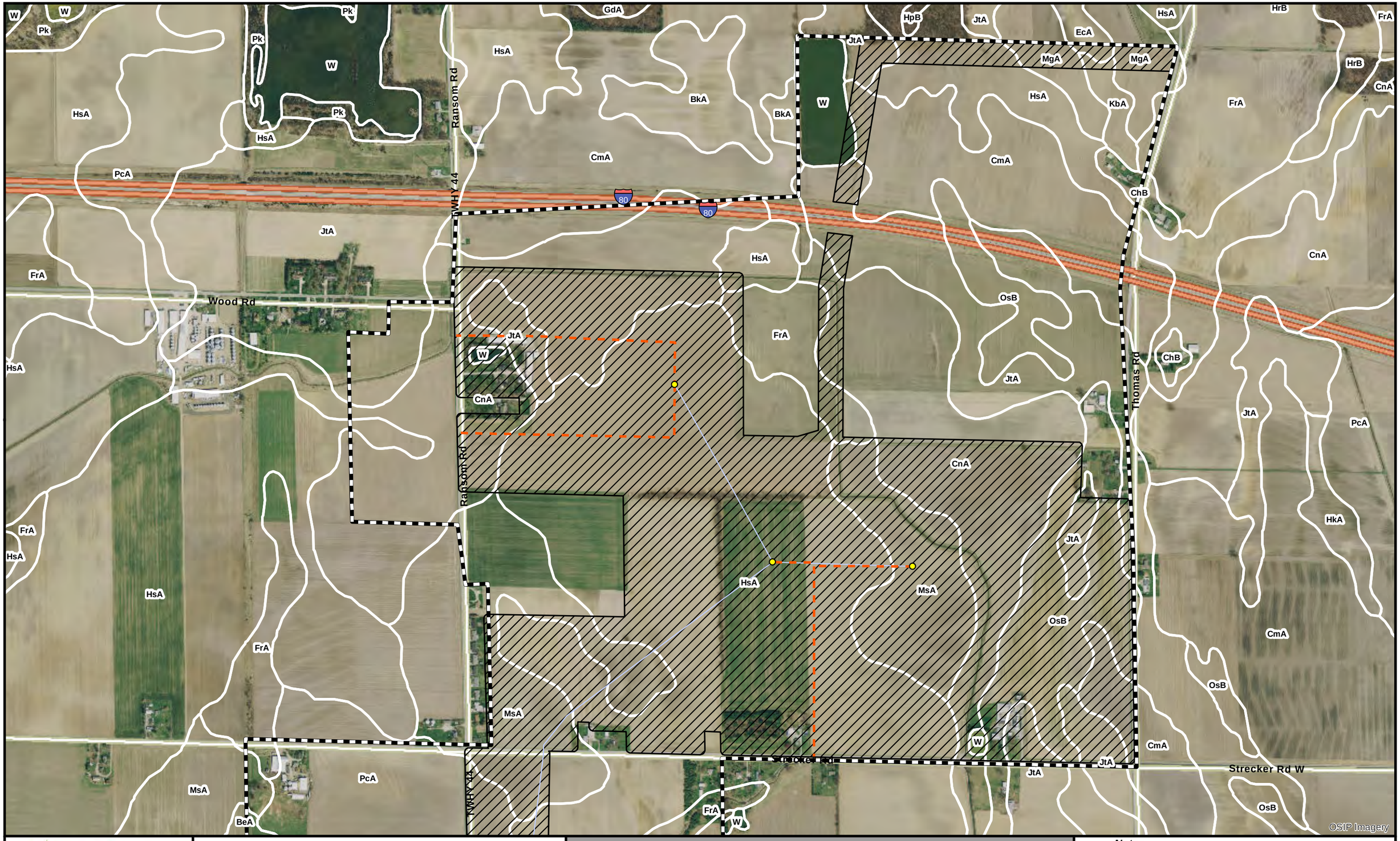

Figure 5.7: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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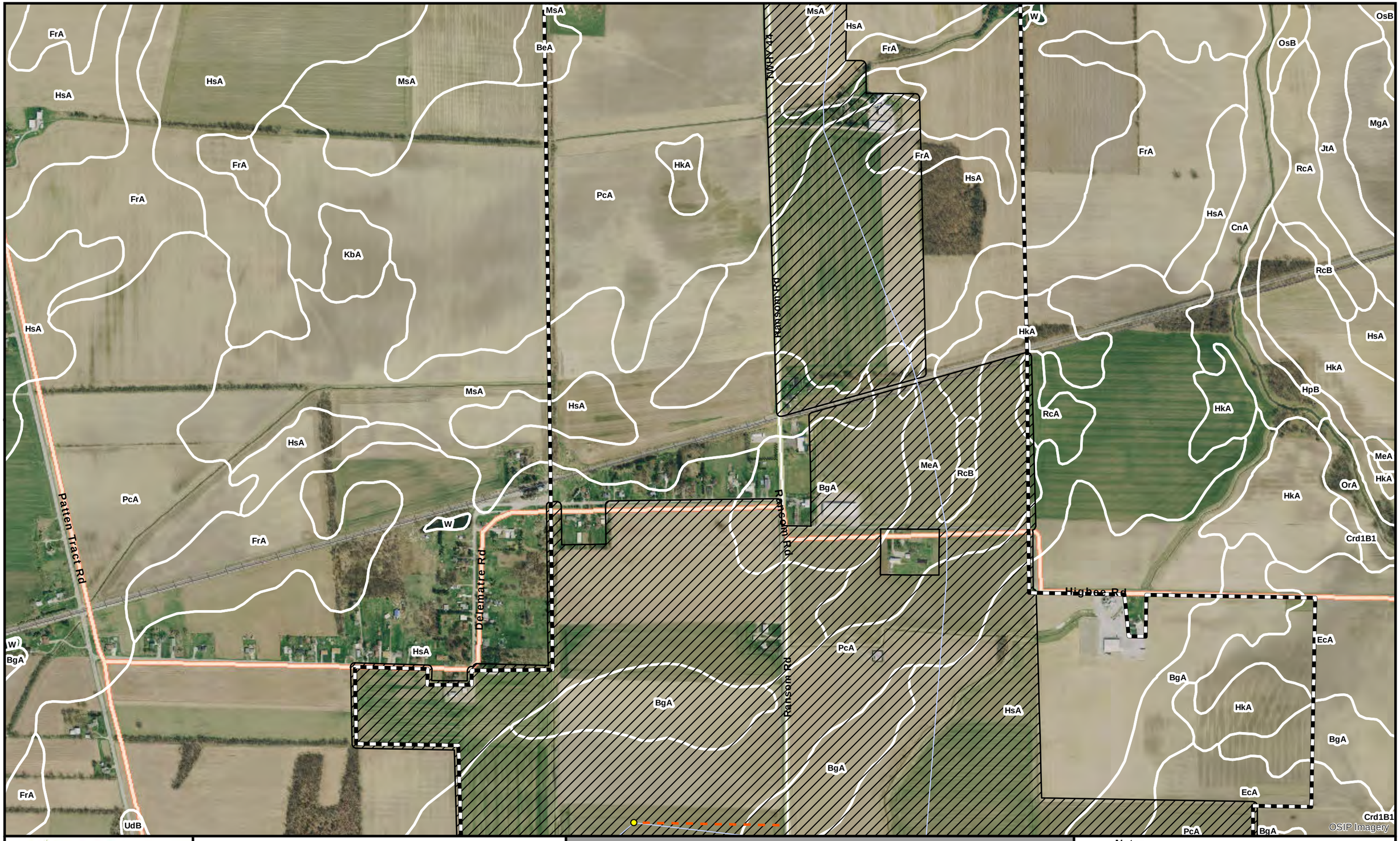

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Figure 5.8: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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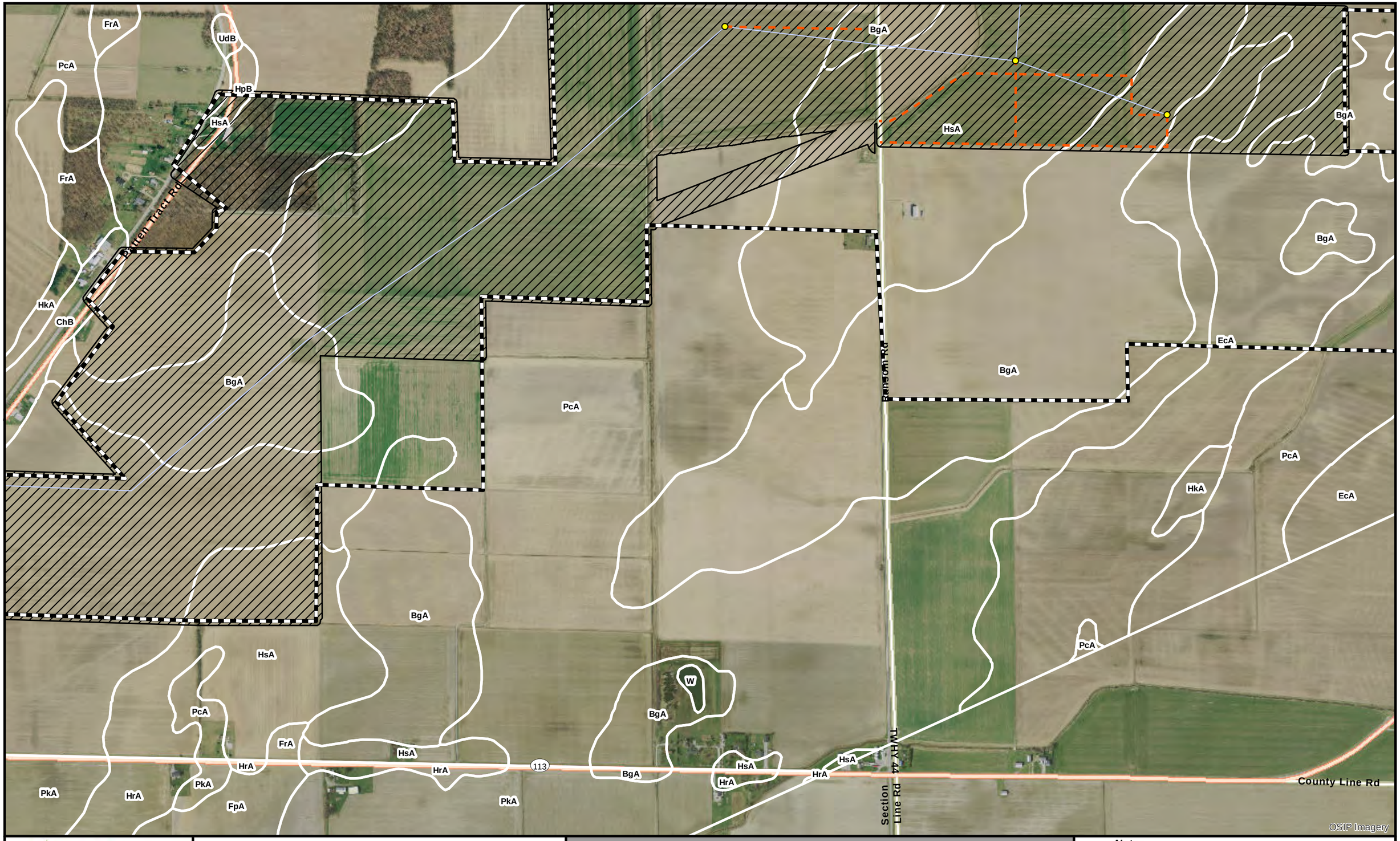

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Figure 5.9: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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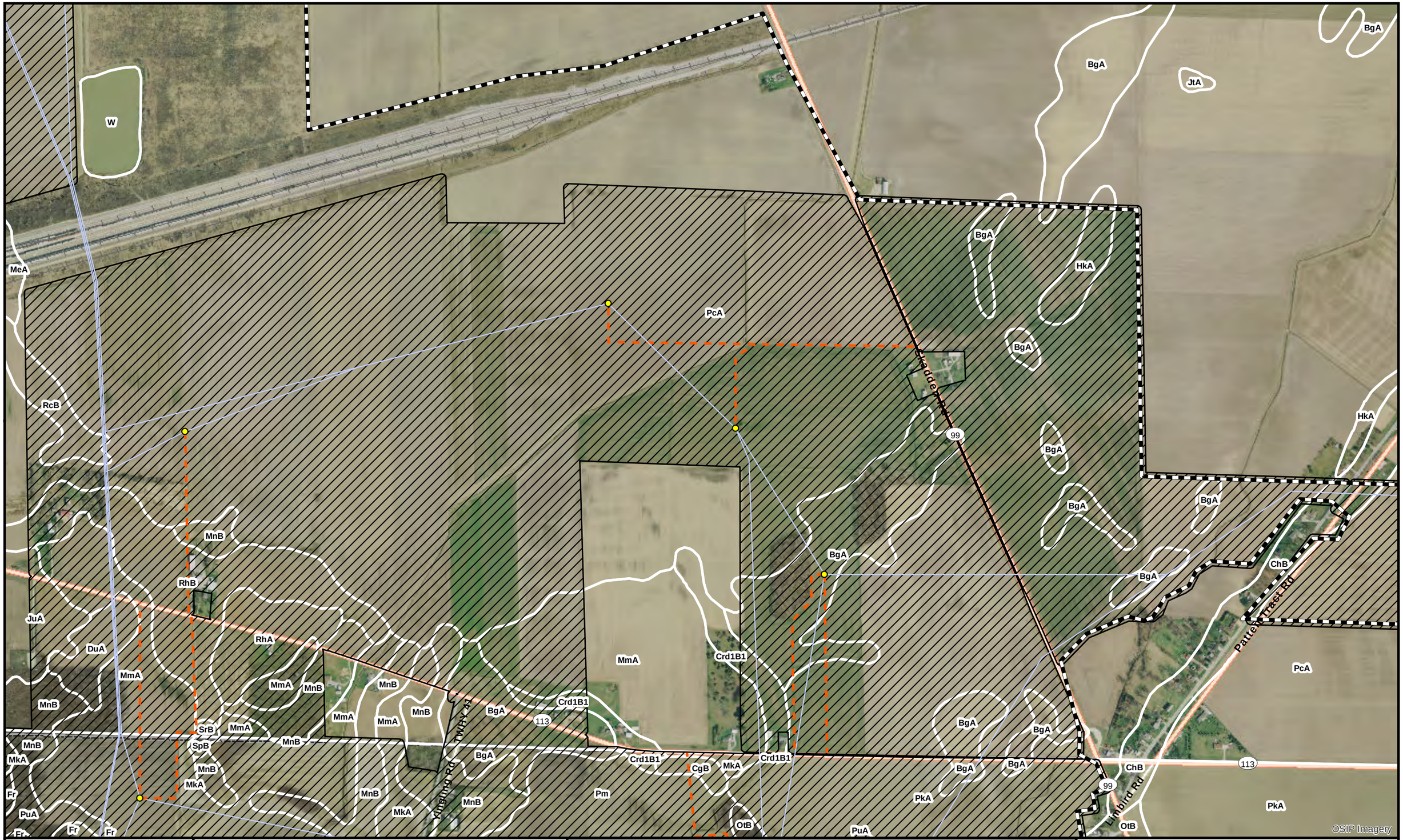

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Figure 5.10: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.11: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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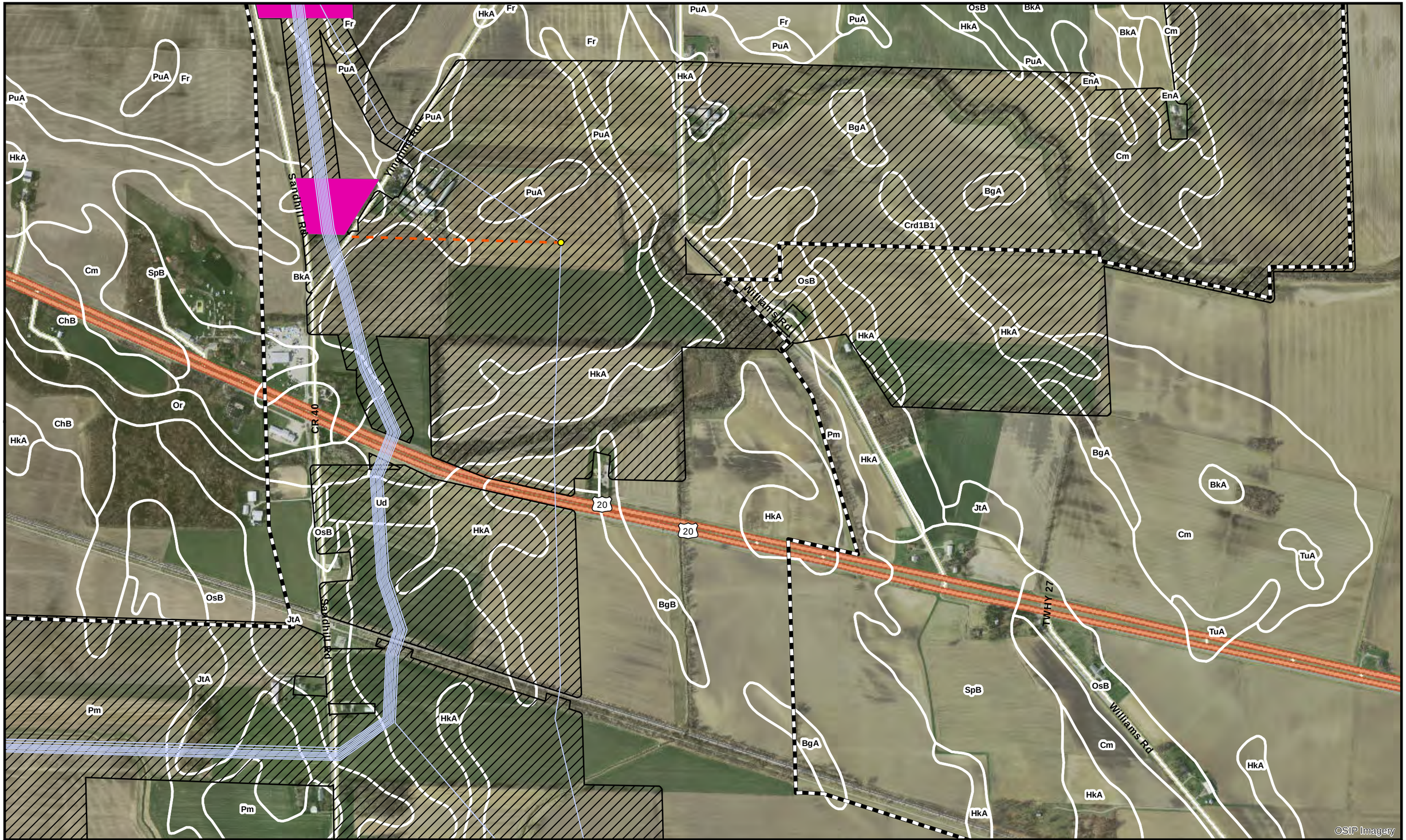

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Figure 5.12: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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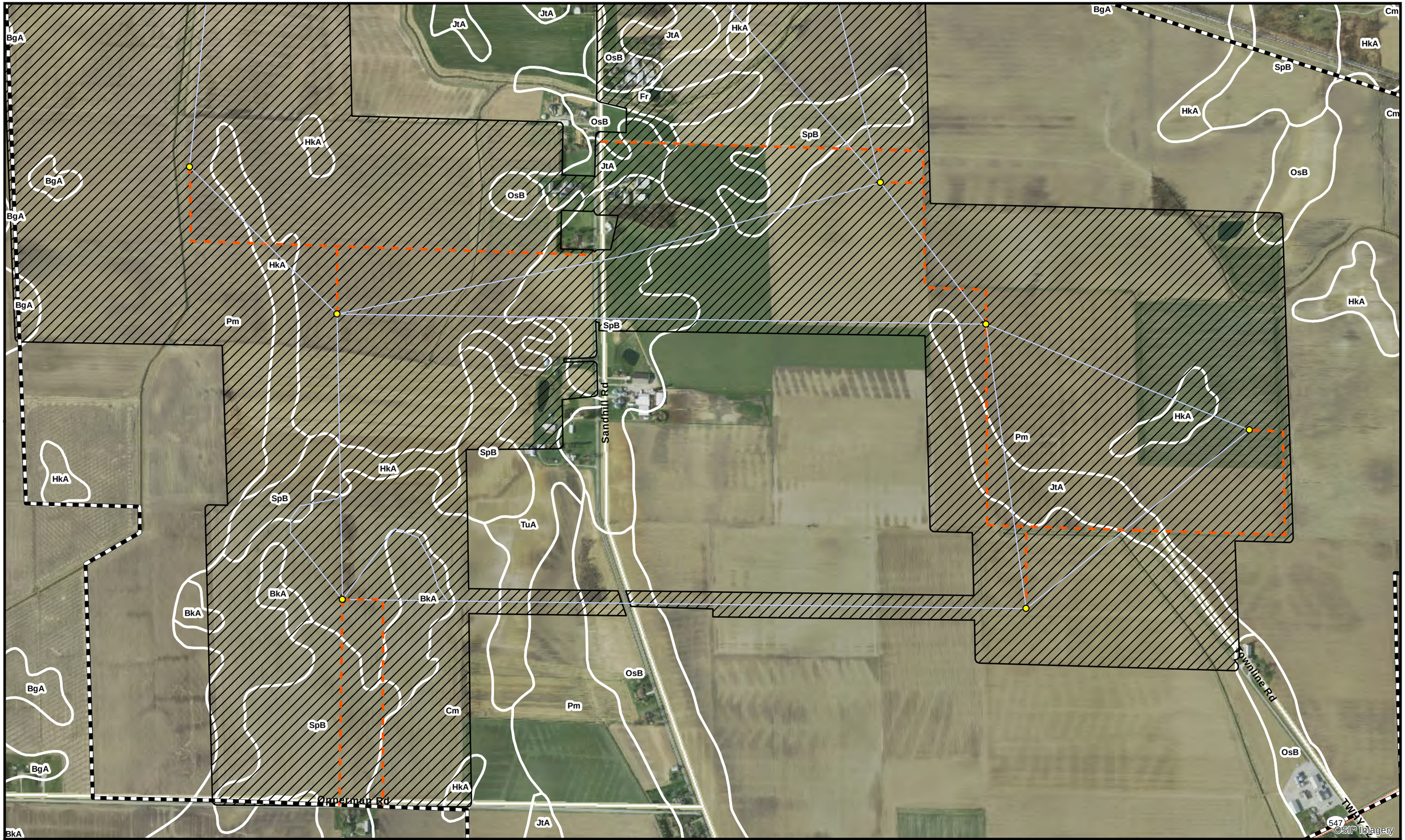

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Figure 5.13: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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TuB
MnB
Cm
PuA
HkA
BgA
Pm
OsB
ChB
Or
BkA
Fr
20
Young Rd
TWHY 23
Section Line Rd
4
OSIP Imagery

Figure 5.14: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.15: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.16: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.17: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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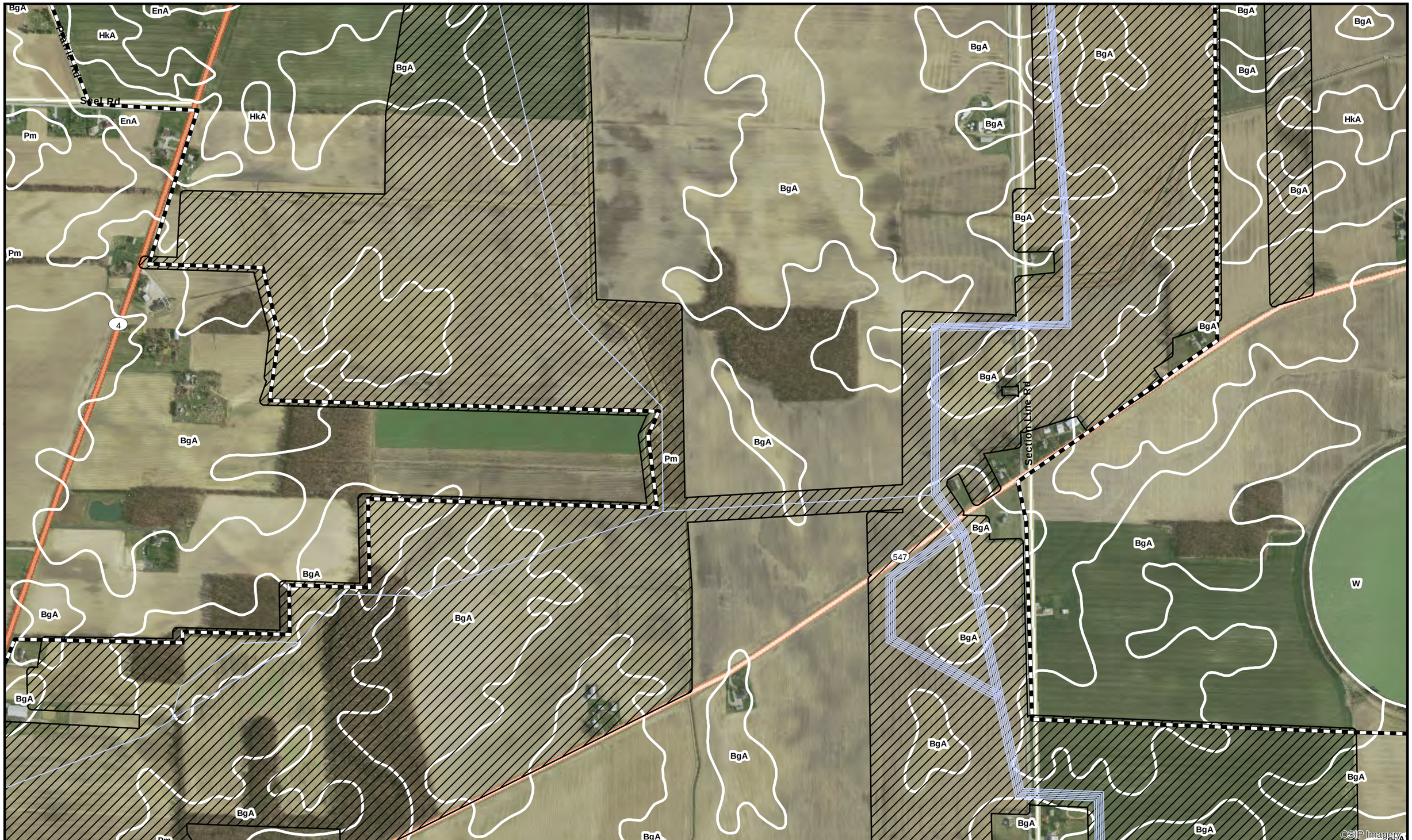

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Figure 5.18: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.19: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.20: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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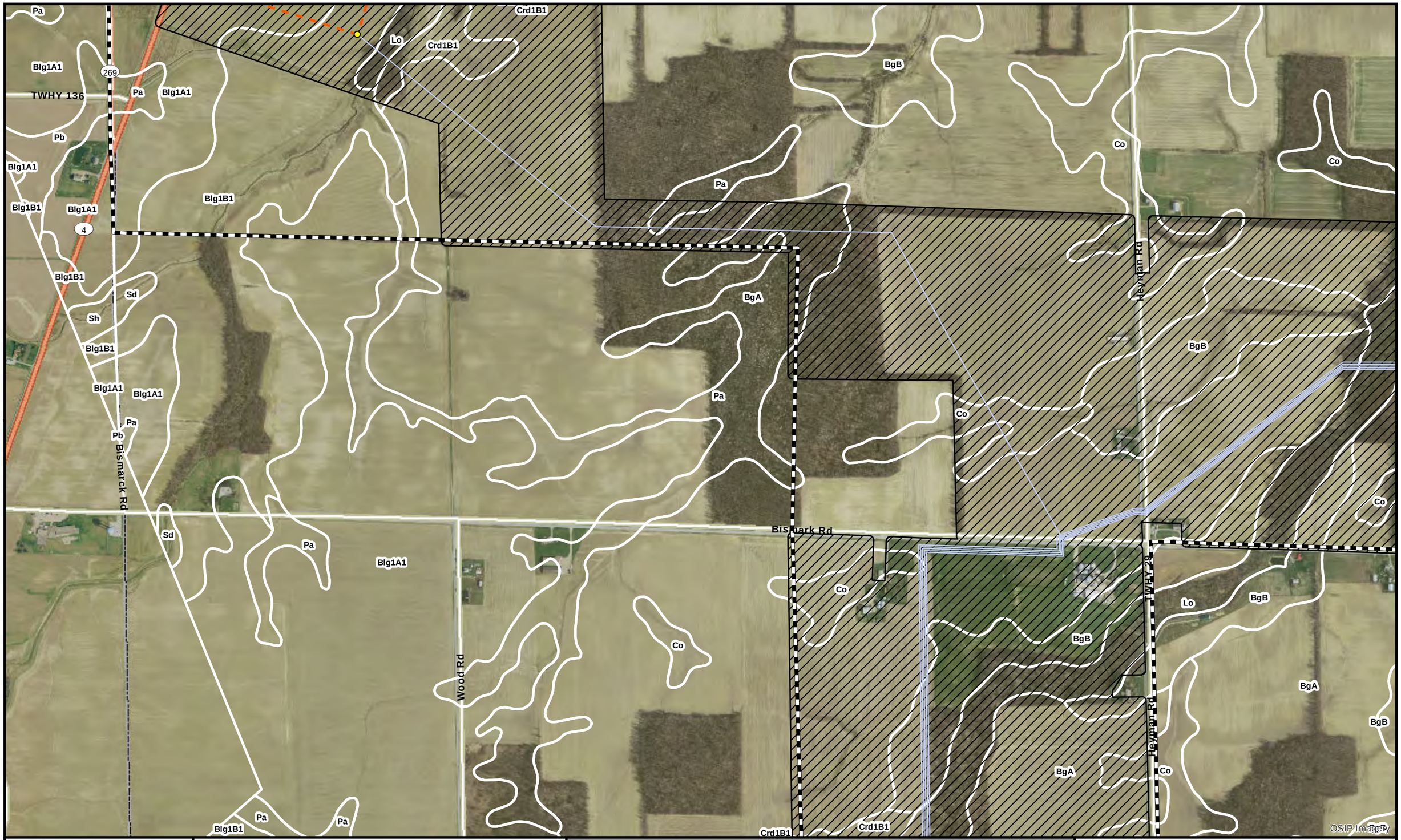

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Figure 5.21: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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BgA
Pm
Crd1B1
HkA
Lo
Co
BgB
Or
Jefferson Line Rd
Dogtown Rd
Breit Rd

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Figure 5.22: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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Figure 5.23: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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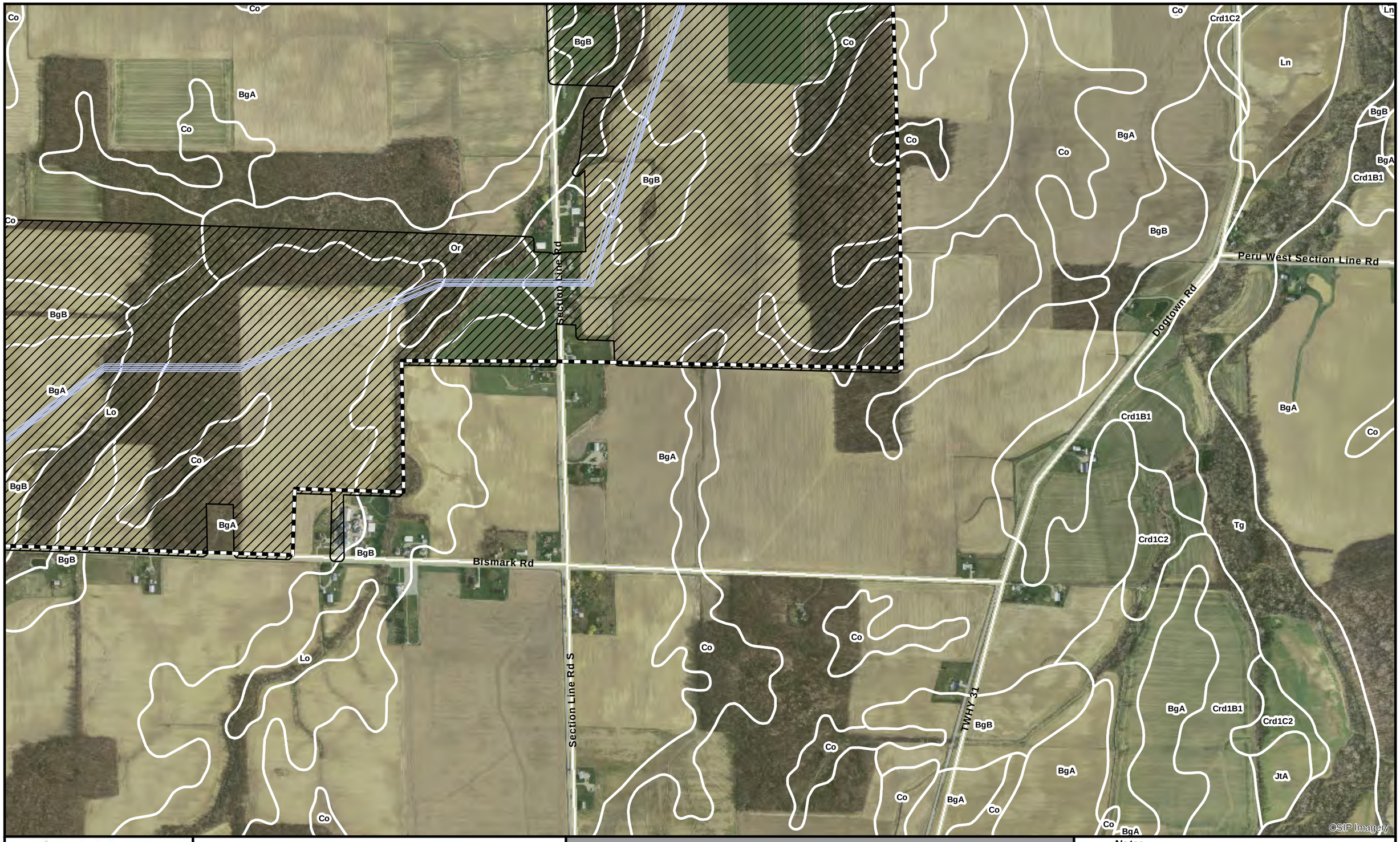

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Figure 5.24: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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Feet
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Pa
Blg1B1
Blg1A1
Sd
Wood Rd
BgA
Lo
Co
BgB
Heyman Rd
Crd1B1
TWHY 205
TWHY 67
Sherman Norwich Rd
Jennifer Rd
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Figure 5.25: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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Figure 5.26: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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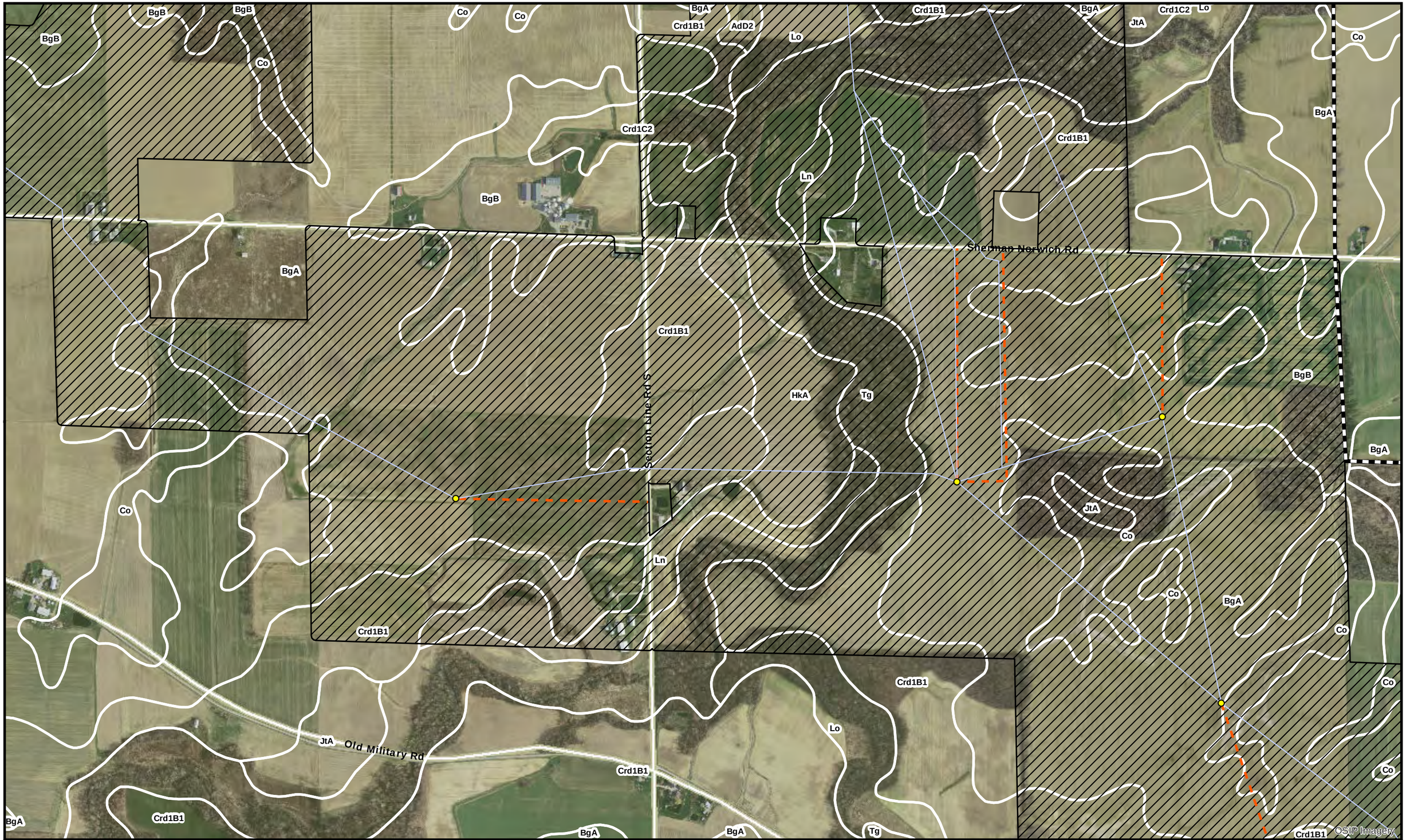

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Figure 5.27: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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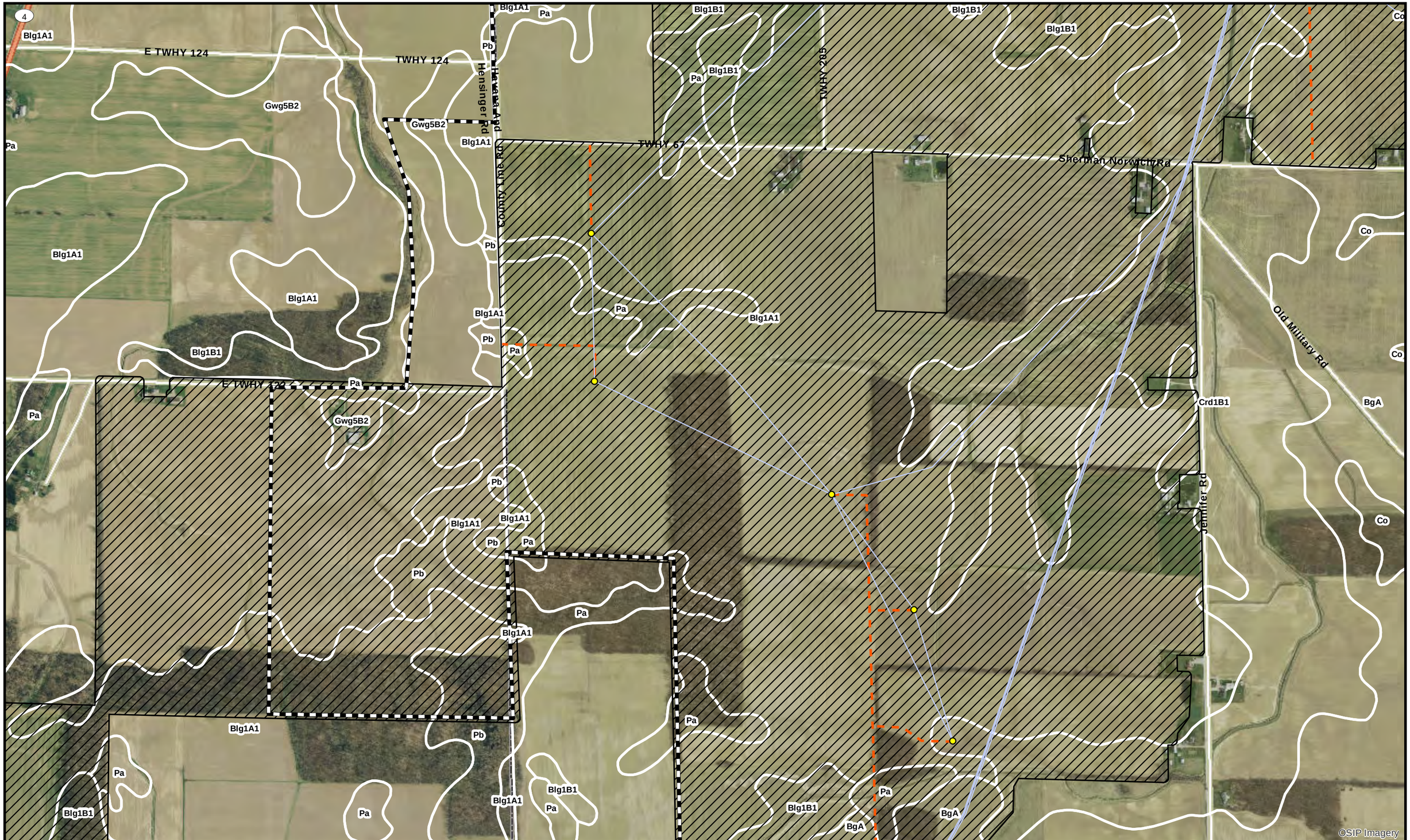

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Figure 5.28: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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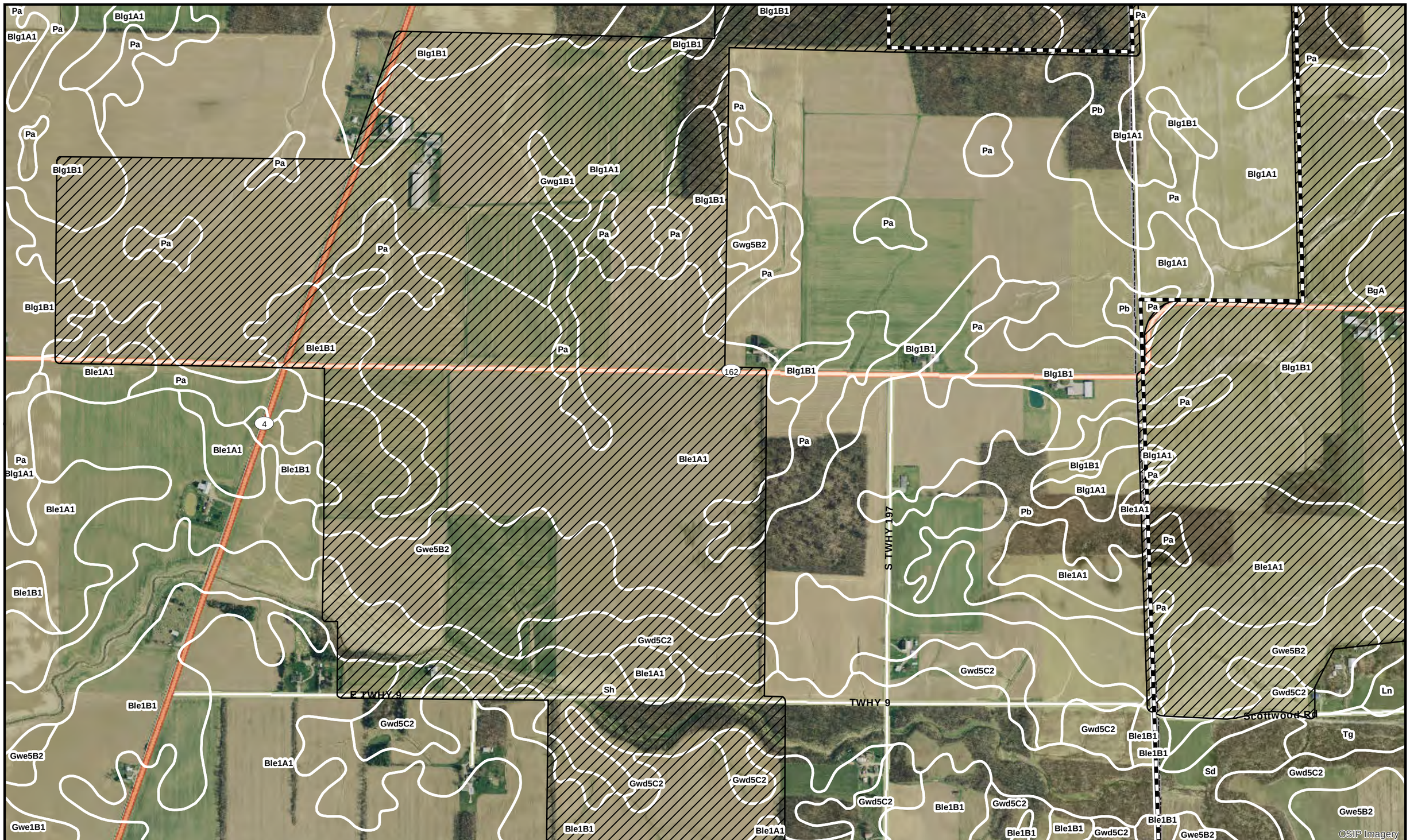

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Figure 5.29: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 5.30: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

N

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Figure 5.31: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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Feet
0 350 700

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Figure 5.32: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

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Scottwood Rd

Greenfield Section Line Rd

Daniels Rd

Section Line Rd S

Miller Rd

BgB
BgA
Co
Crd1C2
Crd1B1
Ln
Or
Lo
Tg
Ho
HkA
162

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Figure 5.33: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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Ble1B1
W
Crd1C2
Crd1B1
Co
Gwd5C2
Ble1B1
Jenkins Rd
Ble1B1
Co
Gwe5B2
BgA
Sd
Greenfield Section Line Rd
Ble1A1
Co
Gwe5B2
Co
Sd
Gwd5C2
Crd1B1
Lo
Ble1B1
BgB
Ble1A1
Pa
Co
Wurtz Rd
Daniels Rd
BgA
Pa
Ho
Ble1A1
Co
Ble1A1
Crd1B1
HkA
Pa
Lo
Ble1B1
Pa
Crd1B1
Ble1A1
Ho
Crd1C2
Crd1B1
Lo
Ble1B1
Crd1C2
Crd1B1
Pa
Crd1B1
Crd1B1
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Figure 5.34: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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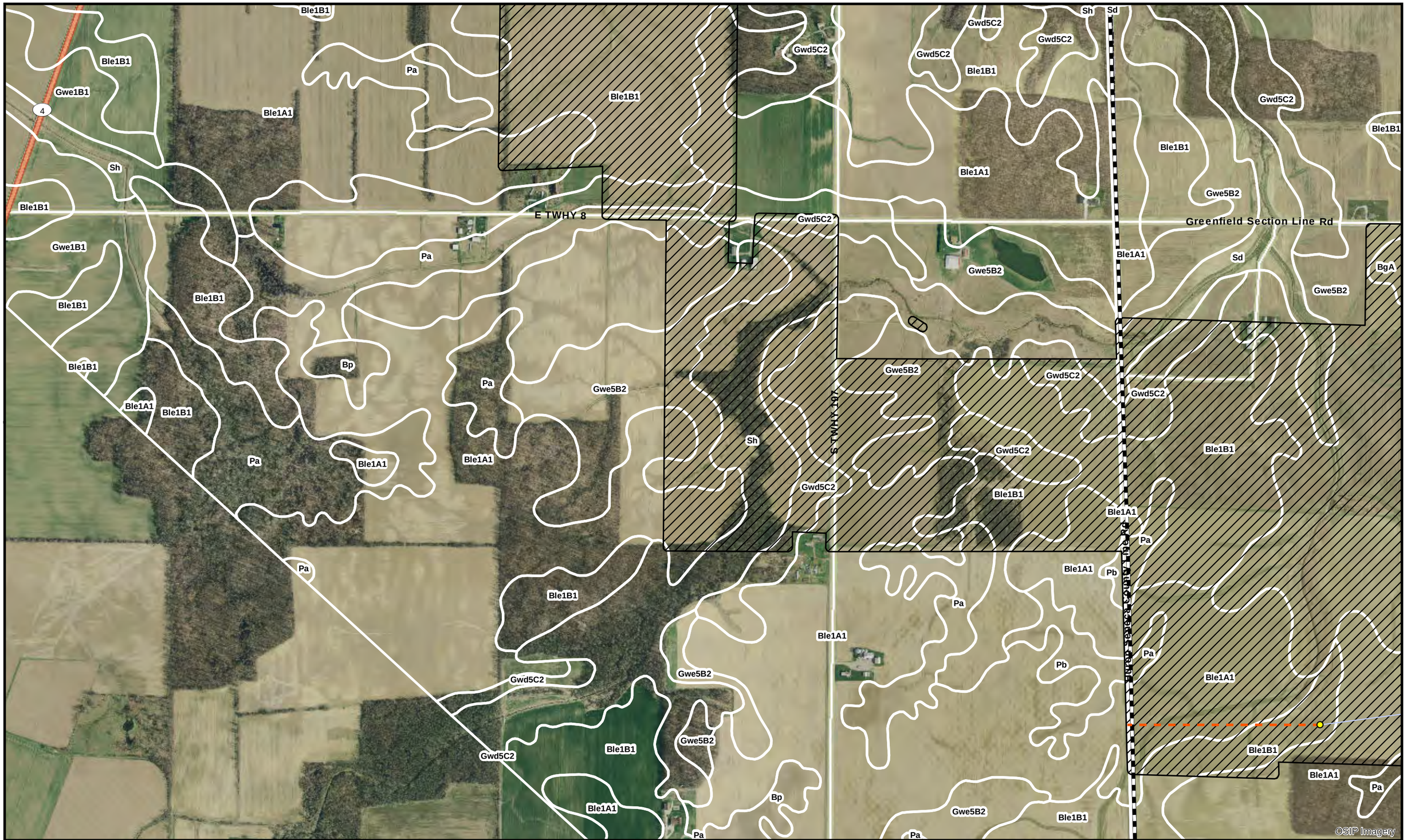

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Figure 5.35: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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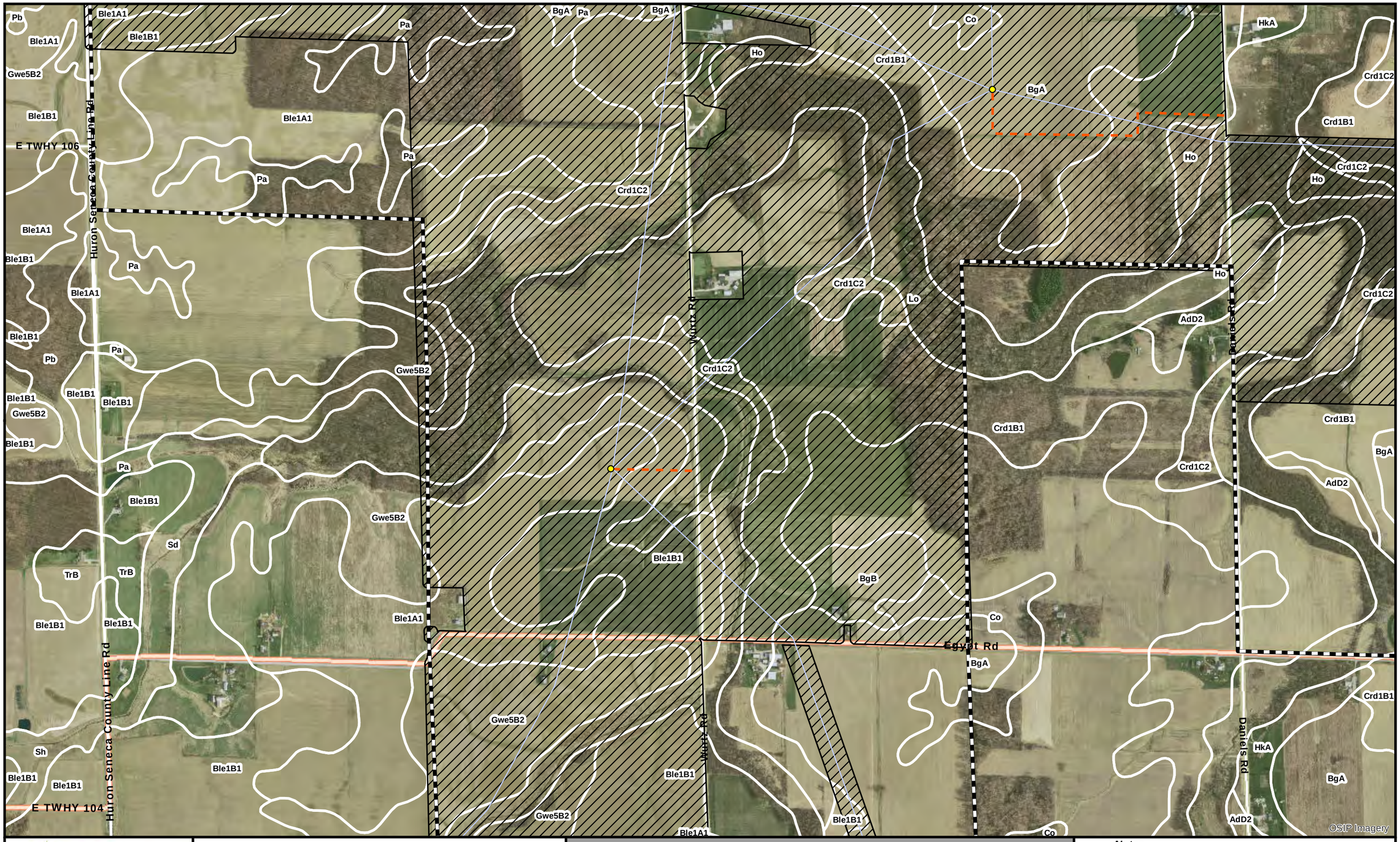

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Figure 5.36: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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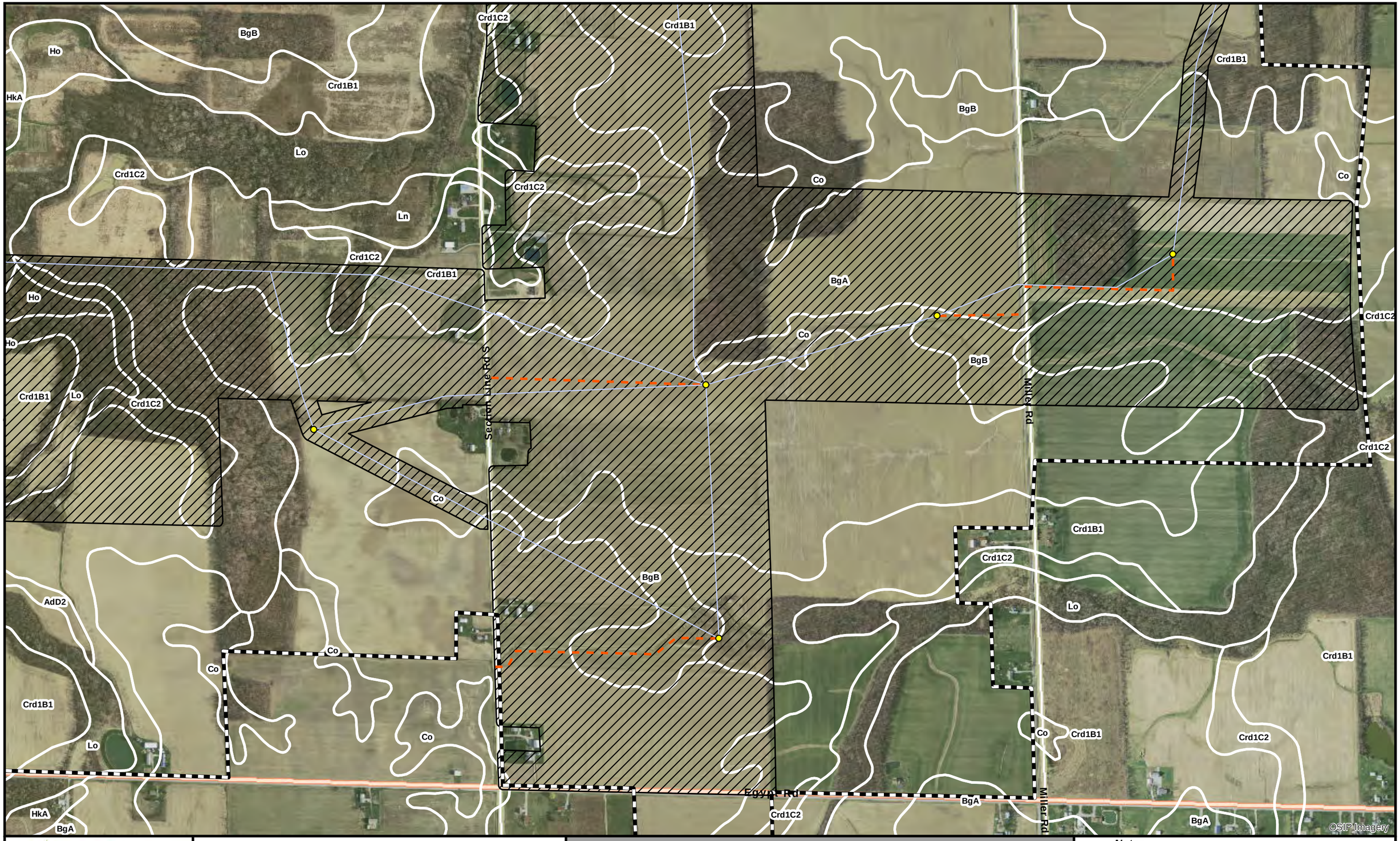

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Figure 5.37: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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Ble1A1
Gwe5B2
Gwe5B2
Lo
Crd1B1
Lo
Co
HkA
Co
BgA
Ble1B1
Pb
Pa
Wurtz Rd
Lo
HkA
AdD2
Co
Ble1B1
Crd1B1
Ble1A1
Co
Daniels Rd
HkA
Crd1C2
Ble1A1
BgA
Pa
Co
Pb
Ble1A1
Townline Rd
Ble1A1
Pa
Crd1B1
Crd1C2
Pb
Lo
Pa
Crd1C2
Pb
BgB
Ble1A1
BgA
Willoughby Rd
E TWHY 12
Pa
Crd1B1
Pb
BgA
Ble1B1
Ble1B1
Pa
Pb
Ble1A1
Ble1A1
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Figure 5.38: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

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Pb
Ble1B1
Crd1B1
Pa
Ble1A1
BgB
Willard West Rd
Willoughby Rd
Co
BgA
TrB
TrA
Gwd5C2
224
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Figure 5.39: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

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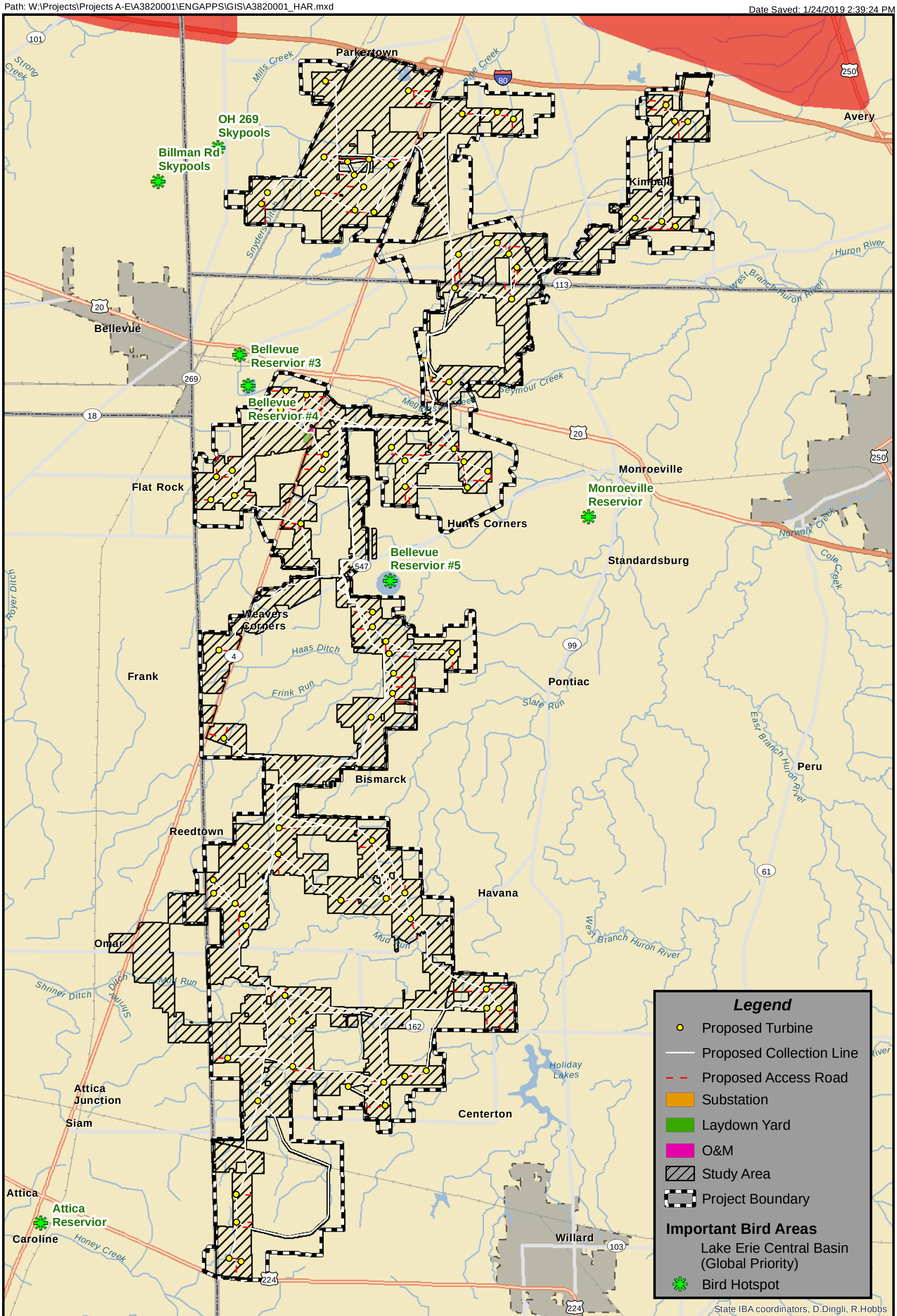

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Figure 6: Important Bird Areas and Hotspots
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes

Hotspots are derived from locations on the ebird website
Important Bird Areas are from the Audobon IBA dataset.

Feet
0 3,750 7,500

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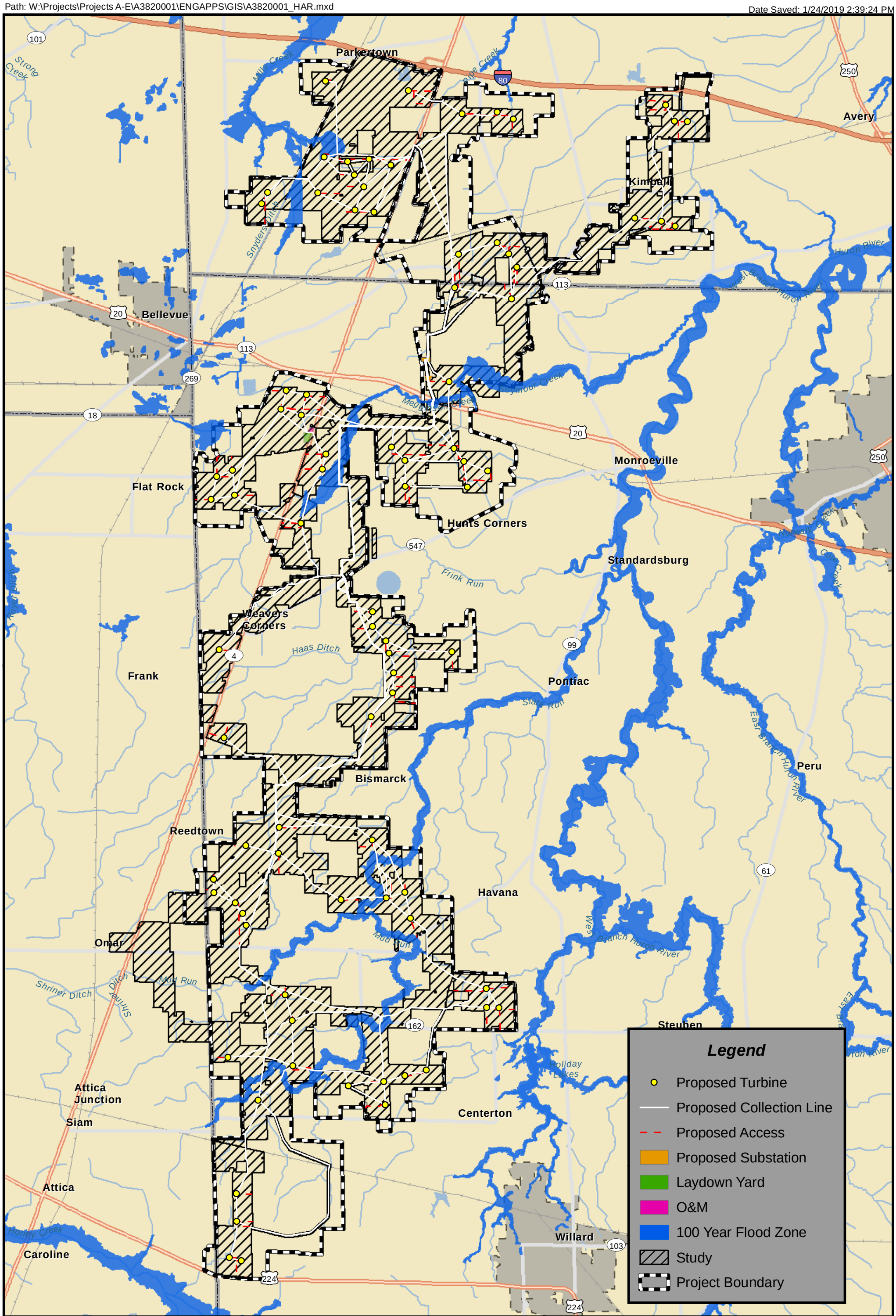

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Figure 7: 100 Year Flood Zone
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes

The Flood Zones are derived from the Flood Insurance Rate Maps as provided by FEMA.

Feet
0 3,750 7,500

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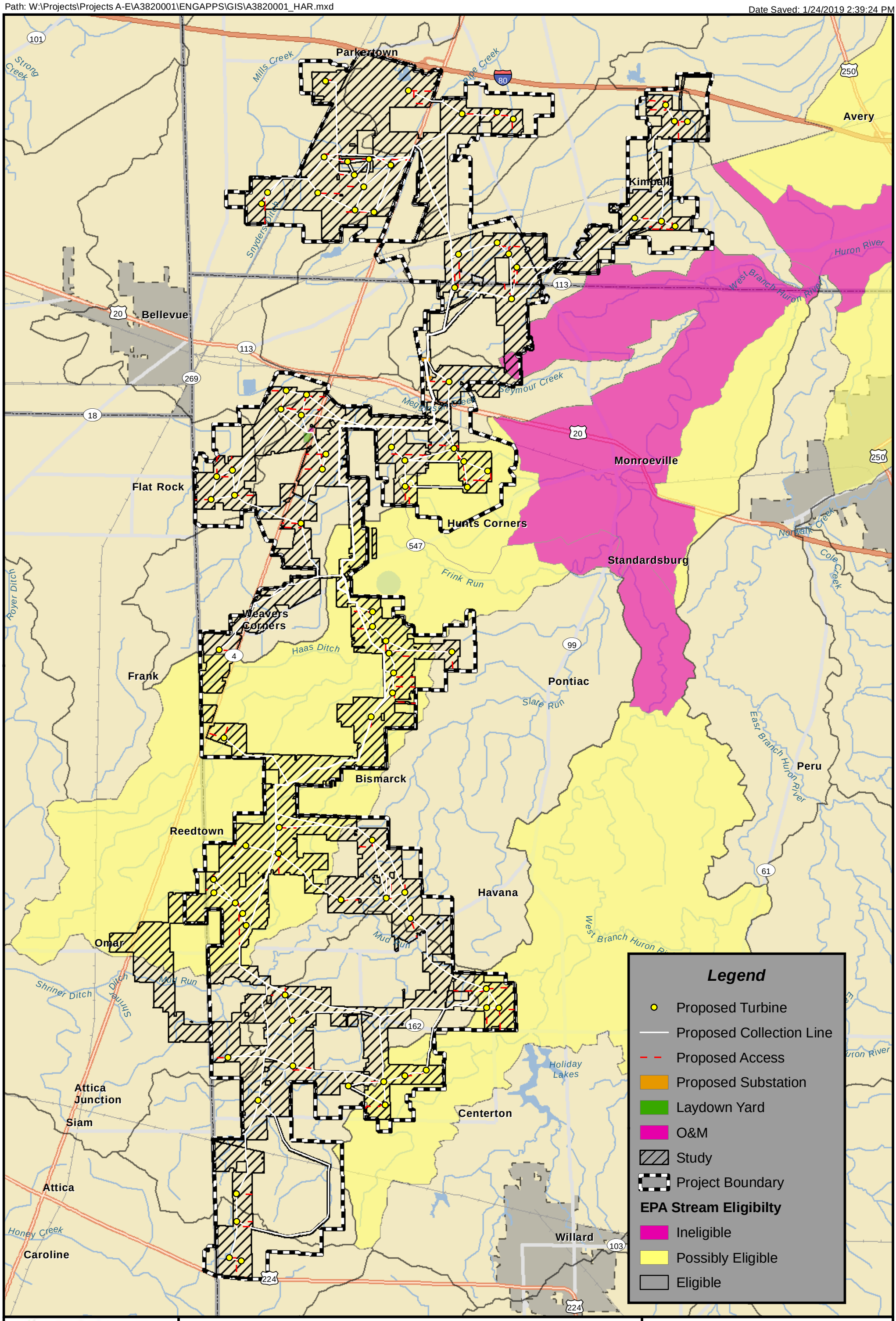

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Figure 8: OEPA Stream Eligibility
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes

Stream Eligibility data is provided by the Ohio EPA (2017 Revision).

Feet
0 3,750 7,500

APPENDIX B
ODNR LISTS

ERIE COUNTY

State Status	Federal Status	County	Category	Species	CommonName	Sensitive Species	Most Recent Record	FWS
Endangered		Erie	Amphibian - Salamander	Ambystoma laterale	Blue-spotted Salamander	Yes	1961	
Endangered	Endangered	Erie	Bird	Charadius melodus	Piping Plover	No		*
Endangered	Endangered	Erie	Bird	Dendroica kirtlandii	Kirtland's Warbler	No		*
Endangered		Erie	Insect - butterfly	Speyeria idalia	Regal Fritillary	No	1978	
Endangered		Erie	Insect - moth	Hypocoena enervata		No	1988	
Endangered		Erie	Insect - moth	Papaipema beeriana		No	1986	
Endangered		Erie	Insect - moth	Papaipema silphii		No	1987	
Endangered		Erie	Insect - moth	Spartiniphaga inops		No	1985	
Endangered		Erie	Insect - moth	Trichoclea artesta		No	1982	
Endangered		Erie	Insect - moth	Tricholita notata		No	1987	
Endangered		Erie	Insect - odonate	Gomphus externus	Plains Clubtail	No	1984	
Endangered		Erie	Invert. - fw bivalve	Ligumia nasuta	Eastern Pondmussel	No	1967	
Endangered	**Endangered**	**Erie**	**Mammal**	**Myotis sodalis**	**Indiana Myotis**	**Yes**		*
Endangered	**Candidate**	**Erie**	**Reptile - Snake**	**Sistrurus catenatus catenatus**	**Eastern Massasauga**	**Yes**		*
Endangered		Erie	Mammal	Ursus americanus	Black Bear	No	2000	
Threatened		Erie	Fish	Percina copelandi	Channel Darter	No	2012	
Threatened		Erie	Fish	Salvelinus fontinalis	Brook Trout	No	2012	
Threatened		Erie	Insect - moth	Faronta rubripennis	The Pink-streak	No	1986	
Threatened		Erie	Insect - moth	Spartiniphaga panatela		No	1987	
Threatened		Erie	Invert. - fw bivalve	Ligumia recta	Black Sandshell	No	1990	
Threatened		Erie	Invert. - fw bivalve	Obliquaria reflexa	Threehorn Wartyback	No	2006	
Threatened		Erie	Invert. - fw bivalve	Truncilla donaciformis	Fawnsfoot	No	1966	
Threatened	Species of Concern	Erie	Reptile - Snake	Nerodia sipedon insularum	Lake Erie Watersnake	No		
Threatened		**Erie**	**Reptile - Turtle**	**Emydoidea blandingii**	**Blanding's Turtle**	**Yes**	**2005**	
Species of Concern		Erie	Amphibian - Frog / Toad	Acris crepitans crepitans	Eastern Cricket Frog	No	2008	
Species of Concern		Erie	Fish	Esox masquinongy	Muskellunge	No	1993	
Species of Concern		Erie	Fish	Rhinichthys cataractae	Longnose Dace	No	1993	
Species of Concern		Erie	Insect - moth	Agroperina lutosa		No	1986	
Species of Concern		Erie	Insect - moth	Smerinthus cerisyi	One-Eyed Sphinx	No	1905	
Species of Concern		Erie	Insect - moth	Tarachidia binocula		No	1986	
Species of Concern		Erie	Invert. - fw bivalve	Alasmidonta marginata	Elktoe	No	2008	
Species of Concern		Erie	Invert. - fw bivalve	Cyclonaias tuberculata	Purple Wartyback	No	2006	
Species of Concern		Erie	Invert. - fw bivalve	Lasmigona compressa	Creek Heelsplitter	No	2008	
Species of Concern		Erie	Invert. - fw bivalve	Pleurobema sintoxia	Round Pigtoe	No	2008	
Species of Concern		Erie	Invert. - fw bivalve	Ptychobranchus fasciolaris	Kidneyshell	No	2006	
Species of Concern		Erie	Invert. - fw bivalve	Truncilla truncata	Deertoe	No	2008	
Species of Concern		Erie	Mammal	Eptesicus fuscus	Big Brown Bat	No	2012	
Species of Concern		Erie	Mammal	Lasionycteris noctivagans	Silver-haired Bat	No	1908	
Species of Concern		Erie	Mammal	Lasiurus borealis	Red Bat	No	2012	
Species of Concern		Erie	Mammal	Lasiurus cinereus	Hoary Bat	No	2012	
Species of Concern		Erie	Mammal	Myotis lucifugus	Little Brown Bat	No	2012	
Species of Concern	Threatened	Erie	Mammal	Myotis septentrionalis	Northern Long-eared Bat	No	2012	
Species of Concern		Erie	Mammal	Perimyotis subflavus	Tri-colored Bat	No	2012	
Species of Concern		Erie	Mammal	Peromyscus maniculatus	Deer Mouse	No	2005	
Species of Concern		Erie	Mammal	Taxidea taxus	Badger	No	2006	
Species of Concern		Erie	Reptile - Snake	Heterodon platirhinos	Eastern Hognose Snake	No	1937	
Species of Concern		Erie	Reptile - Snake	Pantherophis vulpinus	Eastern Foxsnake	No	1963	
Species of Concern		Erie	Reptile - Snake	Regina septemvittata	Queensnake	No	1966	
Special Interest		Erie	Insect - moth	Archanara subflava	Subflava Sedge Borer Moth	No	1987	
Special Interest		Erie	Insect - moth	Protorthodes incincta		No	1982	
Extirpated		Erie	Mammal	Cervus elaphus	Wapiti (Elk)	No	1913	

Erie County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
Acorus americanus	American Sweet-flag	1989-06-28	P	
Ammophila breviligulata	American Beach Grass	1991-09-11	T	
Anemone cylindrica	Prairie Thimbleweed	1991-09-11	T	
Arabis pycnocarpa var. adpressipilis	Southern Hairy Rock Cress	2010-05-19	P	
Arabis pycnocarpa var. pycnocarpa	Western Hairy Rock Cress	1970-05	X	
Aristida purpurascens	Purple Triple-awned Grass	2001-09-20	P	
Artemisia campestris	Beach Wormwood	2007-08-16	T	
Baptisia lactea	Prairie False Indigo	2001-08	P	
Barbula indica	Twisted Teeth Moss	1993-05-22	X	
Calamintha arkansana	Limestone Savory	1997-08-12	P	
Calopogon tuberosus	Grass-pink	1970	P	
Carex alata	Broad-winged Sedge	1994-06-14	P	
Carex aquatilis	Leafy Tussock Sedge	1998-06-16	P	
Carex atherodes	Wheat Sedge	1994-06-16	P	
Carex aurea	Golden-fruited Sedge	2008-06-05	P	
Carex bebbii	Bebb's Sedge	2000-09-07	P	
Carex bicknellii	Bicknell's Sedge	1998-05-26	T	
Carex brevior	Tufted Fescue Sedge	2008-08-01	P	
Carex conoidea	Field Sedge	2001-06-09	T	
Carex cryptolepis	Little Yellow Sedge	1996-05-28	P	
Carex flava	Yellow Sedge	1998-05-28	P	
Carex garberi	Garber's Sedge	2012-05-11	E	
Carex lasiocarpa	Slender Sedge	1998-06-16	P	
Carex limosa	Mud Sedge	2008-06-05	E	
Carex mesochorea	Midland Sedge	1985-06-01	T	
Carex projecta	Necklace Sedge	1967-07	T	
Carex straminea	Straw Sedge	1994-07-07	P	
Carex viridula	Little Green Sedge	2009-08-27	T	

Erie County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
Coeloglossum viride	Long-bracted Orchid	2011-06-12	E	
Conyza ramosissima	Bushy Horseweed	2009-07-16	P	
Corallorhiza maculata	Spotted Coral-root	1965-09-07	P	
Cornus rugosa	Round-leaved Dogwood	1966-06-13	P	
Cyperus diandrus	Low Umbrella-sedge	2007-08-16	P	
Cyperus schweinitzii	Schweinitz' Umbrella-sedge	2008-08-18	T	
Cypripedium candidum	White Lady's-slipper	1995-05-30	E	
Descurainia pinnata	Tansy Mustard	2010-05-19	T	
Dichanthelium lindheimeri	Lindheimer's Panic Grass	2000-07-20	T	
Dichanthelium meridionale	Southern Hairy Panic Grass	1994-07-07	T	
Draba reptans	Carolina Whitlow-grass	2010-05-19	T	
Eleocharis compressa	Flat-stemmed Spike-rush	2009-08-27	P	
Eleocharis flavescens	Green Spike-rush	1997-09-11	T	
Eleocharis geniculata	Caribbean Spike-rush	2009-08-27	E	
Eleocharis ovata	Ovate Spike-rush	2001-10-03	E	
Eleocharis tenuis	Slender Spike-rush	2001-08-23	T	
Euphorbia polygonifolia	Seaside Spurge	2008-09-04	P	
Euthamia remota	Great Lakes Goldenrod	1997-08-20	T	
Gentianopsis crinita	Fringed Gentian	1997-09-30	P	
Gentianopsis procera	Small Fringed Gentian	2001-09-25	P	
Gratiola virginiana	Round-fruited Hedge-hyssop	2001	T	
Gymnocarpium dryopteris	Common Oak Fern	2001-06-01	E	
Hedeoma hispida	Rough Pennyroyal	2001	P	
Helianthemum bicknellii	Plains Frostweed	1970-08-09	P	
Helianthus mollis	Ashy Sunflower	2001	T	
Hypericum canadense	Canada St. John's-wort	1978-07-31	E	
Hypericum gymnanthum	Least St. John's-wort	2008-08-01	E	
Hypericum kalmianum	Kalm's St. John's-wort	1997-08-28	T	

Erie County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
Iris brevicaulis	Leafy Blue Flag	2009-06-17	T	
Juncus alpinoarticulatus	Alpine Rush	2009-08-27	T	
Juncus balticus	Baltic Rush	1997-08-28	P	
Juncus greenei	Greene's Rush	2001	T	
Juncus platyphyllus	Flat-leaved Rush	2008-08-01	E	
Liatris scariosa	Large Blazing-star	1994-09-07	T	
Lipocarpha micrantha	Dwarf Bulrush	2008-08-01	T	
Minuartia michauxii	Rock Sandwort	2010-05-19	P	
Myriophyllum sibiricum	American Water-milfoil	1998-06-02	E	
Oenothera oakesiana	Oakes' Evening-primrose	2008-09-04	P	
Opuntia humifusa	Common Prickly Pear	2011-08-01	P	
Packera paupercula	Balsam Squaw-weed	2012-05-11	T	
Panicum philadelphicum	Philadelphia Panic Grass	2008-09-05	E	
Panicum tuckermanii	Tuckerman's Panic Grass	2000-09-07	E	
Phragmites australis ssp. americanus	American Reed Grass	2003-08-28	P	
Potamogeton natans	Floating Pondweed	1990-09-18	P	
Potentilla paradoxa	Bushy Cinquefoil	2001-10-03	T	
Prenanthes aspera	Rough Rattlesnake-root	2001	T	
Prenanthes racemosa	Prairie Rattlesnake-root	2001-09-25	P	
Ranunculus fascicularis	Early Buttercup	2011-05-06	T	
Rhexia virginica	Virginia Meadow-beauty	2001-08-04	P	
Rosa blanda	Smooth Rose	2007-07-26	P	
Sagittaria cuneata	Wapato	2001-10-03	T	
Sagittaria rigida	Deer's-tongue Arrowhead	2001-10-03	P	
Salix candida	Hoary Willow	1970	T	
Salix myricoides	Blue-leaved Willow	1997-10-25	P	
Schoenoplectiella smithiii	Smith's Bulrush	2010-08-26	T	
Scleria triglomerata	Tall Nut-rush	2008-08-01	P	

Erie County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
Shepherdia canadensis	Canada Buffalo-berry	1965-09-07	P	
Sisyrinchium montanum	Northern Blue-eyed-grass	1995-05-27	T	
Sisyrinchium mucronatum	Narrow-leaved Blue-eyed-grass	1998-05-28	T	
Solidago speciosa	Showy Goldenrod	2001-09-08	P	
Solidago squarrosa	Leafy Goldenrod	2011-09-28	T	
Spiranthes lucida	Shining Ladies'-tresses	2010-05-22	P	
Spiranthes magnicamporum	Great Plains Ladies'-tresses	2009-08-27	P	
Symphyotrichum dumosum	Bushy Aster	2008-08-01	T	
Triglochin palustris	Marsh Arrow-grass	1997-08-12	P	
Ulmus thomasii	Rock Elm	2007-07-26	P	
Vernonia fasciculata	Prairie Ironweed	1983-08-10	E	
Viola lanceolata	Lance-leaved Violet	2008-08-01	P	
Viola nephrophylla	Northern Bog Violet	2011-05-20	T	
Xanthoria elegans	Elegant Sunburst Lichen	2008-05-08	E	
Xyris torta	Twisted Yellow-eyed-grass	2000-08-08	T	

Ohio Division of Wildlife
Ohio Natural Heritage Database
Date Accessed: March 6, 2015
Status based on2014-15 Rare Plant List.

Status:
X = Extirpated
E = Endangered
T = Threatened
P = Potentially Threatened

Erie County

Scientific Name	Common Name	Last Observed	State Status	Federal Status

List Created: July 2016

HURON COUNTY

State Status	Federal Status	County	Category	Species	CommonName	Sensitive Species	Most Recent Record	FWS
Endangered		Huron	Bird	Bubulcus ibis	Cattle Egret	No	1992	
Endangered		Huron	Bird	Circus cyaneus	Northern Harrier	No	1992	
Endangered	**Endangered**	**Huron**	**Mammal**	**Myotis sodalis**	**Indiana Myotis**	**Yes**		*****
Endangered	**Candidate**	**Hardin**	**Reptile - Snake**	**Sistrurus catenatus catenatus**	**Eastern Massasauga**	**Yes**	**1946**	*****
Threatened		Huron	Bird	Nycticorax nycticorax	Black-crowned Night-Heron	No	1995	
Threatened		Huron	Invert. - fw bivalve	Ligumia recta	Black Sandshell	No	2008	
Threatened		Huron	Invert. - fw bivalve	Truncilla donaciformis	Fawnsfoot	No	1936	
Threatened		Huron	Invert. - fw bivalve	Uniomerus tetralasmus	Pondhorn	No	2008	
Species of Concern		Huron	Bird	Ardea alba	Great Egret	No	1996	
Species of Concern		Huron	Bird	Dolichonyx oryzivorus	Bobolink	No	2004	
Species of Concern		Huron	Invert. - fw bivalve	Alasmidonta marginata	Elktoe	No	2007	
Species of Concern		Huron	Invert. - fw bivalve	Lampsilis fasciola	Wavy-rayed Lampmussel	No	2006	
Species of Concern		Huron	Invert. - fw bivalve	Lasmigona compressa	Creek Heelsplitter	No	2007	
Species of Concern		Huron	Invert. - fw bivalve	Pleurobema sintoxia	Round Pigtoe	No	2008	
Species of Concern		Huron	Invert. - fw bivalve	Ptychobranchus fasciolaris	Kidneyshell	No	2008	
Species of Concern		Huron	Mammal	Eptesicus fuscus	Big Brown Bat	No	2012	
Species of Concern		Huron	Mammal	Lasiurus borealis	Red Bat	No	2012	
Species of Concern		Huron	Mammal	Lasiurus cinereus	Hoary Bat	No	2012	
Species of Concern		Huron	Mammal	Myotis lucifugus	Little Brown Bat	No	2012	
Species of Concern	Threatened	Huron	Mammal	Myotis septentrionalis	Northern Long-eared Bat	No	2012	
Species of Concern		Huron	Mammal	Perimyotis subflavus	Tri-colored Bat	No	2012	
Species of Concern		Huron	Mammal	Peromyscus maniculatus	Deer Mouse	No	1928	
Species of Concern		Huron	Mammal	Taxidea taxus	Badger	No	1986	
Special Interest		Huron	Bird	Anas rubripes	American Black Duck	No	1995	
Special Interest		Huron	Bird	Empidonax minimus	Least Flycatcher	No	2009	
Special Interest		Huron	Bird	Sturnella neglecta	Western Meadowlark	No	1990	
Special Interest		Huron	Mammal	Nycticeius humeralis	Evening Bat	No	2012	

Huron County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
Acorus americanus	American Sweet-flag	1972-08-07	P	
Carex lupuliformis	False Hop Sedge	2000-08-05	P	
Corallorhiza maculata	Spotted Coral-root	2000-07-21	P	
Luzula bulbosa	Southern Woodrush	2008-07-31	P	
Plagiothecium latebricola	Lurking Leskea	1997-09-14	T	
Rosa blanda	Smooth Rose	2000-06-08	P	
Sagittaria platyphylla	Elliptic-leaved Arrowhead	1972-08-07	X	
Triphora trianthophora	Three-birds Orchid	2000-07-21	P	
Ulmus thomasii	Rock Elm	2000-05-26	P	

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SENECA COUNTY

State Status	Federal Status	County	Category	Species	CommonName	Sensitive Species	Most Recent Record	FWS
Endangered		Seneca	Bird	Bartramia longicauda	Upland Sandpiper	No	1998	
Endangered		Seneca	Bird	Circus cyaneus	Northern Harrier	No	2004	
Endangered		Seneca	Bird	Lanius ludovicianus	Loggerhead Shrike	No	2000	
Endangered		Seneca	Insect - odonate	Gomphus externus	Plains Clubtail	No	2005	
Endangered	Endangered	Seneca	Invert. - fw bivalve	Epioblasma torulosa rangiana	Northern Riffleshell	No	1976	
Endangered	Endangered	Seneca	Invert. - fw bivalve	Villosa fabalis	Rayed Bean	No	1971	
Endangered	**Endangered**	**Seneca**	**Mammal**	**Myotis sodalis**	**Indiana Myotis**	**Yes**		*
Threatened		Seneca	Fish	Moxostoma valenciennesi	Greater Redhorse	No	2009	
Threatened		Seneca	Invert. - fw bivalve	Ligumia recta	Black Sandshell	No	2008	
Species of Concern		Seneca	Bird	Ammodramus henslowii	Henslow's Sparrow	No	2014	
Species of Concern		Seneca	Bird	Ardea alba	Great Egret	No	2011	
Species of Concern		Seneca	Bird	Cistothorus palustris	Marsh Wren	No	1997	
Species of Concern		Seneca	Bird	Colinus virginianus	Northern Bobwhite	No	2006	
Species of Concern		Seneca	Bird	Dolichonyx oryzivorus	Bobolink	No	2014	
Species of Concern		Seneca	Fish	Esox masquinongy	Muskellunge	No	1981	
Species of Concern		Seneca	Fish	Moxostoma carinatum	River Redhorse	No	2009	
Species of Concern		Seneca	Insect - moth	Smerinthus cerisyi	One-Eyed Sphinx	No	1956	
Species of Concern		Seneca	Invert. - fw bivalve	Alasmidonta marginata	Elktoe	No	2008	
Species of Concern		Seneca	Invert. - fw bivalve	Cyclonaias tuberculata	Purple Wartyback	No	2009	
Species of Concern		Seneca	Invert. - fw bivalve	Lampsilis fasciola	Wavy-rayed Lampmussel	No	1971	
Species of Concern		Seneca	Invert. - fw bivalve	Lasmigona compressa	Creek Heelsplitter	No	1936	
Species of Concern		Seneca	Invert. - fw bivalve	Pleurobema sintoxia	Round Pigtoe	No	2008	
Species of Concern		Seneca	Invert. - fw bivalve	Ptychobranchus fasciolaris	Kidneyshell	No	2008	
Species of Concern		Seneca	Mammal	Eptesicus fuscus	Big Brown Bat	No	2012	
Species of Concern		Seneca	Mammal	Lasiurus borealis	Red Bat	No	2012	
Species of Concern		Seneca	Mammal	Lasiurus cinereus	Hoary Bat	No	2012	
Species of Concern		Seneca	Mammal	Myotis lucifugus	Little Brown Bat	No	2012	
Species of Concern	Threatened	Seneca	Mammal	Myotis septentrionalis	Northern Long-eared Bat	No	2012	
Species of Concern		Seneca	Mammal	Perimyotis subflavus	Tri-colored Bat	No	2012	
Species of Concern		Seneca	Mammal	Peromyscus maniculatus	Deer Mouse	No	1975	
Species of Concern		Seneca	Mammal	Synaptomys cooperi	Southern Bog Lemming	No	1937	
Species of Concern		Seneca	Mammal	Taxidea taxus	Badger	No	2007	
Special Interest		Seneca	Bird	Carpodacus purpureus	Purple Finch	No	2005	
Extirpated		Seneca	Invert. - fw bivalve	Actinonaias ligamentina ligamentina	Mucket	No	1976	

Seneca County

Scientific Name	Common Name	Last Observed	State Status	Federal Status
Betula pumila	Swamp Birch	1994-05-25	T	
Carex alata	Broad-winged Sedge	2004-06-22	P	
Carex bebbii	Bebb's Sedge	1999-07-15	P	
Carex cryptolepis	Little Yellow Sedge	2007-06-28	P	
Carex lasiocarpa	Slender Sedge	1993-06-22	P	
Carex pseudocyperus	Northern Bearded Sedge	2013-08-19	E	
Carex viridula	Little Green Sedge	1990-05	T	
Collema crispum	Crinkled Jelly Lichen	1962-07-09	X	
Cypripedium candidum	White Lady's-slipper	1994-05-25	E	
Eleocharis engelmannii	Engelmann's Spike-rush	1969-09-09	E	
Eleocharis quinqueflora	Few-flowered Spike-rush	2013-08-19	T	
Phragmites australis ssp. american	American Reed Grass	2006-10-18	P	
Potamogeton gramineus	Grass-like Pondweed	1986-06-05	E	
Rhynchospora alba	White Beak-rush	2013-08-19	P	
Spiranthes lucida	Shining Ladies'-tresses	1980-06-06	P	

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List Created: July 2016

APPENDIX C
SURFACE WATER DELINEATION REPORT

SURFACE WATER DELINEATION REPORT

EMERSON CREEK WIND FARM
ERIE, HURON, AND SENECA COUNTIES, OHIO

JANUARY 2019

PREPARED BY:
THE MANNIK & SMITH GROUP, INC.
1800 INDIAN WOOD CIRCLE
MAUMEE, OHIO 43537

SURFACE WATER DELINEATION REPORT

EMERSON CREEK WIND FARM
ERIE, HURON, AND SENECA COUNTIES, OHIO

PREPARED BY: _____

IVY S. MARTIN
ENVIRONMENTAL TECHNICIAN

REVIEWED BY: _____

KATIE L. SIMON
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MATTHEW S. PESCI, CPG
SENIOR PROJECT MANAGER

Mannik Smith GROUP

TABLE OF CONTENTS

1.0 INTRODUCTION

During September through December 2018 and January 2019, The Mannik & Smith Group, Inc. (MSG) completed a Surface Water Delineation (SWD) for the proposed Emerson Creek Wind Farm in Erie, Huron, and Seneca Counties (Study Area) (Figure 1). The purpose of the SWD was to identify areas that may be considered a jurisdictional wetland or other surface water, such as a regulated stream by either the USACE or state of Ohio, in the Study Area.

The Code of Federal Regulations 33 Part 328 defines a wetland as an area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The United States Army Corp of Engineer's (USACE) Wetland Delineation Manual further defines a wetland as having the following characteristics: hydric soils, evidence of inundated or saturated conditions (hydrology), and a predominance of hydrophytic vegetation. When all three of these criteria are met, a wetland is present and is subject to Federal and/or State regulations and permitting. Regulated streams are defined as any channel that has a bed, bank, and visible sign of an ordinary high water mark.

During a surface water delineation, data are collected on the vegetation, soils, and hydrology present to determine if the criteria for a jurisdictional wetland are met, and the wetland/non-wetland boundaries are then flagged. The wetland/non-wetland boundaries and the sample locations are surveyed and placed on the Study Area map. From the wetland map, the acreage of each wetland is calculated. A preliminary determination is also made as to whether each wetland is considered a water of the United States (WOTUS) and thus under the jurisdiction of USACE or not a WOTUS and thus under the jurisdiction of the State of Ohio Isolated Wetland Permit Program (IWPP). This determination is based on the 2015 Clean Water Rule (CWR).

2.0 METHODS

2.1 Wetland Delineation

MSG performed the SWD in accordance with the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, Version 2.0* and *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0* (The Manual). The Manual defines a wetland as any area that contains a predominance of wetland vegetation, hydric soils, and positive indicators of wetland hydrology. Sample points for vegetation, soils, and hydrology were placed on either side of the wetland boundary to inform delineation.

Vegetation observed in each sample plot was recorded according to vegetation stratum (tree, sapling, shrub, herb, and woody vine). Plot sizes for each vegetation stratum were determined in accordance with The Manual; however, plot sizes were adjusted in order to keep the plot sampling entirely within the limits of the wetland boundaries when necessary. Absolute cover was assessed by estimating the percent cover for each plant species. Once plant data were collected, the dominant species from each vegetation stratum were recorded on the Wetland Determination Data Form. The wetland indicator status of each dominant species was determined using the *U.S. Army Corps of Engineers 2016, National Wetland Plant List, version 3.3* (2016). The wetland indicator status reflects the likelihood of a species occurring in a wetland or non-wetland area. The indicator status designations are described in Table 2.1.

Table 2.1 Definitions of Wetland Indicator Status Designations

Indicator Status	Symbol	Definition
Obligate Wetland Species	OBL	Almost always (estimated probability > 99%) occurs in wetlands
Facultative Wetland Species	FACW	Usually (estimated probability 67% – 99%) occurs in wetlands
Facultative Species	FAC	Equally likely to occur in wetlands and non-wetlands (estimated probability 34% – 66%)
Facultative Upland Species	FACU	Usually occurs in non-wetlands (estimated probability 67% – 99%)
Obligate Upland Species	UPL	Almost always (estimated probability > 99%) occurs in non-wetlands

Soils were examined by digging a pit at each sample point. Soils were then inspected for hydric soil indicators, as identified in the *Field Indicators of Hydric Soils of the United States, A Guide for Identifying and Delineating Hydric Soils, Version 8.2 (2018)*, published by the United States Department of Agriculture (USDA), Natural Resource Conservation Service. Primary and/or secondary indicators of wetland hydrology were also noted when present. Soil information from the Soil Surveys of Erie County, Ohio (USDA, 2006), Huron County (USDA, 1994) and Seneca County (USDA, 1980) is available in Figure 2. National Wetland Inventory (NWI) information is provided in Figure 3.

The wetland/upland boundary was surveyed using a Trimble Geo XH GPS receiver with sub-meter accuracy. Wetland Determination Data Forms are included in Appendix B; digital images of each wetland are included in Appendix C. After the wetland was delineated, MSG described the hydrological connection (if any) to waters of the United States and the probable jurisdictional status of the wetland.

2.2 ORAM Survey of Wetland Functions

MSG also characterized the quality of the wetland using the Ohio Rapid Assessment Method (ORAM), version 5.0, included in Appendix D. The Ohio Environmental Protection Agency (Ohio EPA) has established three primary and three intermediate categories of wetland quality which are based on a wetland's size, its hydrologic function, the types of plant communities present, the physical structure of the wetland plant community and the wetland's level of disturbance (OAC 3745-1-54). The relationship between the various wetland categories and their respective ORAM scores is presented in Table 2.2.

Table 2.2 Ohio Rapid Assessment Categories

Category Number	Range of ORAM Scores
Category 1	0–29.9
Category 1 or 2 (Gray Zone)	30–34.9
Modified Category 2	35–44.9
Category 2	45–59.9
Category 2 or 3	60–64.9
Category 3	65–100

Category 3 wetlands have the highest quality and are generally characterized by a high level of biological diversity and topographical variation, large numbers of native species, or a high level of functional importance to its surroundings. Category 2 wetlands have the capability to support a

moderate wildlife community or maintain mid-level hydrological functions. Category 2 also includes wetlands that may be of lower quality or degraded, but have reasonable potential to be restored (Modified Category 2). Category 1 wetlands are of the lowest quality, and are generally characterized by hydrological isolation, lack of plant species diversity, insufficient habitat availability, and limited potential to perform major wetland functions (OAC 3745-1-54).

2.3 Stream Habitat Assessments

Streams are identified based on the presence of a distinct bed, bank and ordinary high watermark. Streams are evaluated using one of two Ohio EPA methods. A stream containing pools greater than 40 cm deep or with a watershed greater than a square mile is evaluated using the Qualitative Habitat Evaluation Index (QHEI). Streams with pools less than 40 cm deep or a watershed less than a square mile are evaluated using the Primary Headwater Habitat Evaluation (HHEI). HHEI and QHEI forms are available in Appendix E. Based on GIS analysis of the identified streams, an average stream width of 25 feet was estimated for stream impact calculations.

2.4 Waterbodies

Waterbodies are defined as other waters such as farm and stock watering ponds, irrigation ponds, settling basins, and ornamental ponds. A summary of waterbodies identified within the Study Area is available in Table 3 of Appendix A.

3.0 RESULTS

MSG identified 129 wetlands in the Study Area, totaling approximately 577 acres. Appendix A, Table 1 lists the wetlands along with their sizes, wetland community types, ORAM scores and categories, potential jurisdictional statuses, temporary impacts, permanent impacts and crossing methodology. MSG also identified 115 streams and 24 waterbodies in the Study Area, which are listed in Appendix A, Tables 2 and 3, respectively. Wetland, stream and waterbody locations are depicted on Figure 4. MSG reviewed the Study Area conditions to determine the probable jurisdictional status of the wetlands based on current USACE guidance and policy and finds that all wetlands, streams and other waterbodies would be considered jurisdictional by the USACE. A Jurisdictional Determination (JD) from USACE and an ORAM evaluation would be necessary if confirmation of this recommendation is required.

Based on the current design, it is anticipated that construction of the facility will results in 0.142 acres of permanent impacts to wetlands, 1.983 acres of temporary impacts to wetlands, 0.146 acres of permanent impacts to streams, 0.631 acres of temporary impacts to streams and 0.001 acre temporary impacts to waterbodies. Potential impacts to WOTUS associated with the Emerson Creek Wind Farm are summarized in Tables 3.1 and 3.2 below.

Table 3.1 Potential WOTUS Impacts Associated with the Emerson Creek Wind Farm

WOTUS ID	WOTUS Type[1]	Figure No.	Proposed Infrastructure	Length of Crossing (ft)	Temporary Impact to WOTUS (ac)	Permanent Impact to WOTUS (ac)
W1M-032	PFO Wetland	4.26	Collection Line	305	0.175	0.0
W1M-043	PEM Wetland	4.43	Collection Line	21	0.012	0.0

WOTUS ID	WOTUS Type[1]	Figure No.	Proposed Infrastructure	Length of Crossing (ft)	Temporary Impact to WOTUS (ac)	Permanent Impact to WOTUS (ac)
W1M-045	PFO/PEM Wetland	4.43	Collection Line	131	0.075	0.0
W1M-076	PFO Wetland	4.47	Collection Line	300	0.284	0.0
W1M-079/78	PFO Wetland	4.47	Collection Line	89	0.033	0.0
W1M-090	PFO Wetland	4.30	Collection Line	43	0.025	0.0
W1M-091/097	PFO/PSS/PEM Wetland	4.30	Access Road	391	0.320	0.142
W1M-117	PEM Wetland	4.56	Collection Line	23	0.013	0.0
W1M-124	PFO/PSS/PEM Wetland	4.56	Collection Line	32	0.004	0.0
W1M-133	PFO/PEM Wetland	4.52	Collection Line	82	0.048	0.0
W1M-137	PEM Wetland	4.5	Collection Line	143	0.064	0.0
W1M-140	PSS/PEM Wetland	4.30	Collection Line	146	0.058	0.0
W1M-152	PSS/PEM Wetland	4.1	Collection Line	18	0.008	0.0
W1M-156	PFO Wetland	4.60	Collection Line	82	0.045	0.0
W2M-004	PFO Wetland	4.14	Collection Line	24	0.014	0.0
W2M-028	PFO/PSS/PEM Wetland	4.32	Collection Line	254	0.108	0.0
W2M-052	PFO/PSS/PEM Wetland	4.41	Collection Line	222	0.128	0.0
W2M-063	PFO Wetland	4.54	Collection Line	434	0.249	0.0
W2M-066	PFO/PEM/PSS Wetland	4.55	Collection Line	575	0.311	0.0
W2M-072	PFO Wetland	4.48	Collection Line	16	0.009	0.0
WB2M-083	Constructed Waterbody	4.51	Collection Line	36	0.001	0.0

[1]Wetland community type: PEM=palustrine emergent; PSS= palustrine scrub/shrub; PFO=palustrine forested and POW=palustrine open water

Table 3.2 Potential Stream Impacts Associated with the Emerson Creek Wind Farm

Stream ID	HHEI/ QHEI Score	Crossing Method	Access Roads				Collection Lines	
			Temporary Impacts		Permanent Impacts		Temporary Impacts	
			Linear feet	acres	Linear feet	acres	Linear feet	acres
S1M-011-1	37	Trench	0	0.000	0	0.000	545	0.318
S1M-013-1	22	Culvert/HDD	36	0.081	16	0.036	0	0.000
S1M-053	50.5	Culvert/HDD	41	0.023	18	0.010	0	0.000
S1M-055	58	Culvert/HDD	72	0.040	32	0.018	0	0.000
S1M-143	48	Culvert/HDD	39	0.022	17	0.010	0	0.000
S1M-147	62	Culvert/HDD	37	0.021	16	0.009	0	0.000
S1M-159	33	Culvert/HDD	0	0.000	16	0.009	0	0.000
S2M-007	46	Culvert/HDD	36	0.025	16	0.009	0	0.000
S2M-017	50	Culvert	36	0.021	16	0.009	0	0.000
S2M-059	59	Culvert	36	0.021	16	0.009	0	0.000
S2M-062	55	Culvert/HDD	51	0.029	22	0.013	0	0.000
S2M-073	69	Culvert	52	0.030	23	0.013	0	0.000

4.0 CONCLUSIONS AND RECOMMENDATIONS

For the purposes of this delineation and impact assessment, all surface waters were delineated and are assumed jurisdictional; however, officially determining and verifying the locations and boundaries of wetlands and other WOTUS, along with their jurisdictional status under Section 404 of the CWA and Section 10 of the RHA, can only be done by the USACE.

Based on the Project's latest layout, the proposed Project's infrastructure will cross (or intersect) 33 potential WOTUS (Tables 3.1 and 3.2, Figures 4.1 through 4.63). These include 10 emergent wetlands, 10 forested wetlands, 12 streams, and one constructed waterbody (Tables 3.1 and 3.2). Each single and complete linear crossing that would result in the placement of dredged or fill materials into a potential WOTUS would meet the requirements for authorization under NWP 12.

NWP 12 requires adherence to both general and regional conditions, as previously discussed. With regards to regional conditions that require a PCN (or revoke the use of specified NWPs), nine potential WOTUS have temporary or permanent impact greater than 0.1 acre, thereby requiring a PCN.

FIGURES

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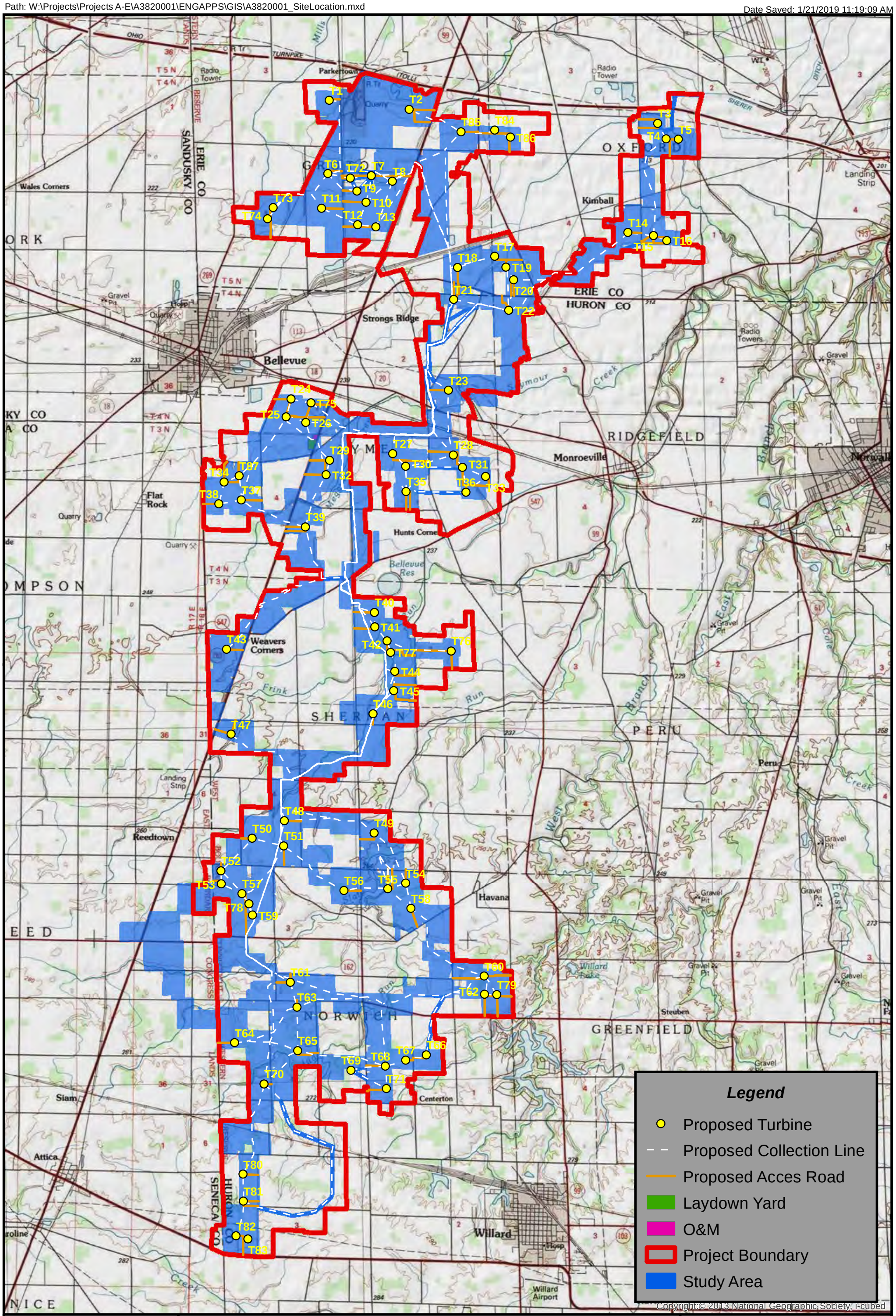

Legend

- Proposed Turbine
- Proposed Collection Line
- Proposed Acces Road
- Laydown Yard
- O&M
- Project Boundary
- Study Area

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Figure 1: Site Location
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes
USGS, 30 x 60 Minute Series Topographic
Lorain, OH 1986

Feet
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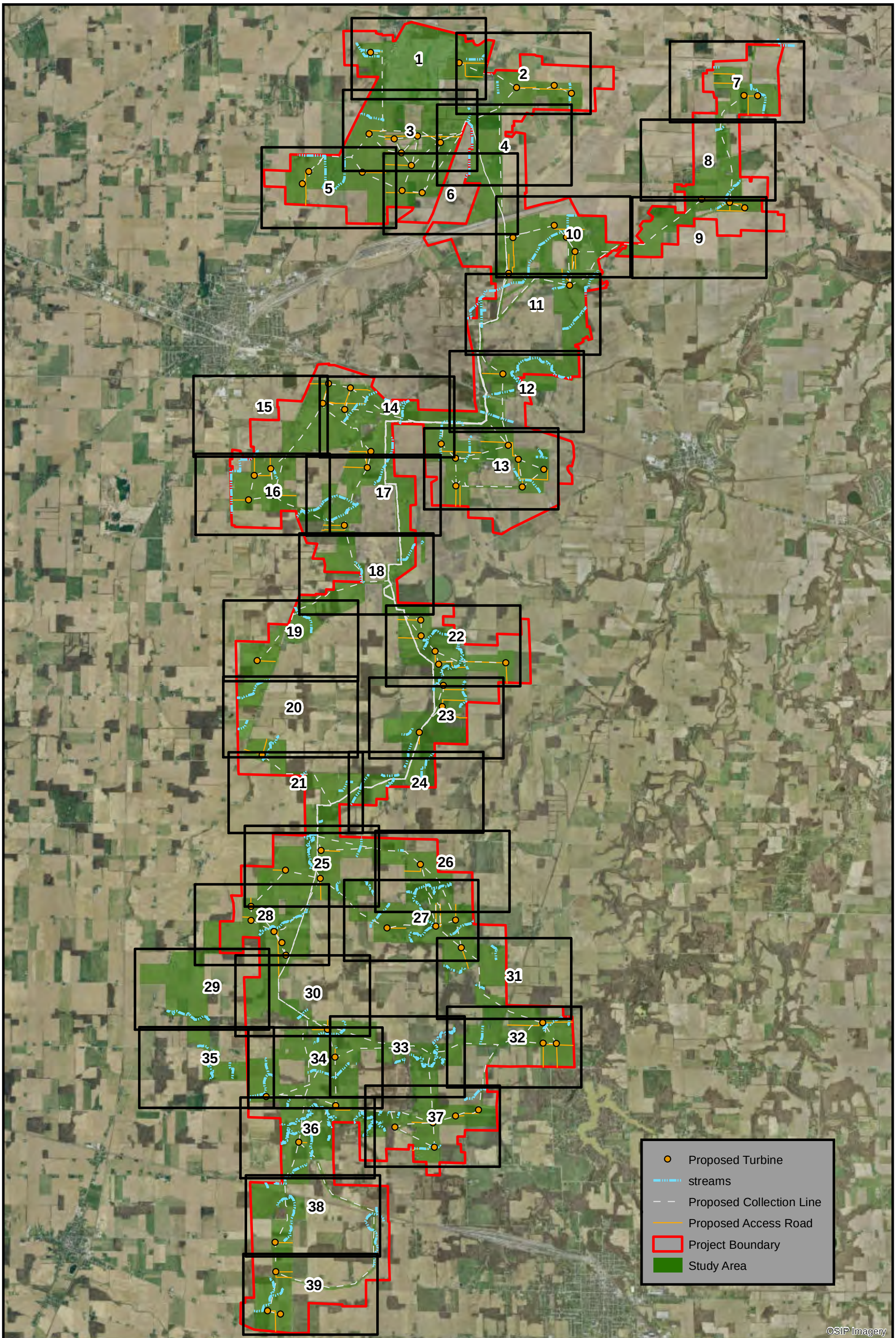

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Grid for Soils Classification Figures
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

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Figure 2.1: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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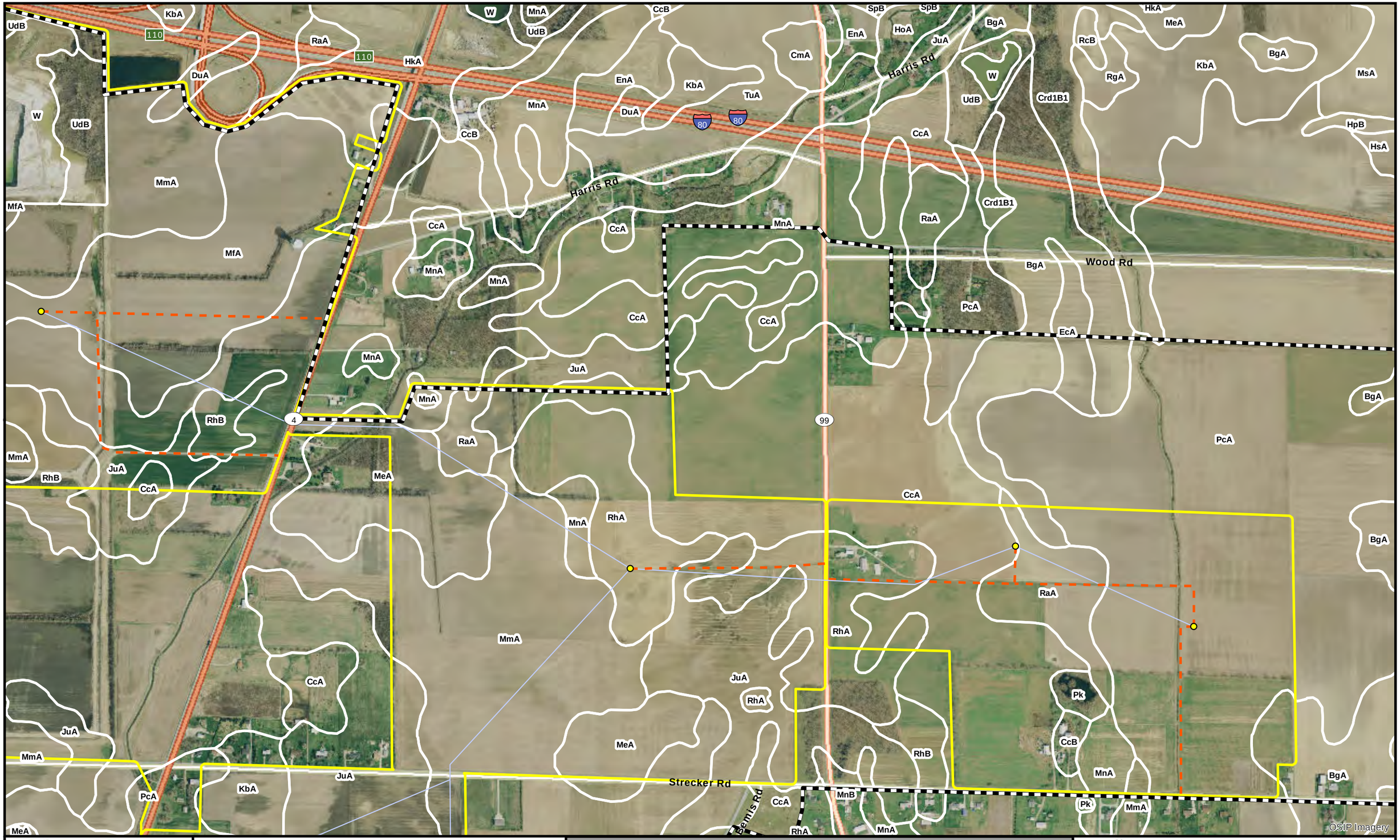

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Figure 2.2: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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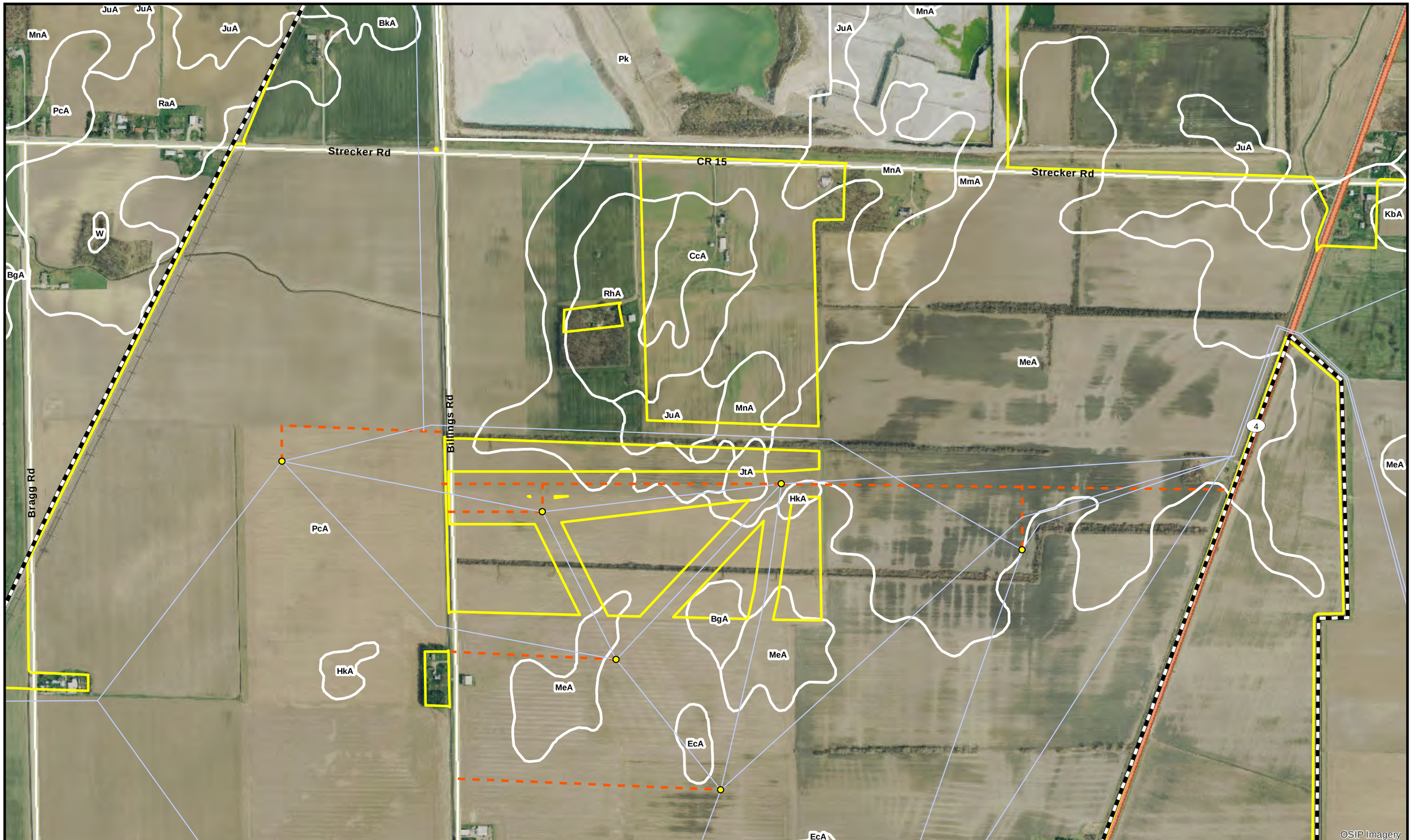

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Figure 2.3: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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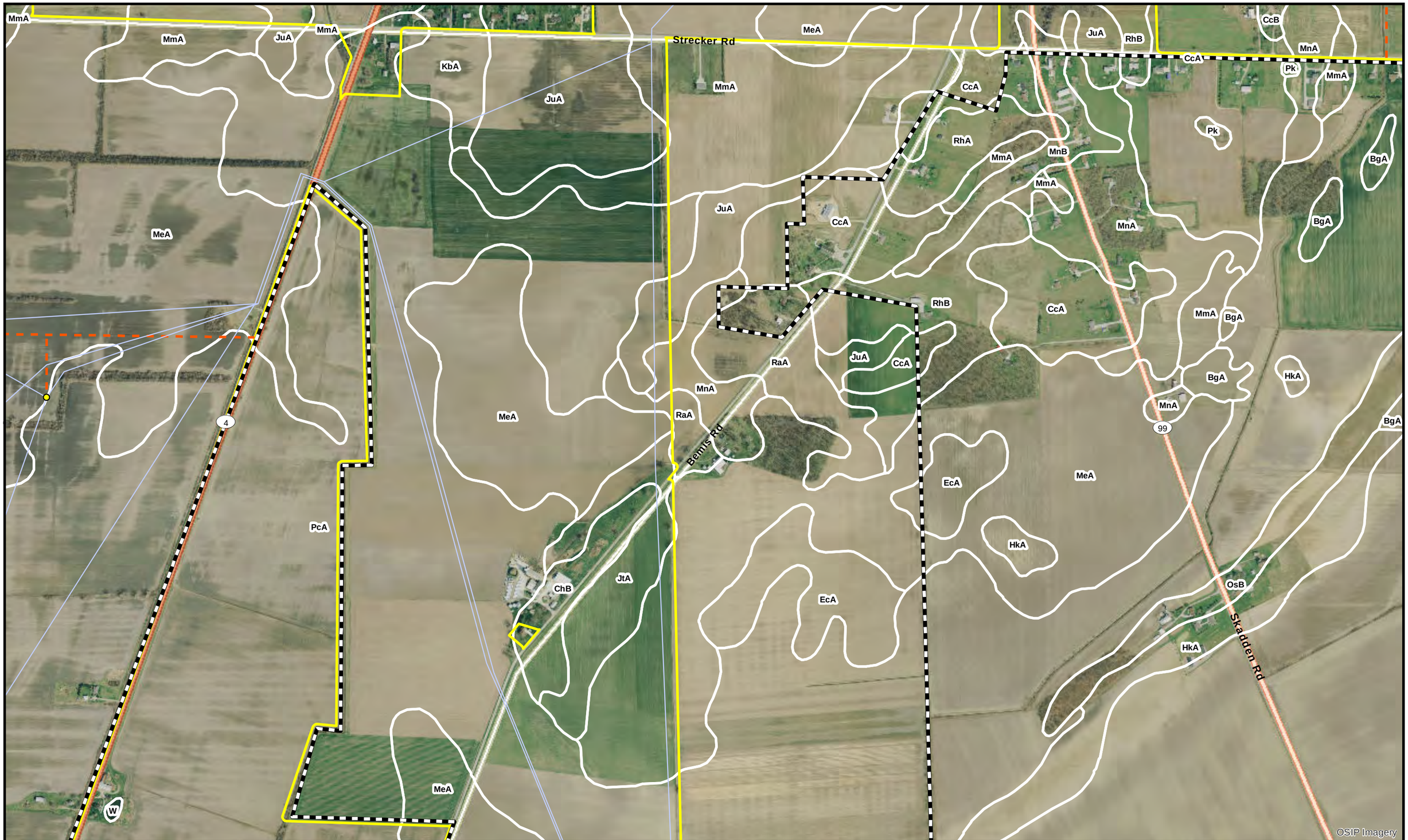

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Figure 2.4: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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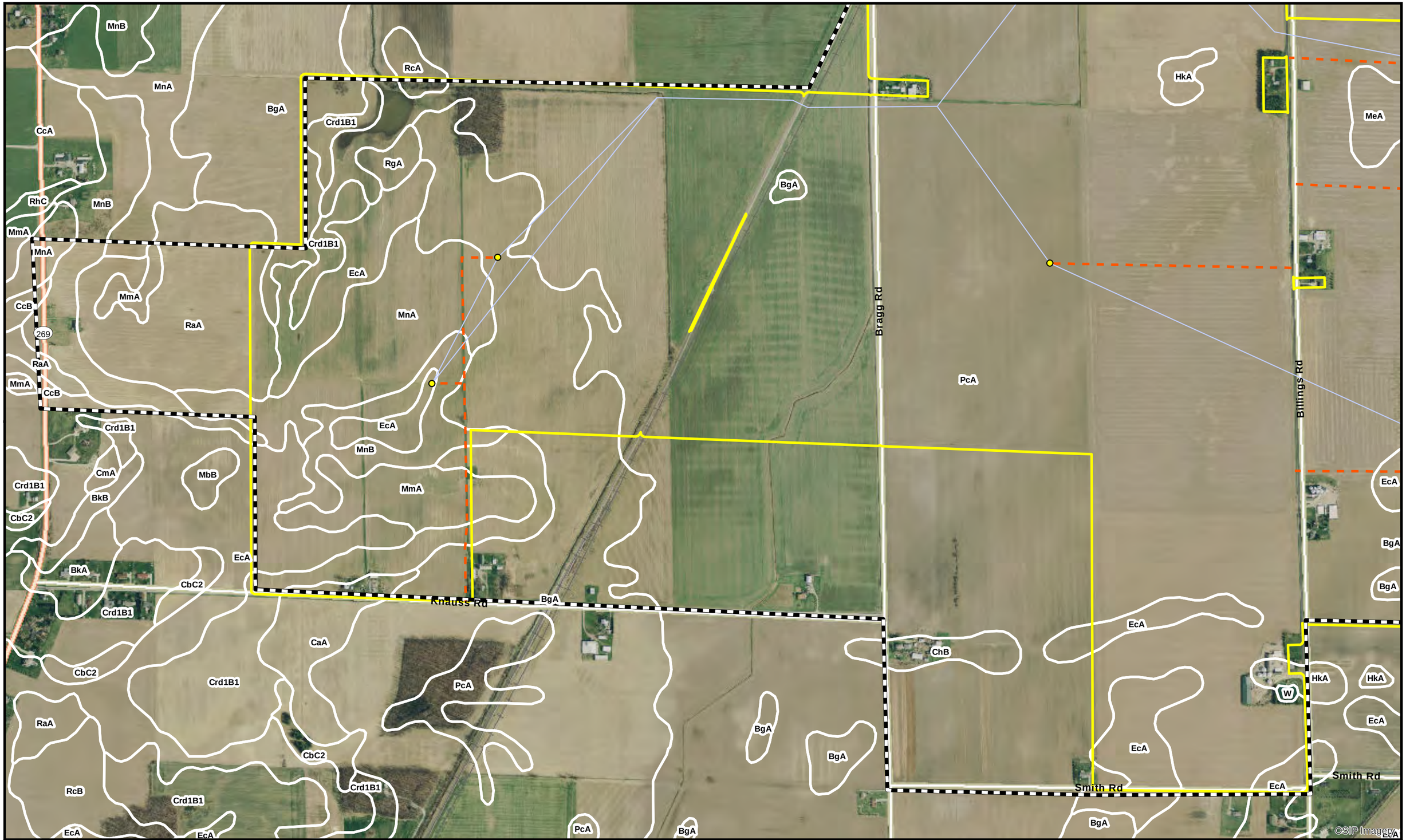

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Figure 2.5: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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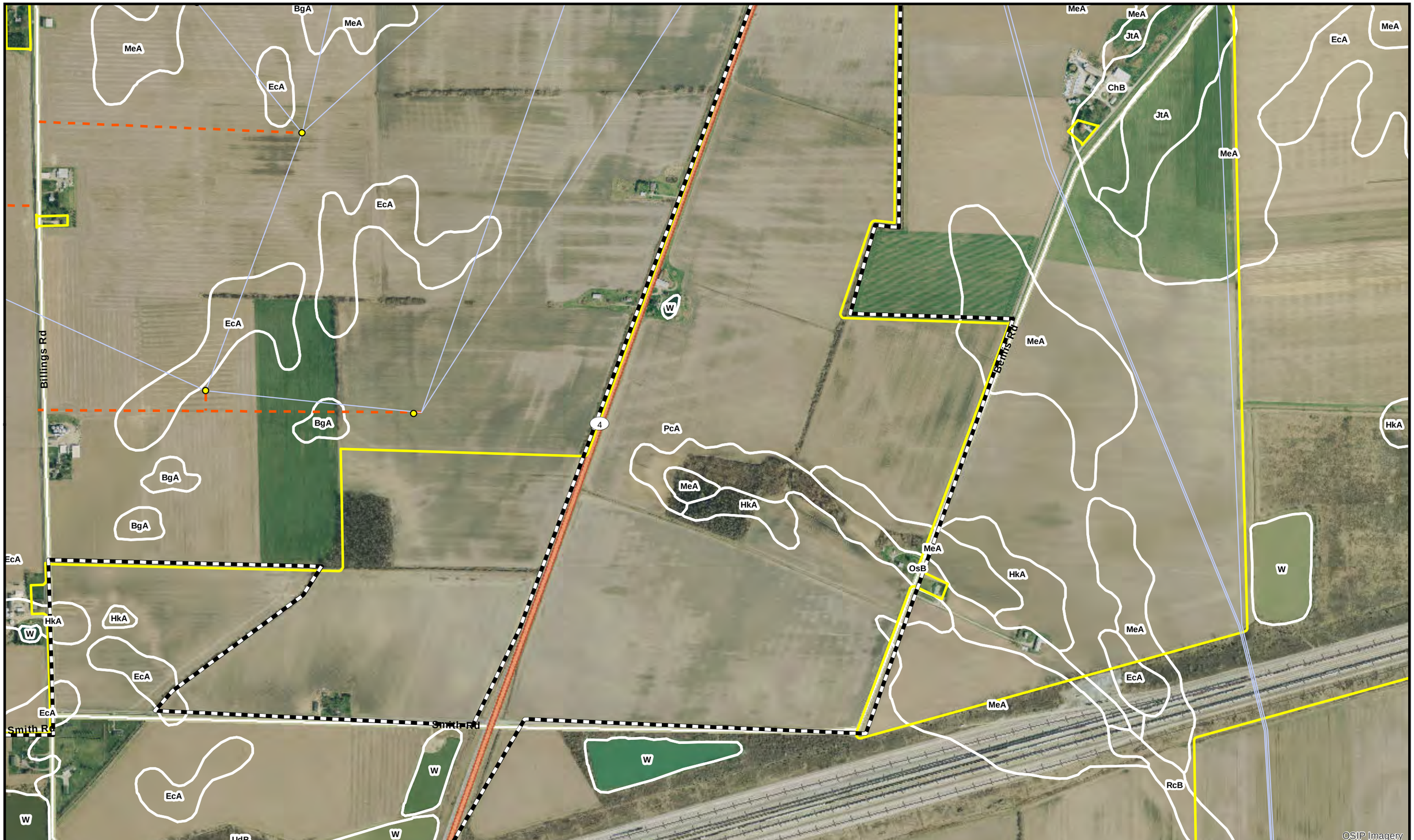

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Figure 2.6: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Ransom Rd
TWHY 44
Wood Rd
Strecker Rd
Strecker Rd W
Thomas Rd
80

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Figure 2.7: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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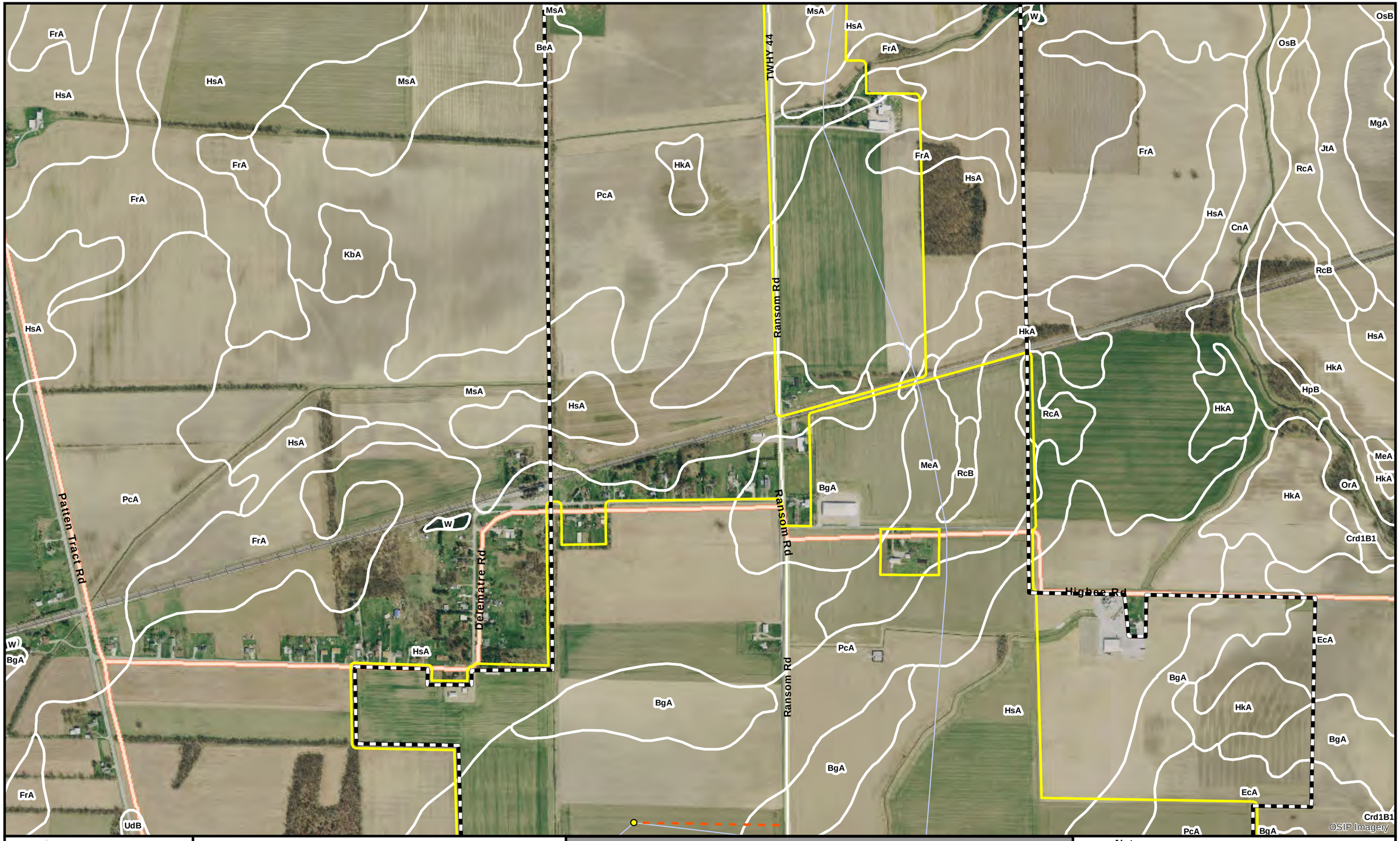

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Figure 2.8: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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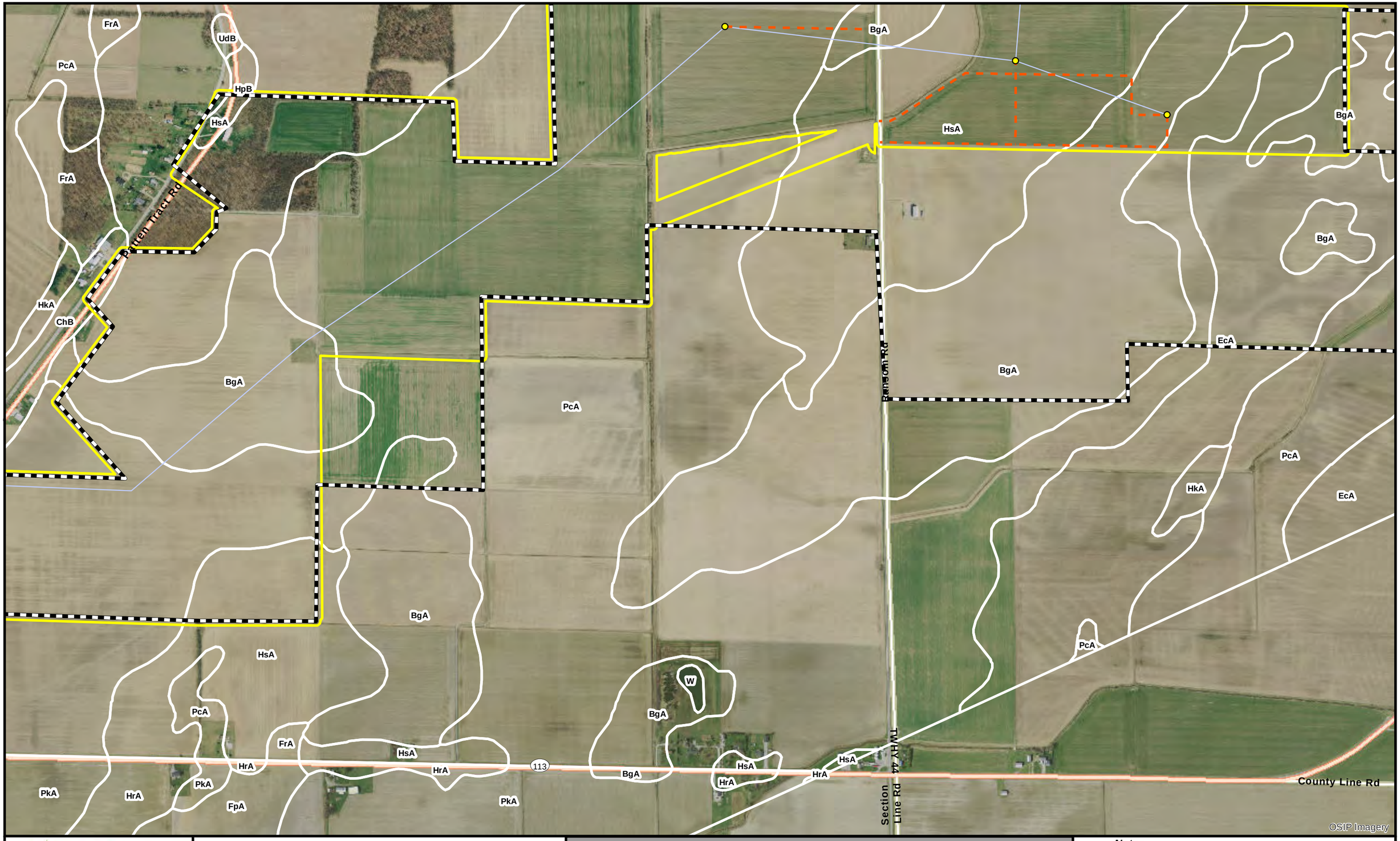

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Figure 2.9: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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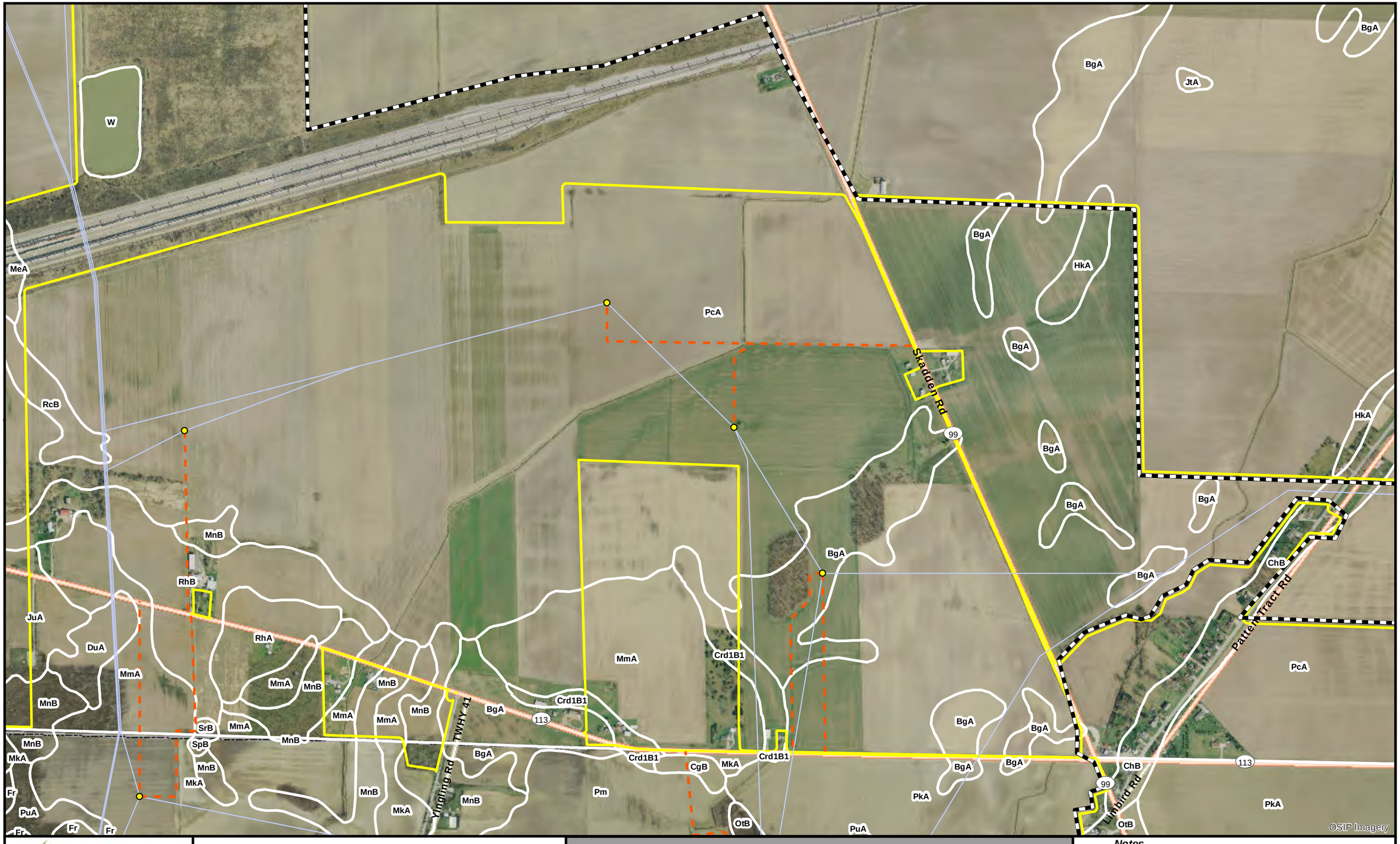

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Figure 2.10: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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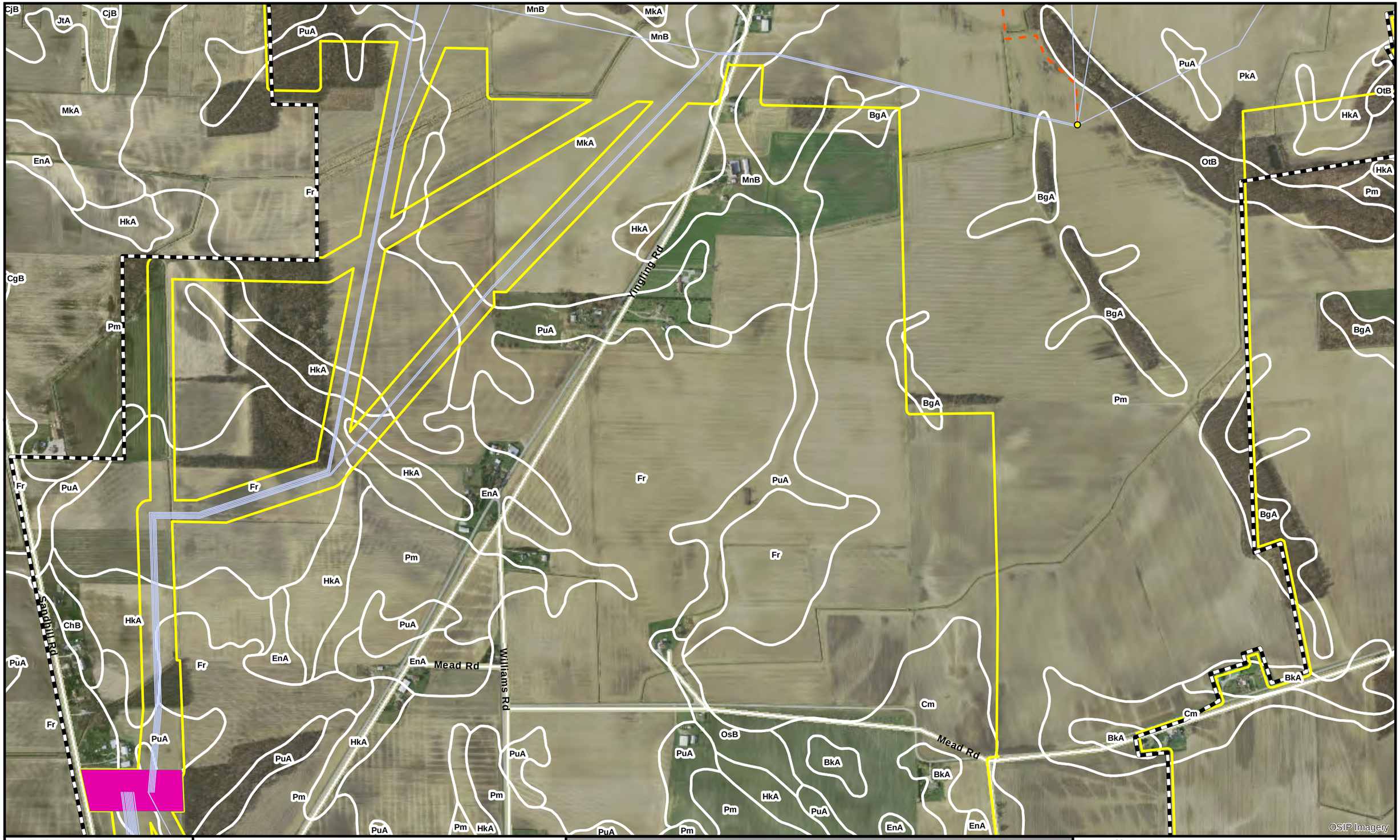

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Figure 2.11: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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Yingling Rd
Sandhill Rd
CR 40
Williams Rd
TWHY 27
20

PuA HkA Fr OsB BkA Cm EnA BgA Crd1B1 SpB ChB Or Ud JtA Pm BgB TuA

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Figure 2.12: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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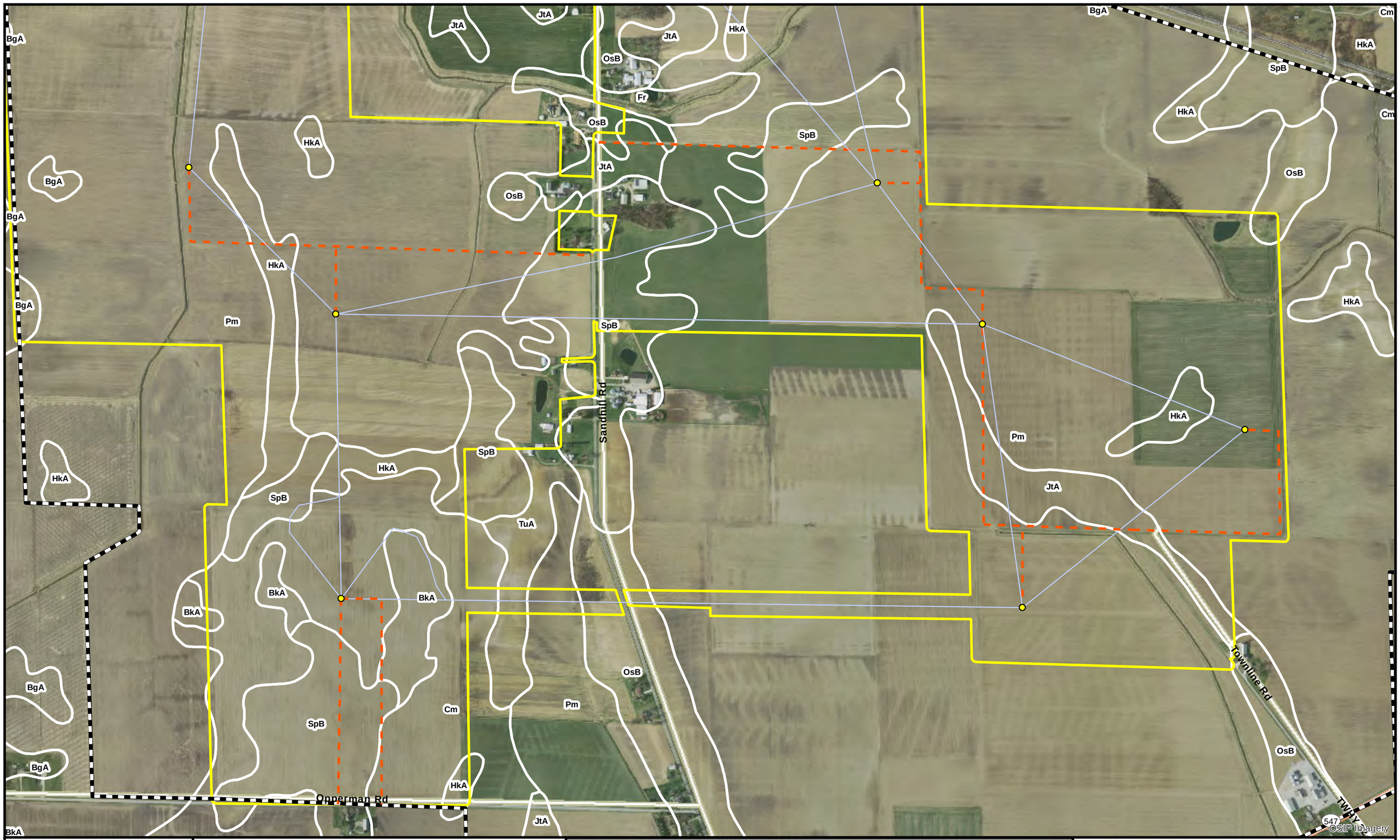

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Figure 2.13: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 2.14: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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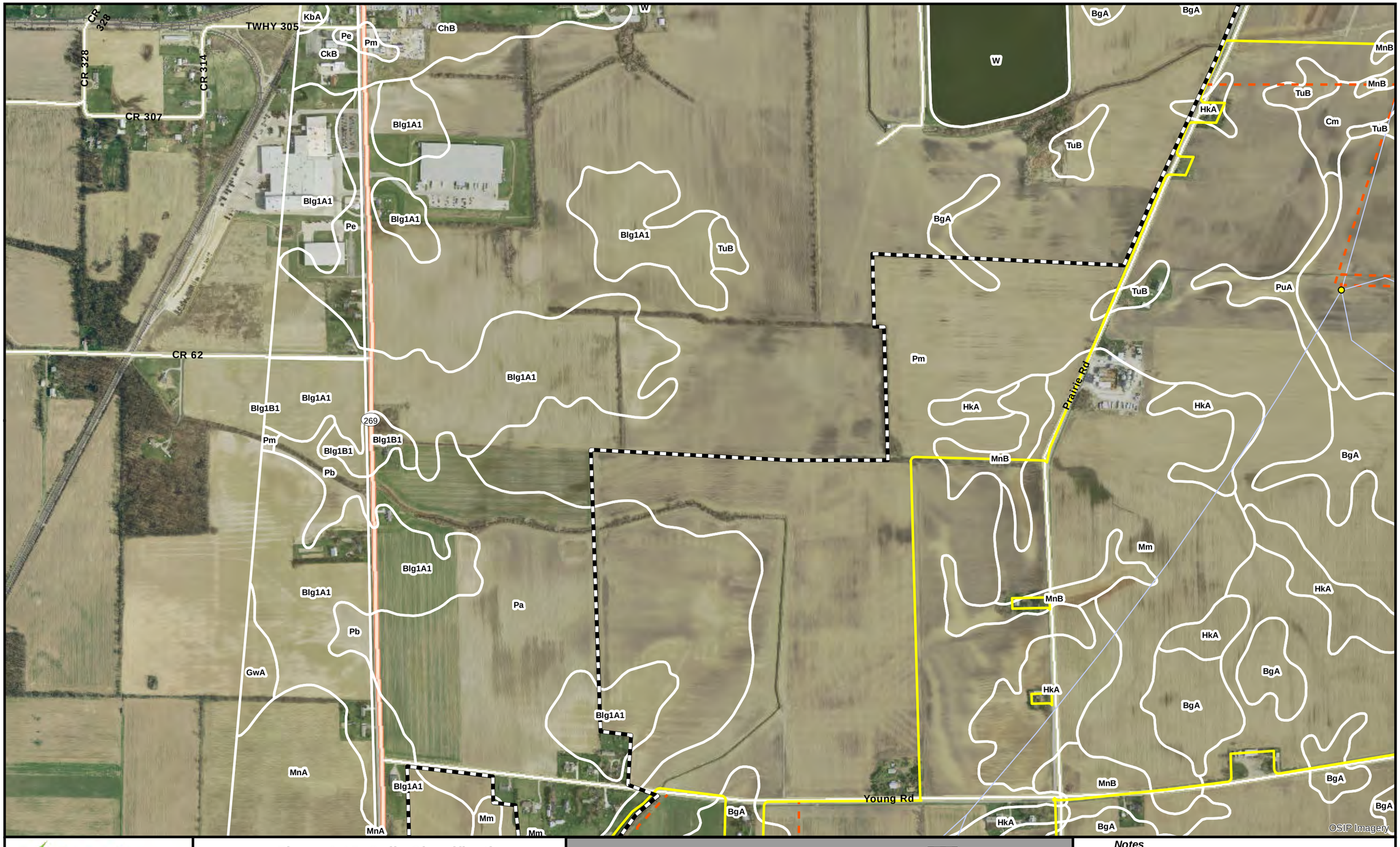

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Figure 2.15: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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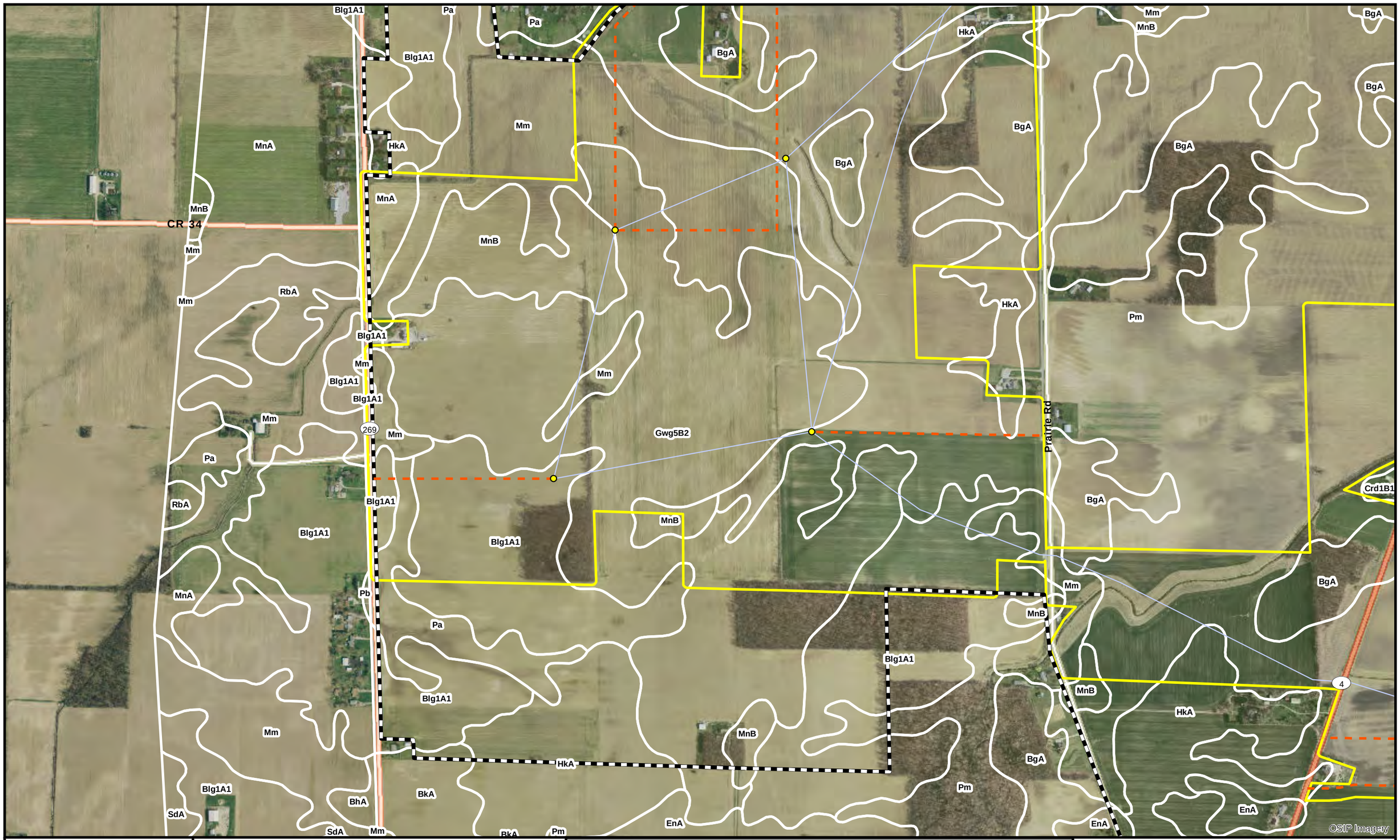

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Figure 2.16: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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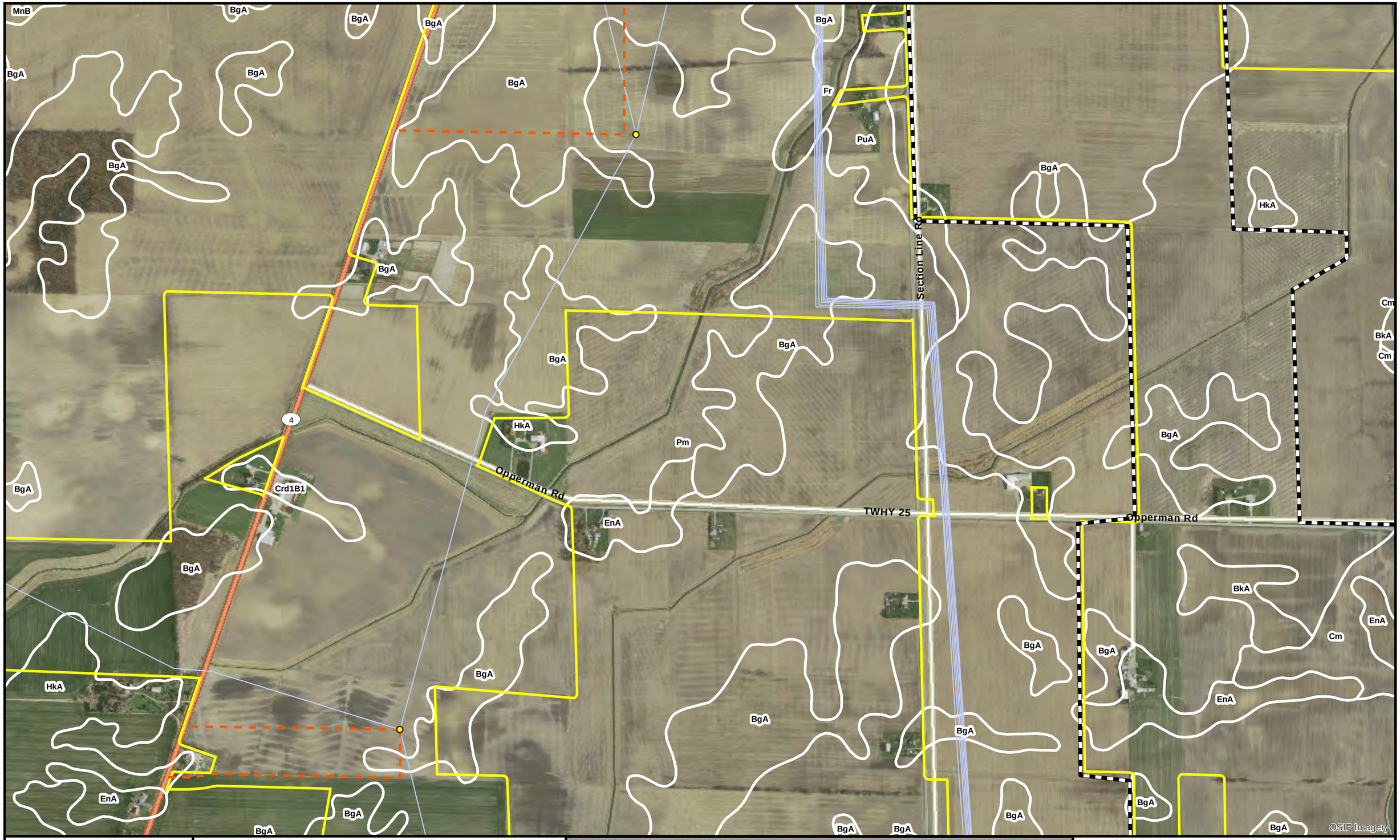

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Figure 2.17: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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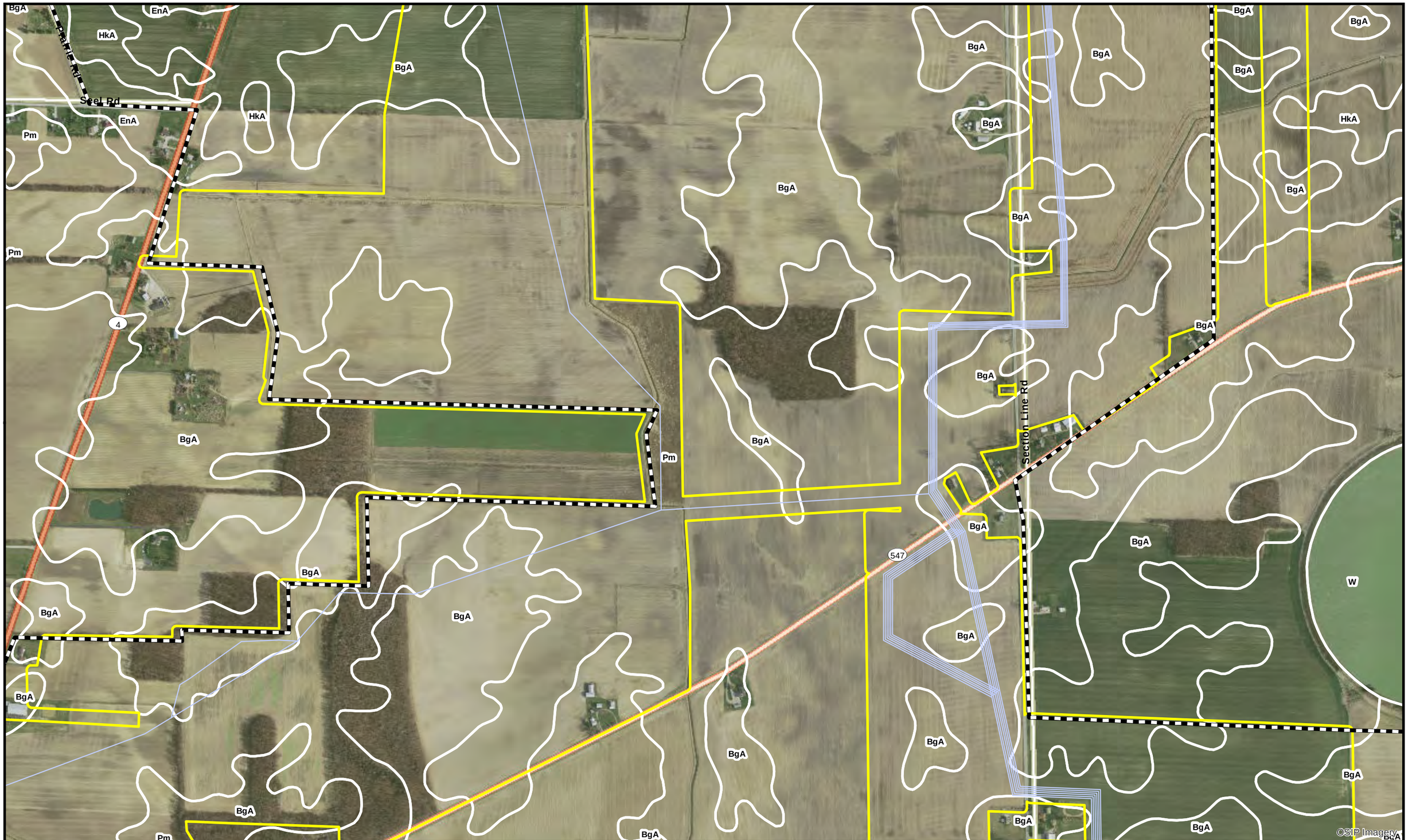

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Figure 2.18: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 2.19: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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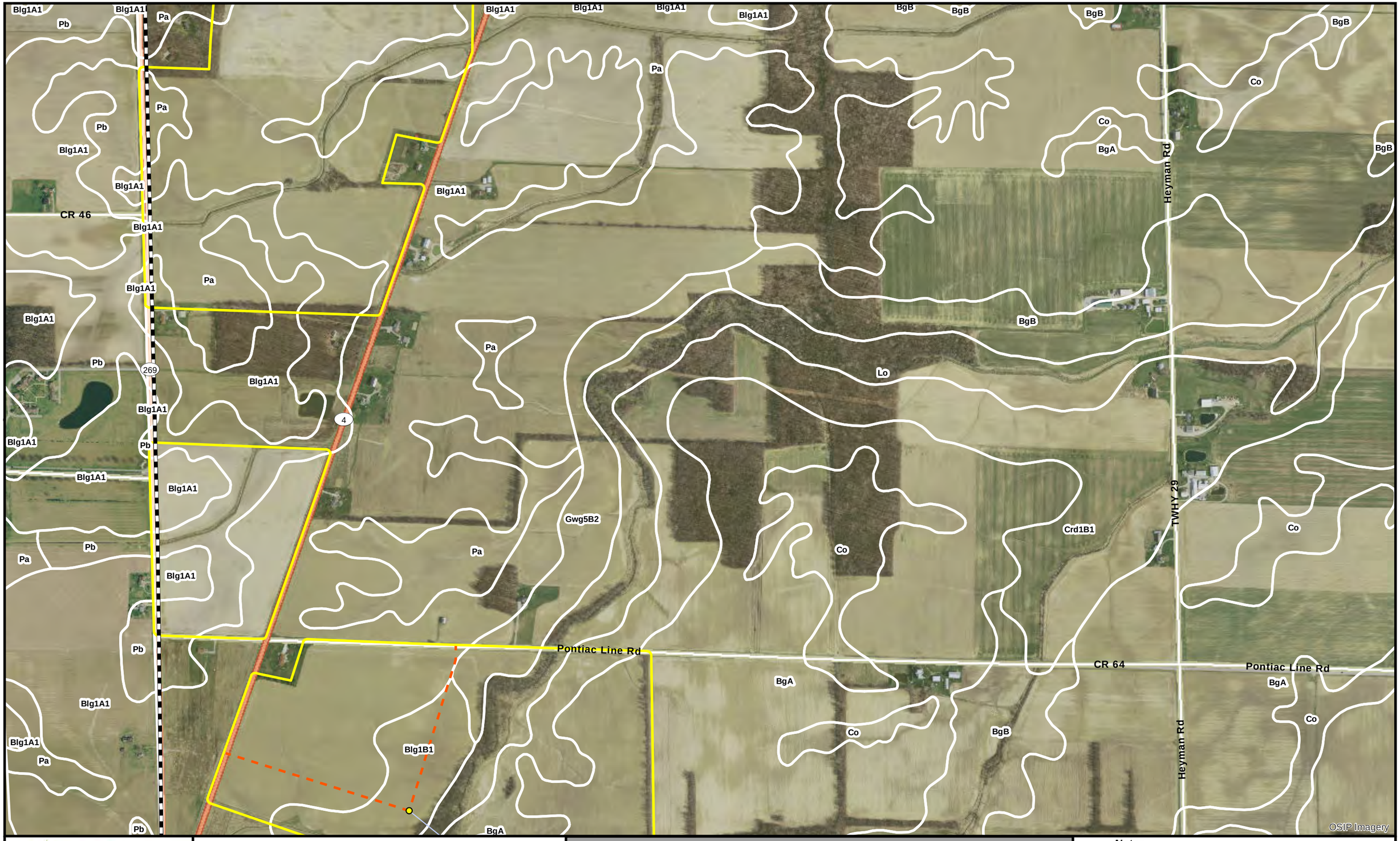

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Figure 2.20: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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Figure 2.21: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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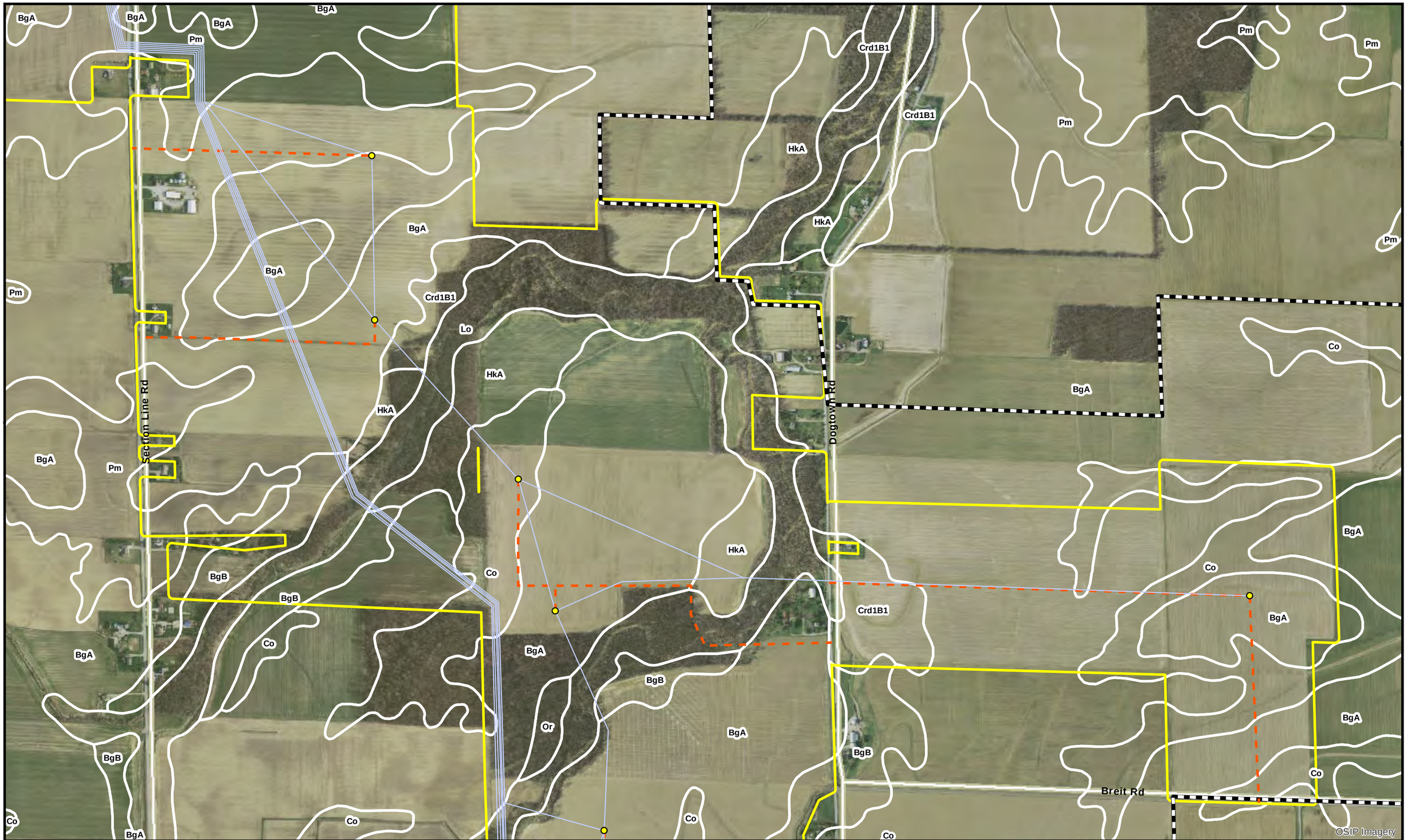

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Figure 2.22: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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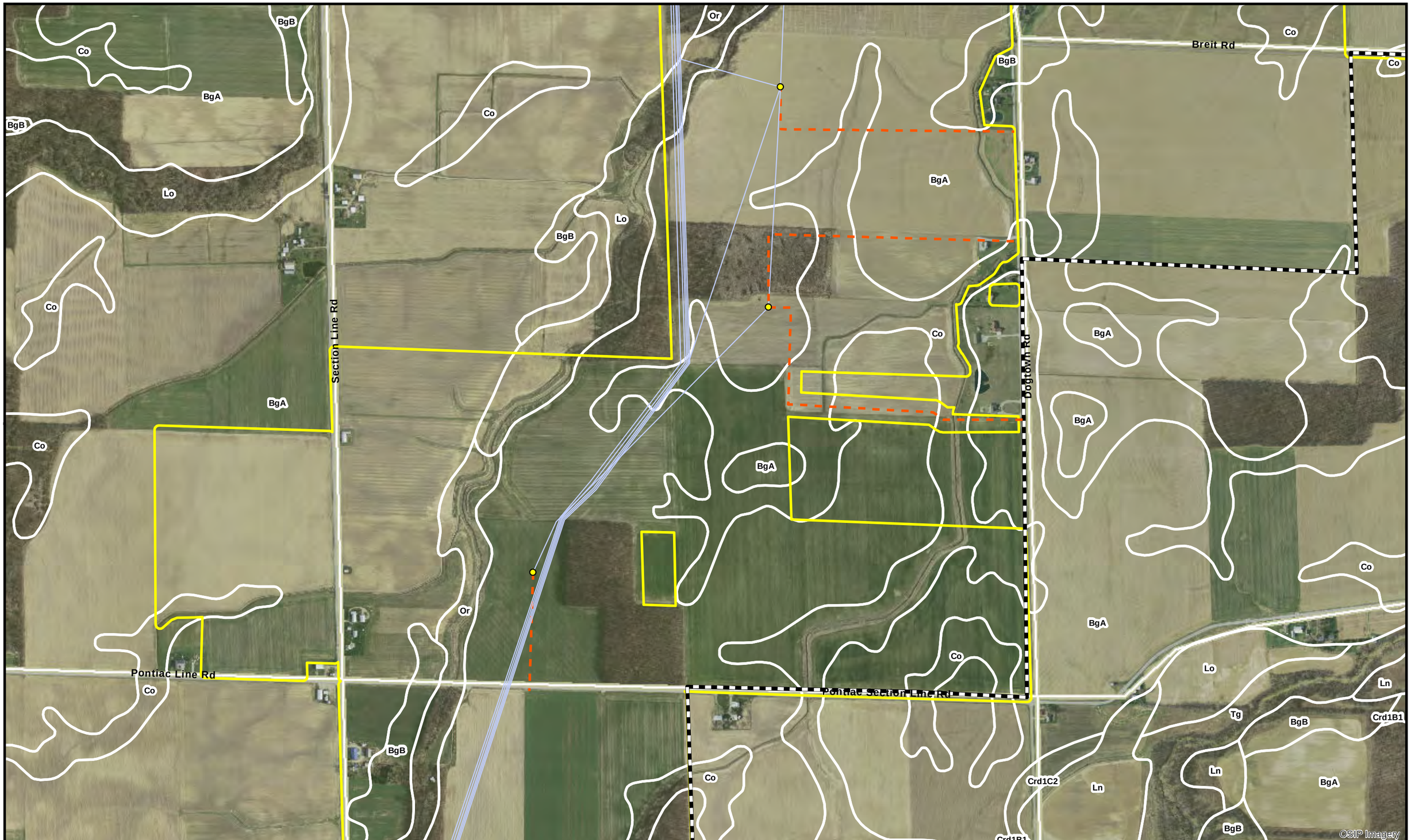

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Figure 2.23: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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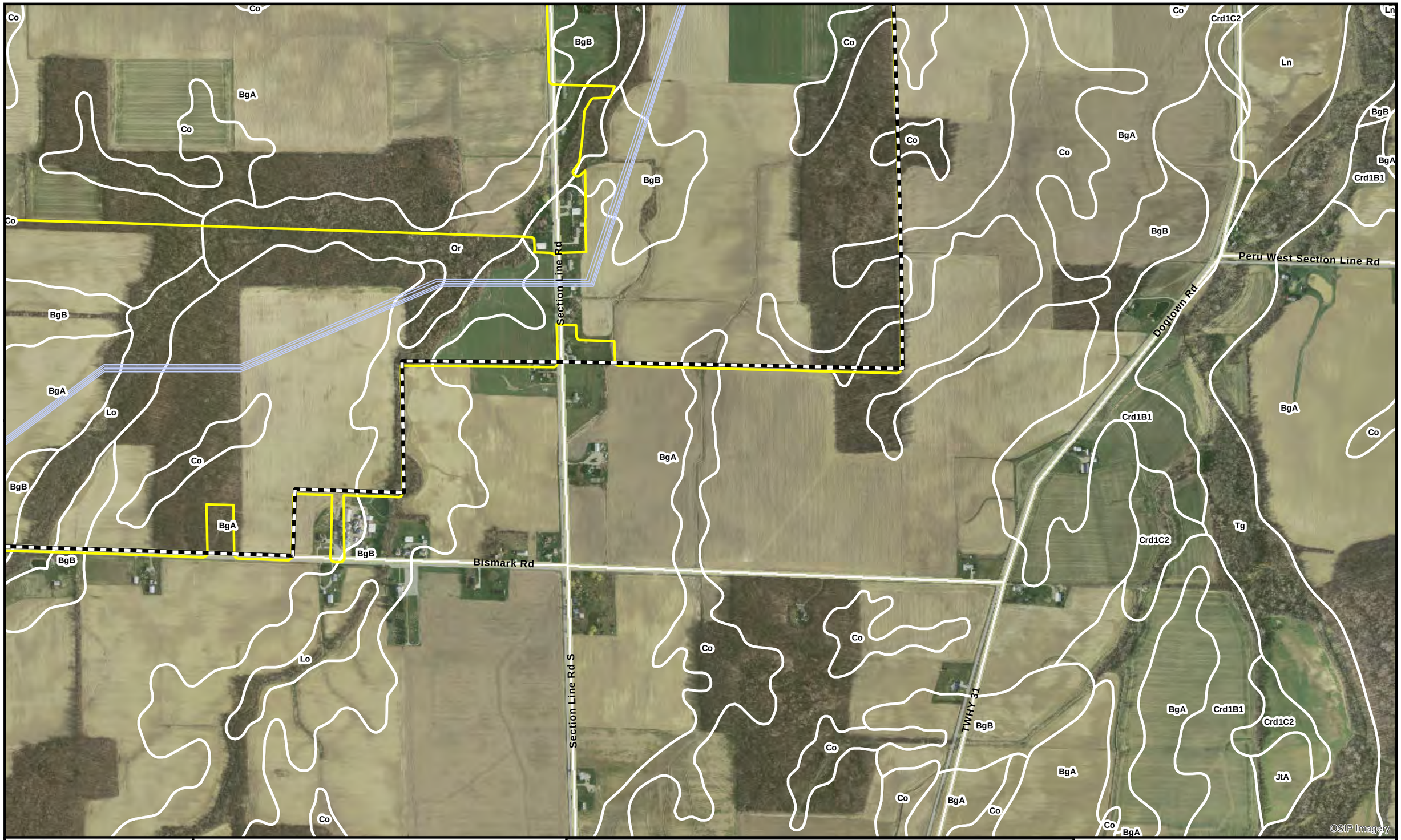

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Figure 2.24: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

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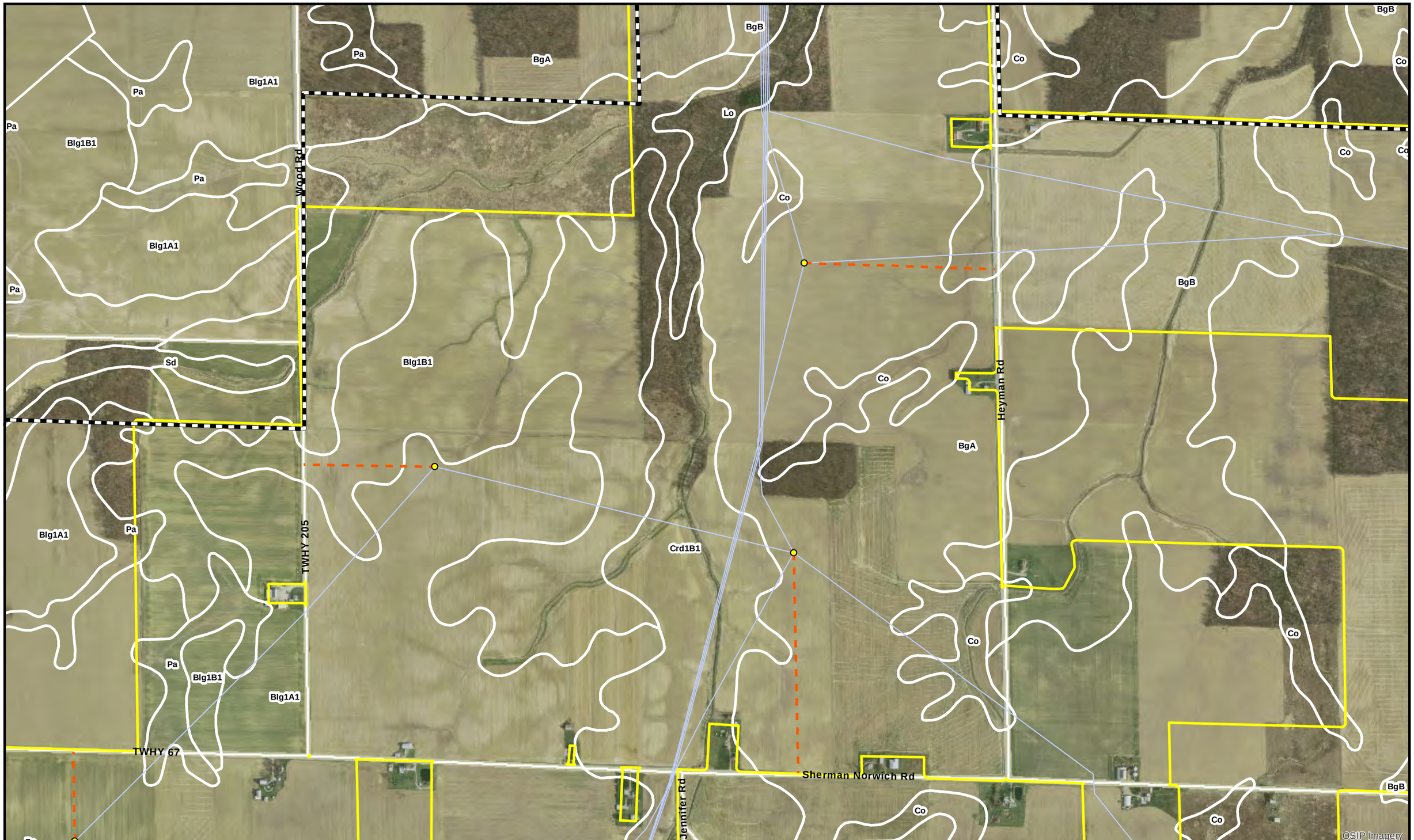

Figure 2.25: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

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TWHY 31
Dogtown Rd
Section Line Rd S
Sherman Norwich Rd
Thomas Rd

BgB
BgA
Co
Crd1B1
Crd1C2
JtA
Or
Lo
AdD2
Tg
Ln
HkA

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Figure 2.26: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

N

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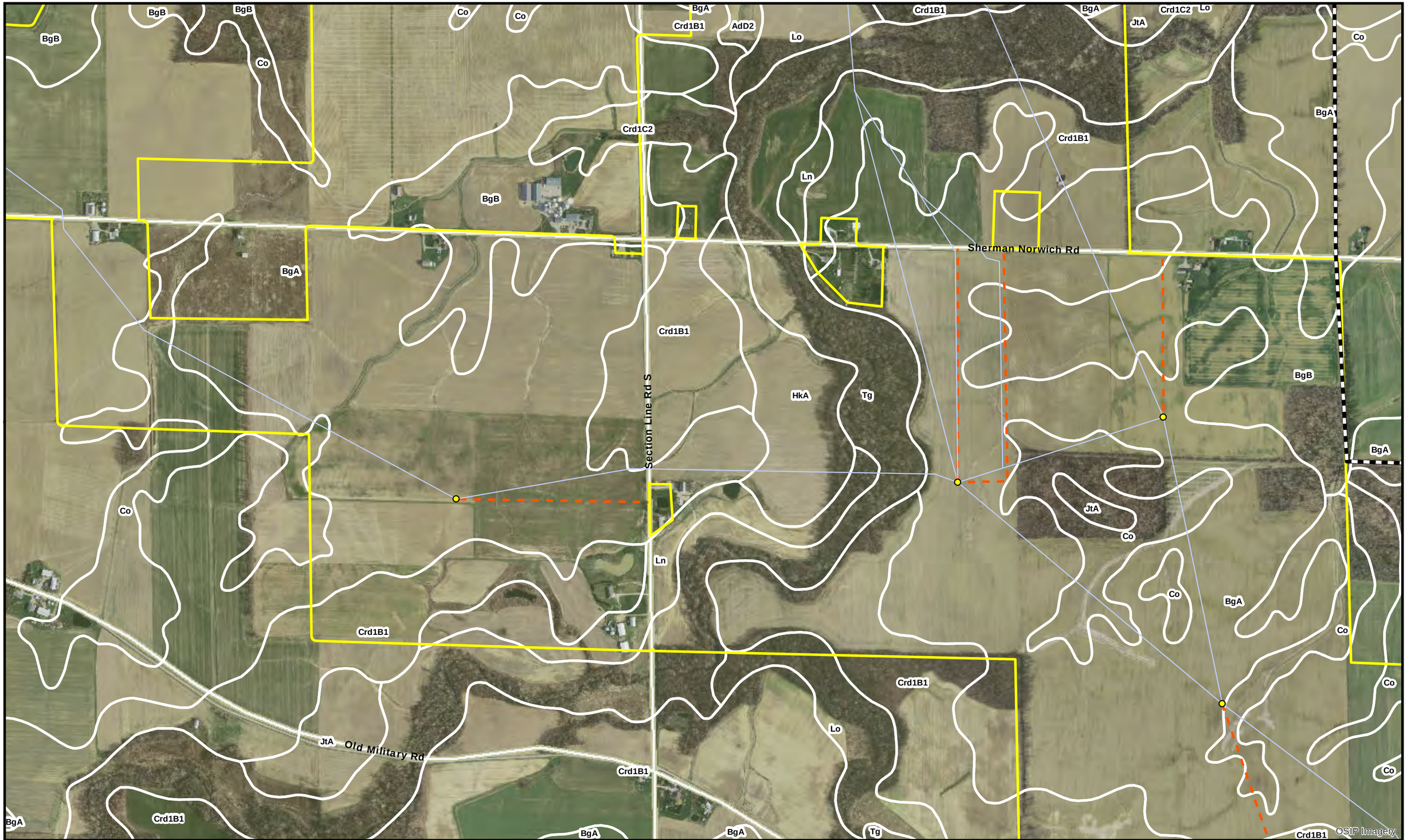

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Figure 2.27: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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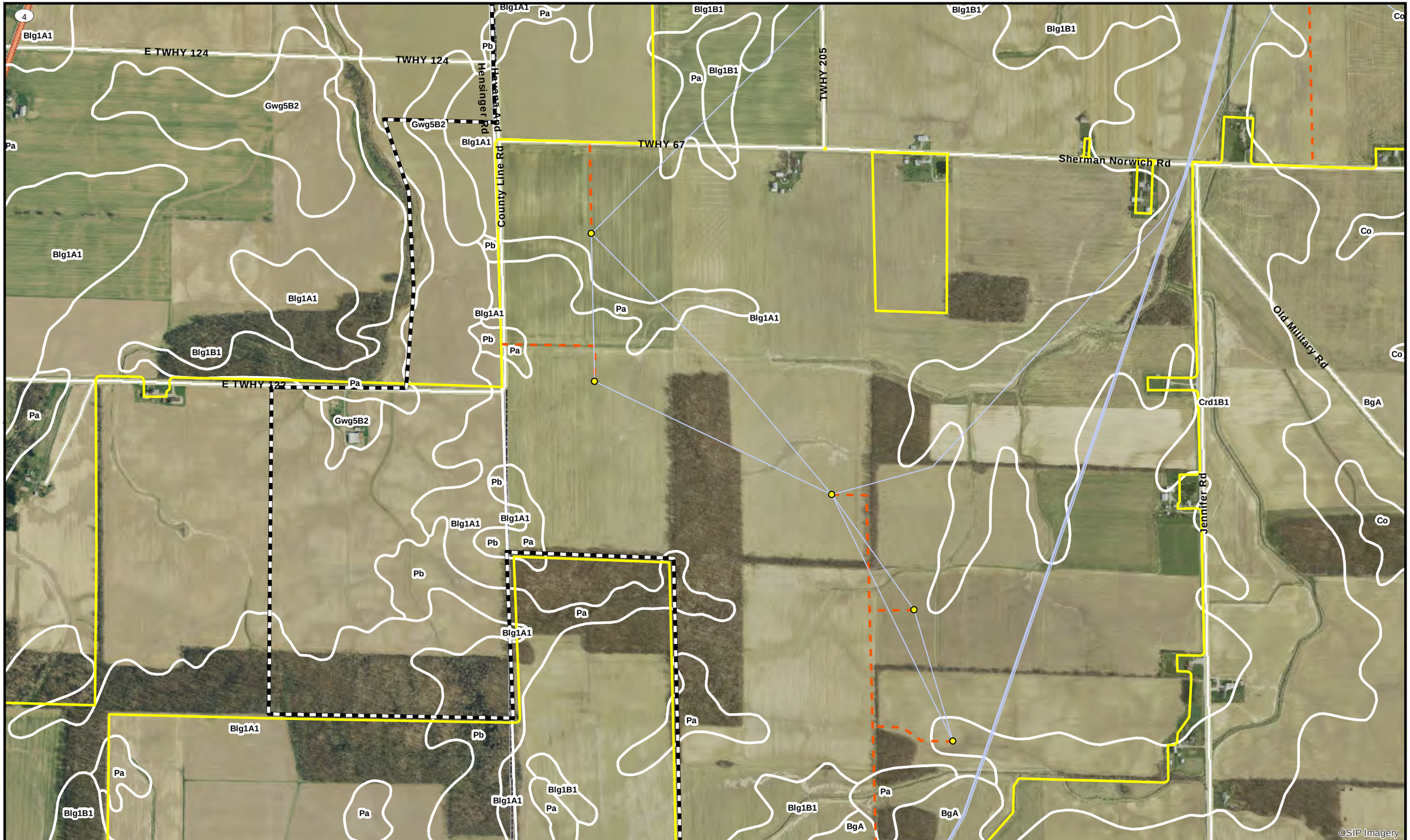

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Figure 2.28: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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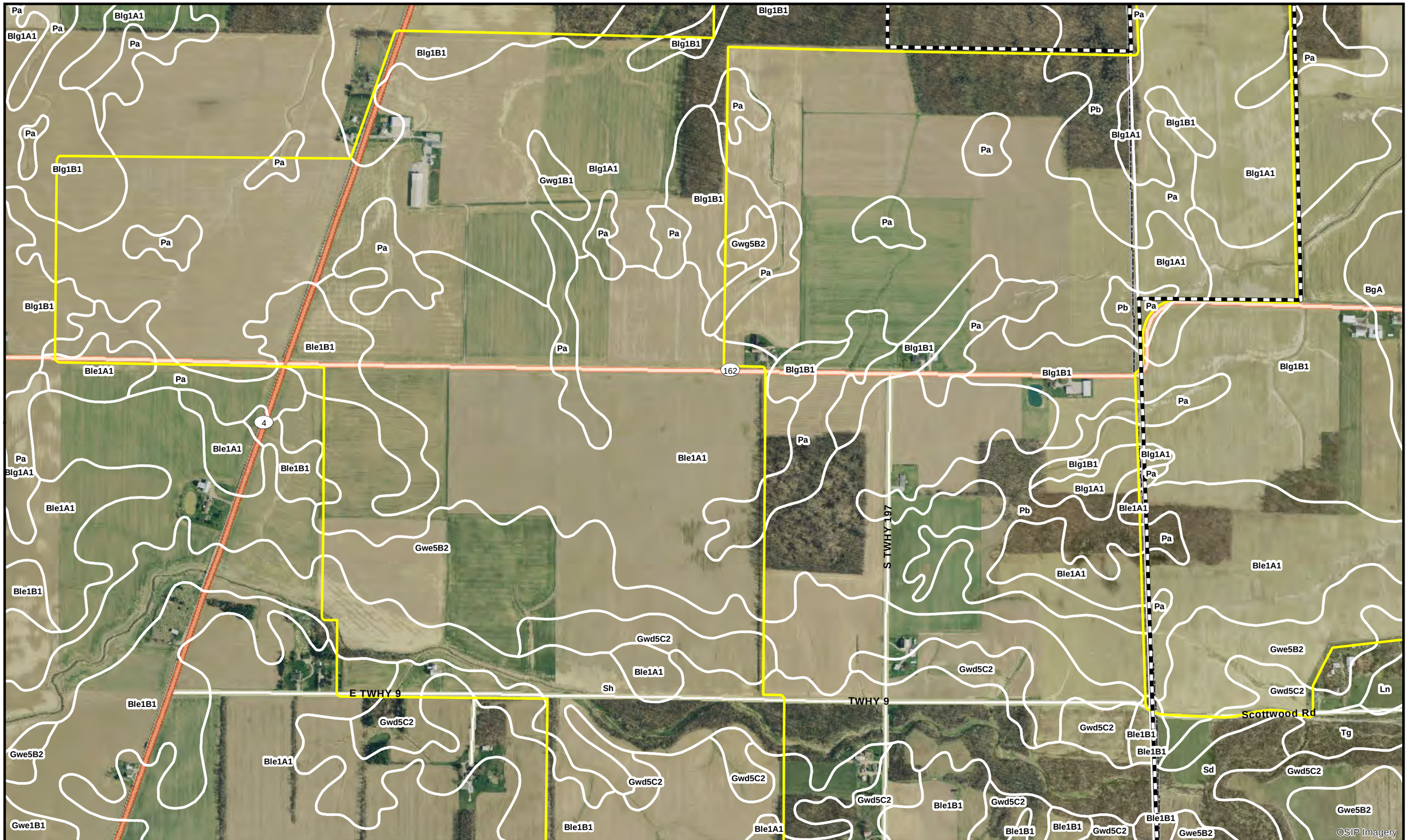

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Figure 2.29: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

N

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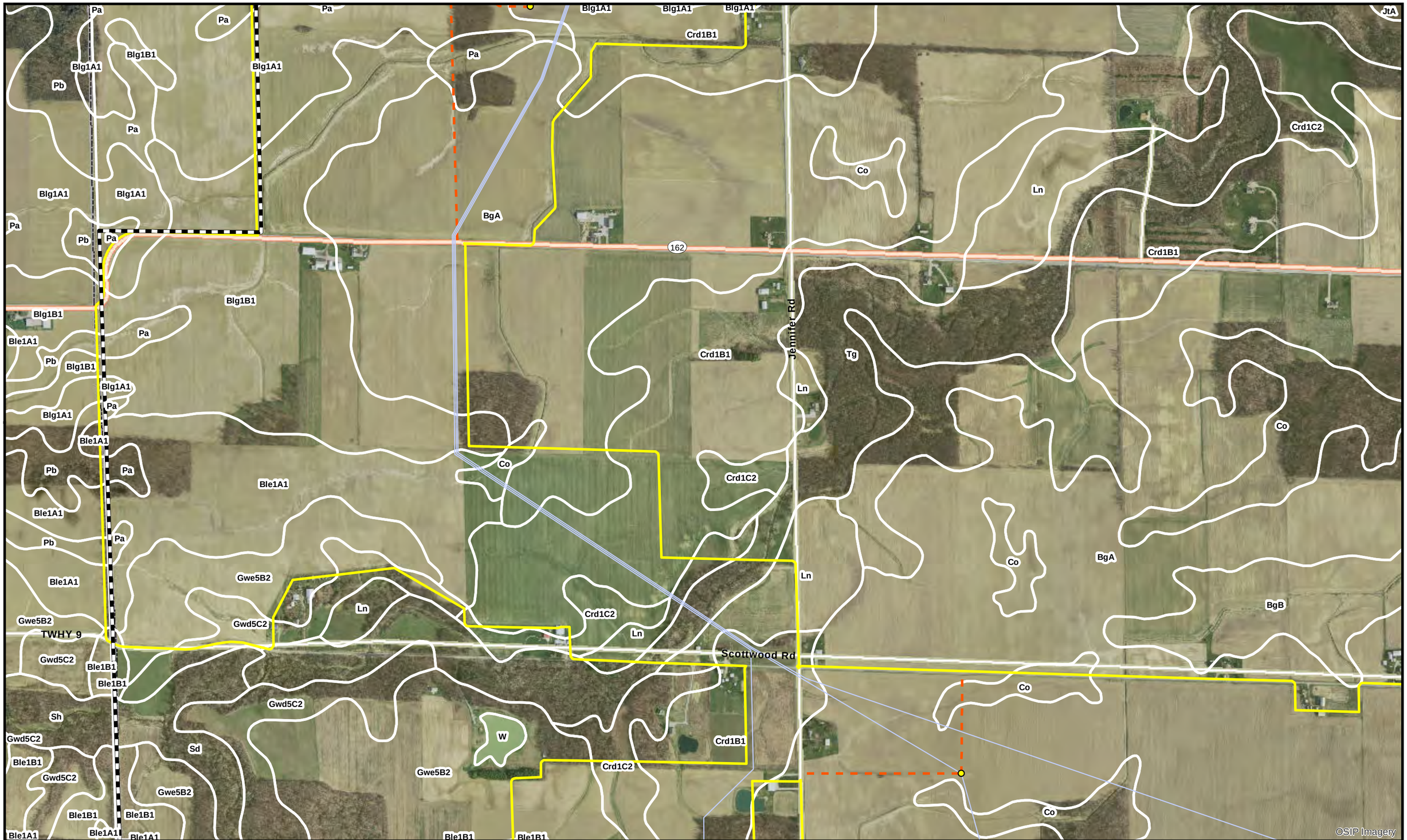

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Figure 2.30: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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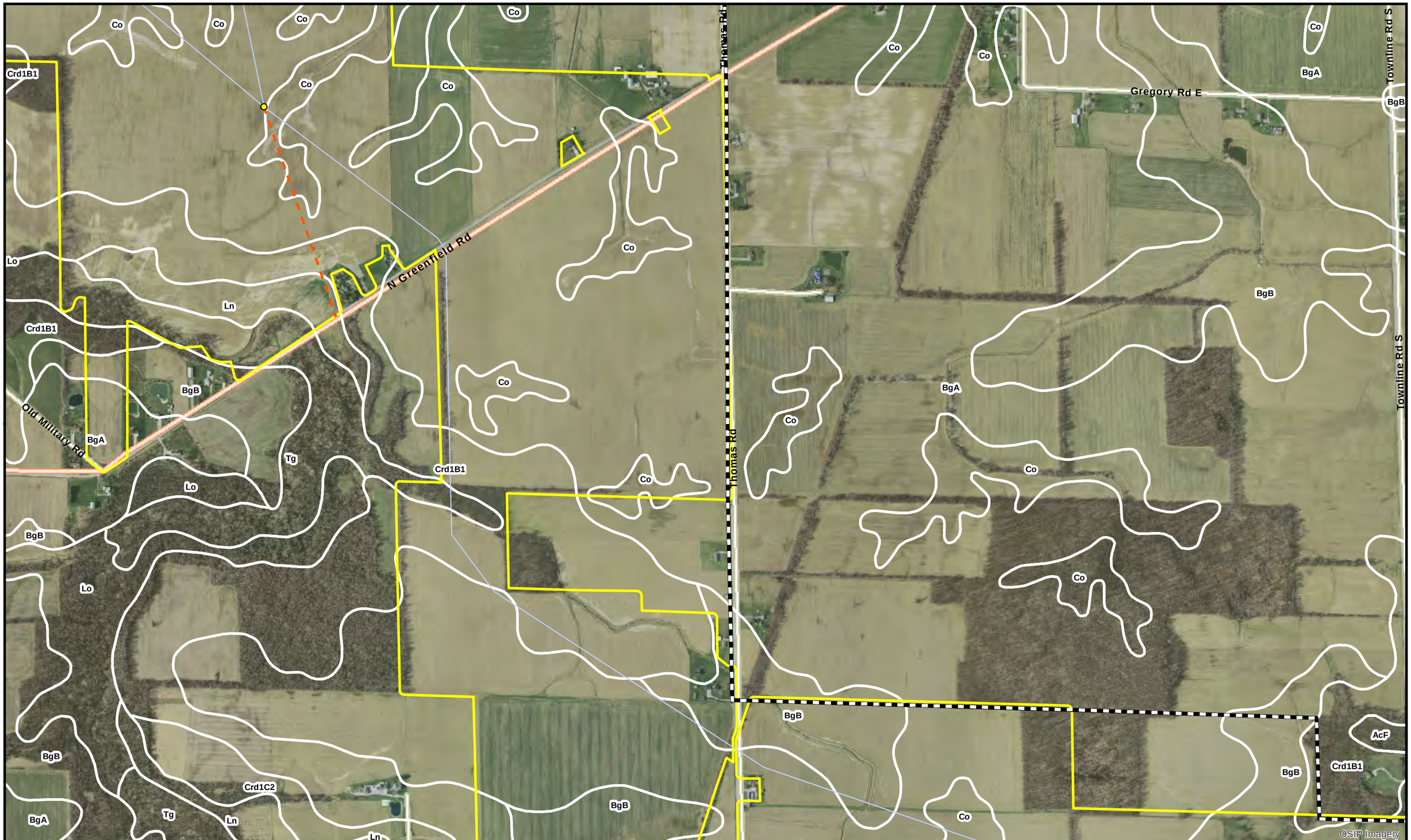

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Figure 2.31: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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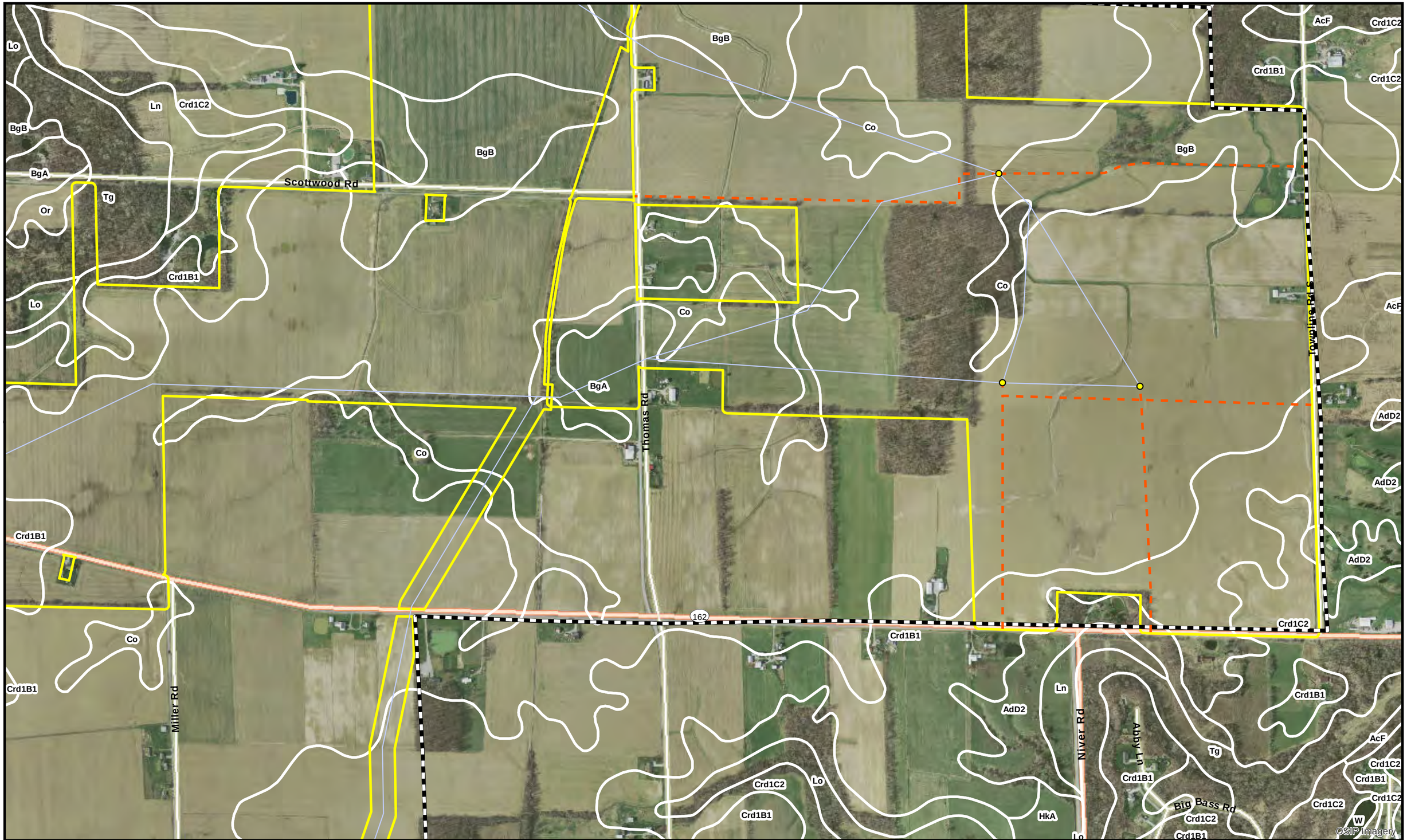

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Figure 2.32: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

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Date Saved: 1/18/2019 2:13:46 PM

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Scottwood Rd

Greenfield Section Line Rd

Daniels Rd

Section Line Rd S

Miller Rd

BgB Co Crd1C2 Ln BgA Or Lo Tg Crd1B1 162 Ho HkA

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Figure 2.33: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

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- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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N

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Ble1B1 W Crd1C2 Crd1B1 Co Co

Gwd5C2 Jennifer Rd

Ble1B1 Ble1B1 Co BgA Co

Gwe5B2

Sd Greenfield Section Line Rd

Ble1A1 Co Co

Gwe5B2

Sd Co

Gwd5C2 Crd1B1 Lo

Ble1B1 BgB

Ble1A1 Co Wurtz Rd Daniels Rd BgA

Pa

Pa Ho

Ble1A1 Co

Ble1A1 Crd1B1

HkA

Pa Lo

Ble1B1

Crd1B1

Ble1A1 Ho Crd1C2 Crd1B1

Lo

Ble1B1 Crd1C2 Crd1B1 Crd1B1

Pa

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Figure 2.34: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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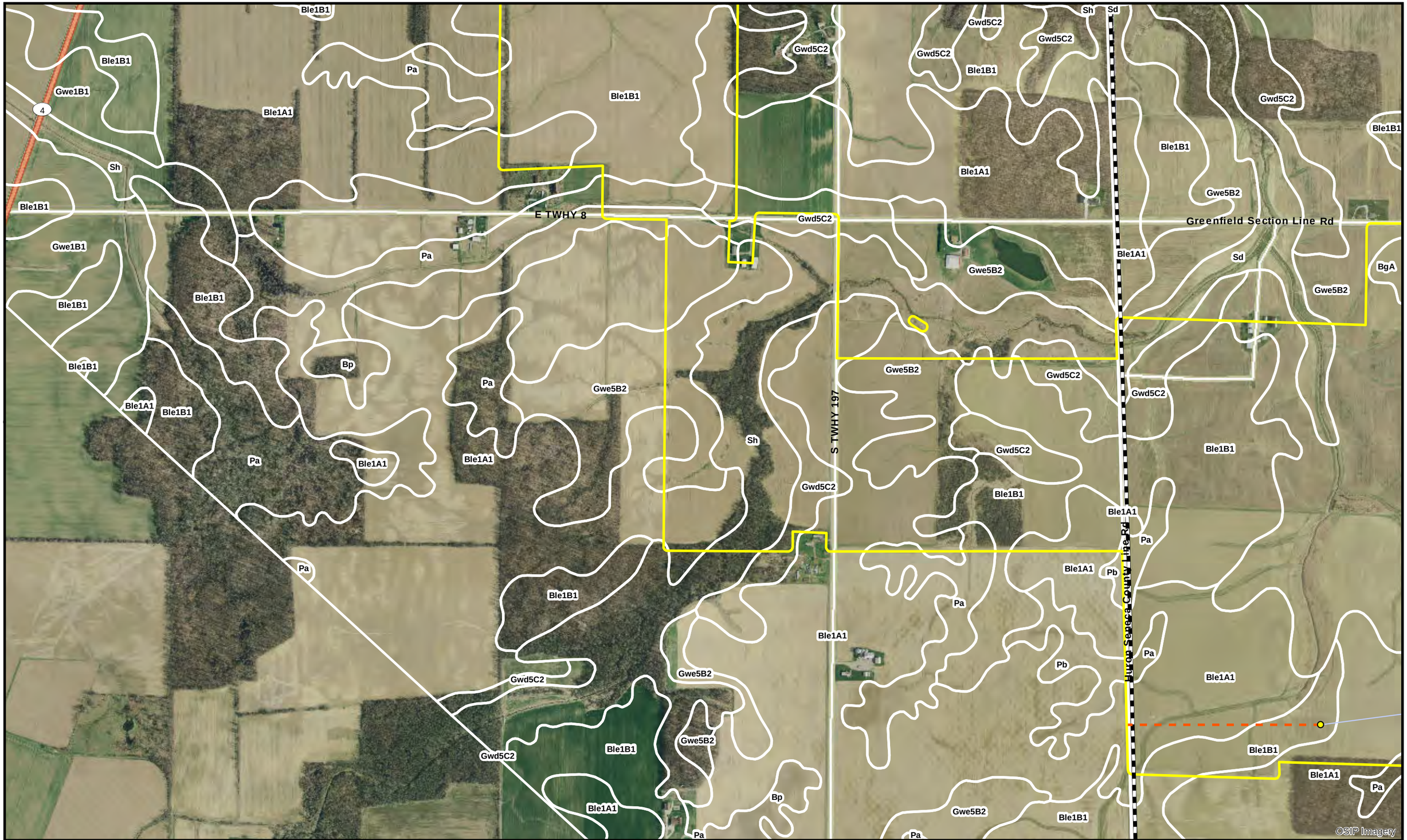

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Figure 2.35: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

N

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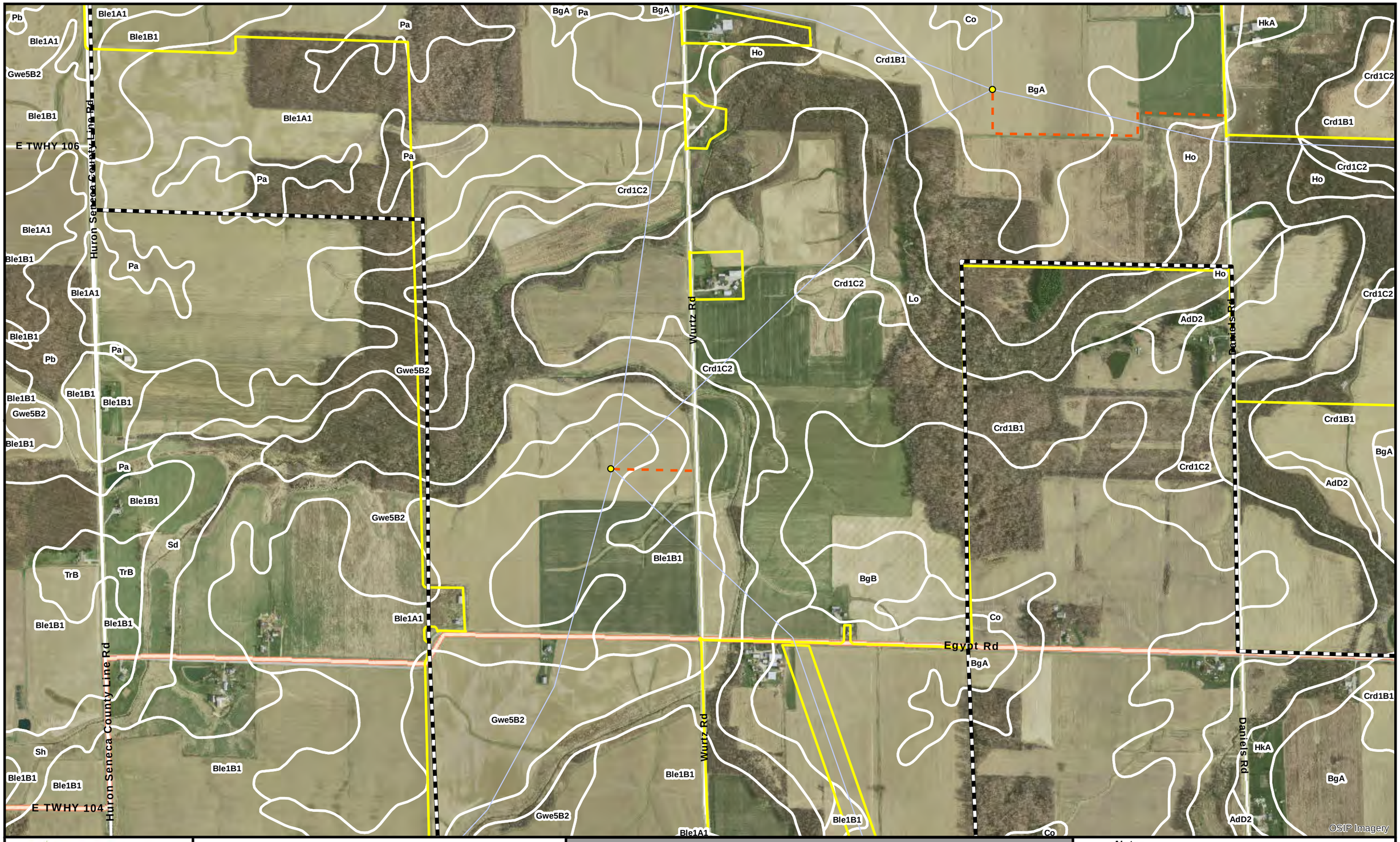

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Figure 2.36: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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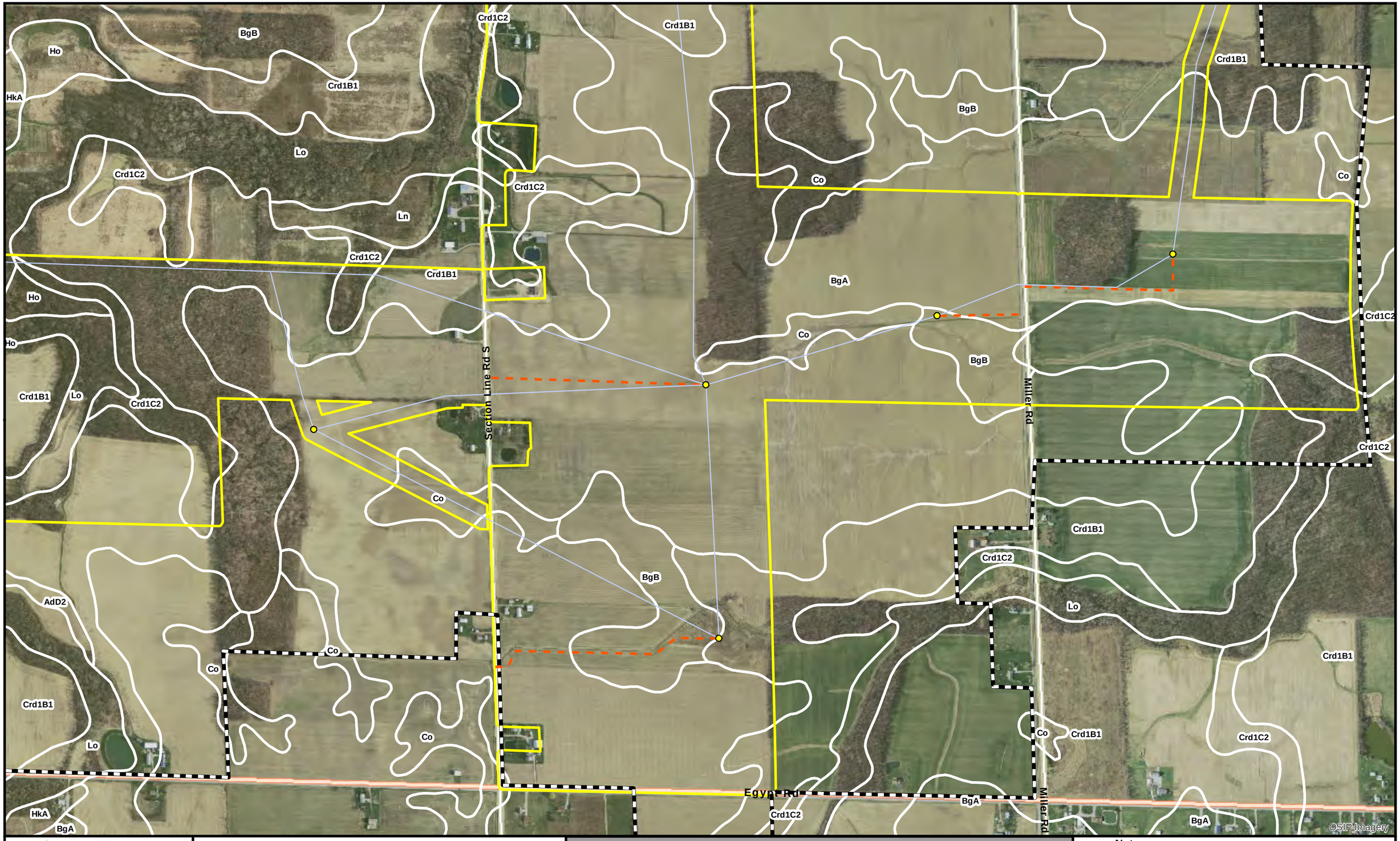

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Figure 2.37: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

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Ble1A1 Gwe5B2 Gwe5B2 Lo Crd1B1 Lo HkA Co BgA Co Lo HkA AdD2 Co Ble1B1 Pb Pa Wurtz Rd Crd1B1 Ble1B1 Co Crd1B1 Daniels Rd Ble1A1 HkA Crd1C2 Pa Ble1A1 BgA Ble1A1 Wurtz Rd Pb Co Townline Rd Ble1A1 Pa Crd1B1 Crd1C2 Pb Lo Pa Crd1C2 Pb BgB Ble1A1 BgA Willoughby Rd E TWHY 12 Pa Crd1B1 Pb BgA Ble1B1 Ble1B1 Pa Pb Ble1A1 Ble1A1

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Figure 2.38: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
0 350 700

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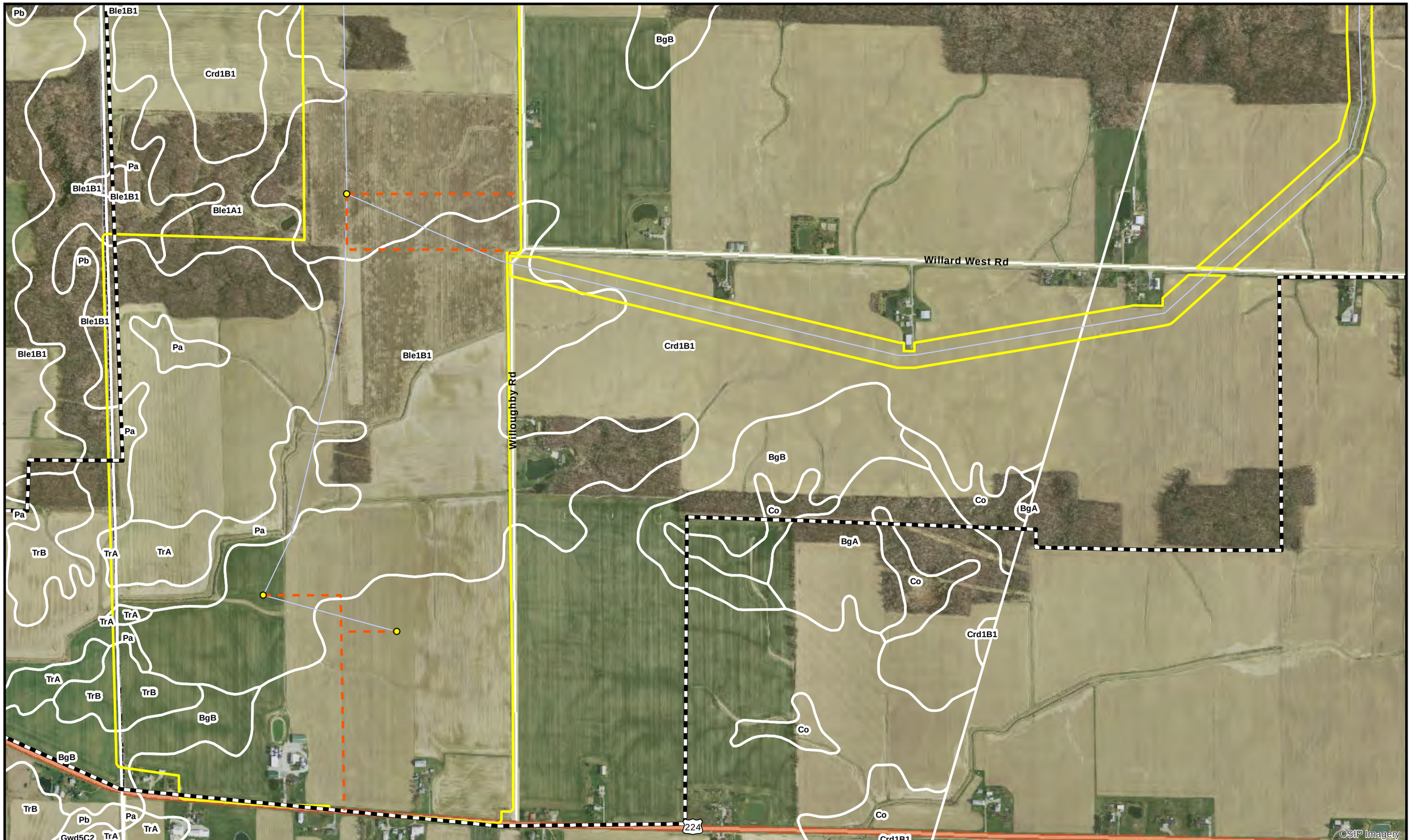

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Figure 2.39: Soils Classification
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Soils Classification

Notes
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The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service.

Feet
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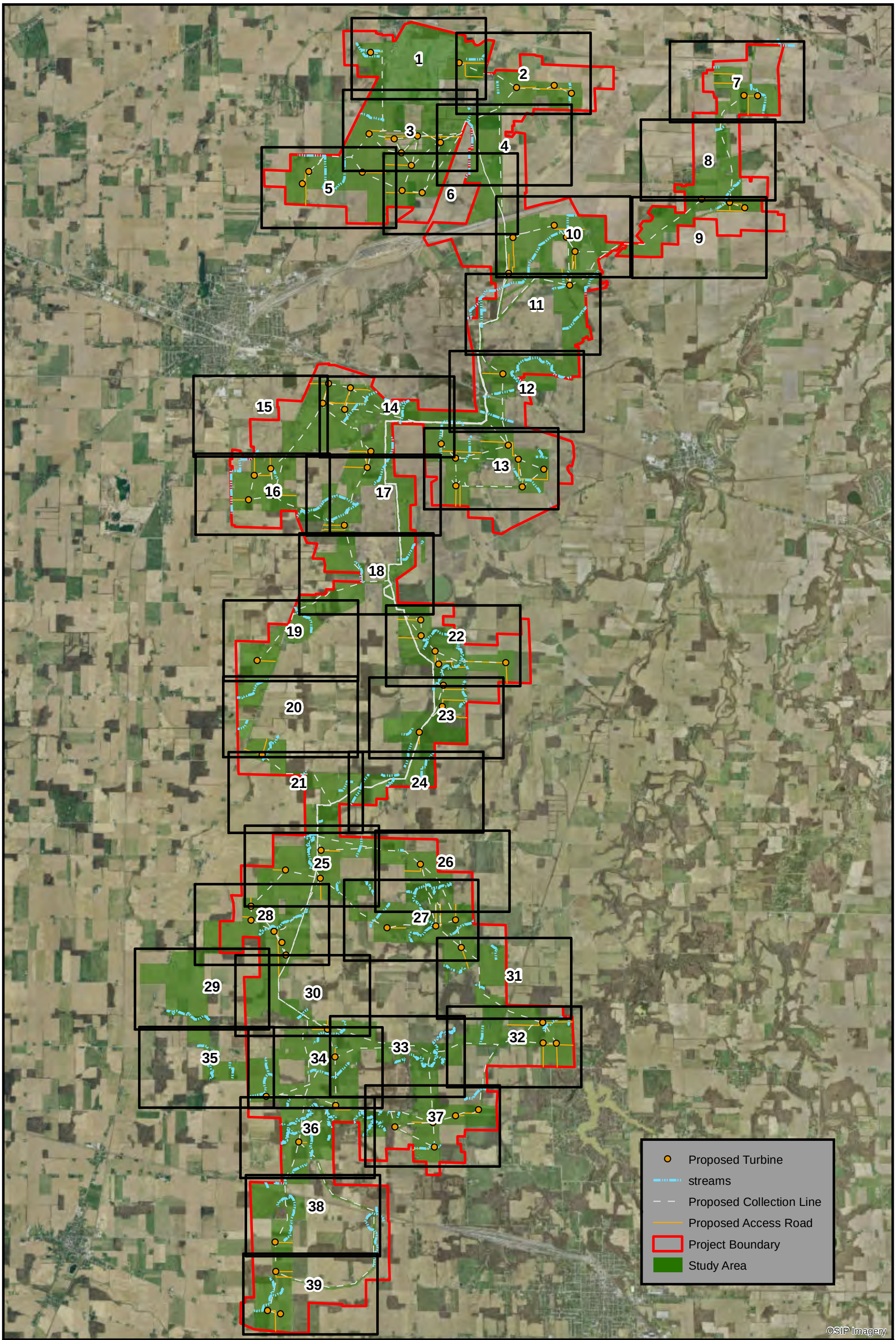

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Grid for NWI Figures
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes
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Miles
0 1 2

N

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Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

Feet
0 350 700

N

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Figure 3.1: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

Feet
0 350 700

110
110
80
80
Harris Rd
Harris Rd
Wood Rd
4
99
Strecker Rd
Bemis Rd
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Figure 3.2: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

Strecker Rd
CR 15
Strecker Rd
Billings Rd
Bragg Rd
4

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Figure 3.3: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

Date Saved: 1/18/2019 2:01:35 PM

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Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

Feet
0 350 700

Strecker Rd
Bemis Rd
Skadden Rd
4
99

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Figure 3.4: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

269

Bragg Rd

Billings Rd

Knauss Rd

Smith Rd

Smith Rd

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Figure 3.5: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

Feet
0 350 700

Billings Rd
Smith Rd
Smith Rd
Bemis Rd
4

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Figure 3.6: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

Feet
0 350 700

Ransom Rd
TWHY 44
80
Wood Rd
Ransom Rd
TWHY 44
Strecker Rd
Strecker Rd W
Thomas Rd
OSIP Imagery

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Figure 3.7: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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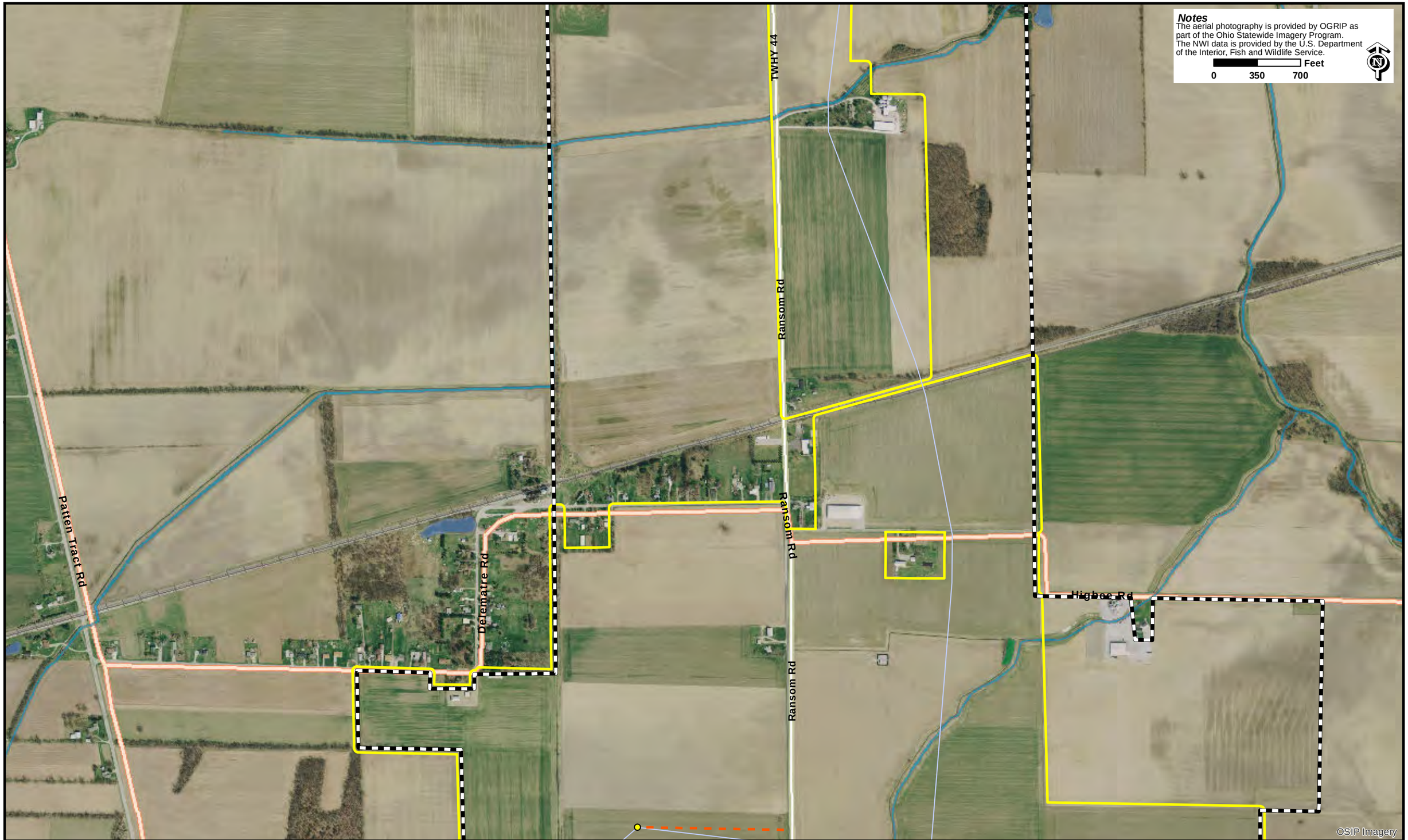

Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

Feet
0 350 700

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Figure 3.8: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

Patten Tract Rd

Ranson Rd

113

TWHY 44

Section Line Rd

County Line Rd

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Figure 3.9: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

99
Skadden Rd
Paxton Tract Rd
Limbird Rd
113
TWHY 41
Yingling Rd
OSIP Imagery

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Figure 3.10: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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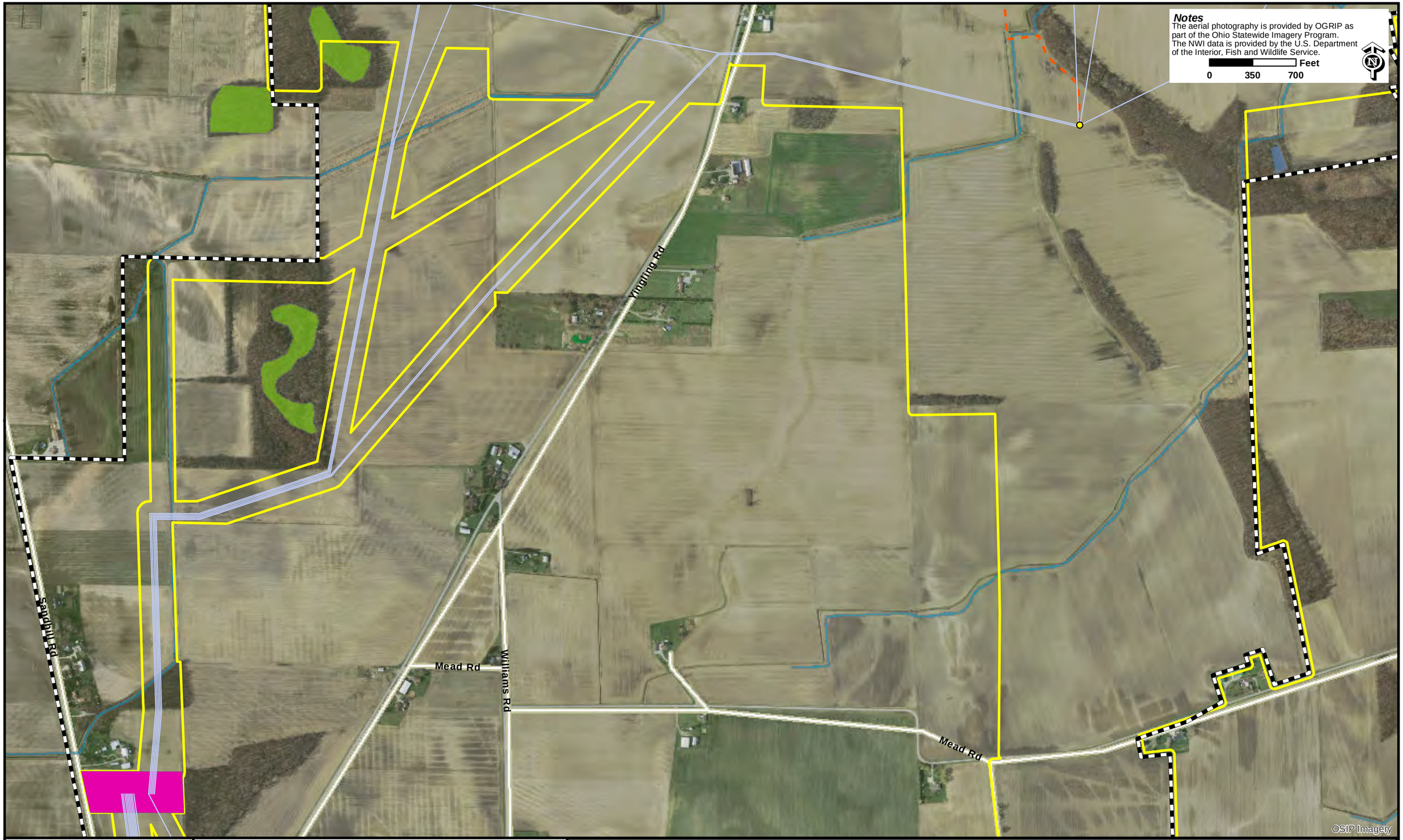

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Figure 3.11: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

Yingling Rd
Sandhill Rd
CR 40
Williams Rd
20
TWHY 27
Williams Rd
Sandhill Rd

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Figure 3.12: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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Feet
0 350 700

N

Sandhill Rd

Opperman Rd

Townline Rd

TWP Y

547

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Figure 3.13: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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0 350 700 Feet

N

Young Rd

TWHY 23

Young Rd

TWHY 23

Section Line Rd

4

Young Rd

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Figure 3.14: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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0 350 700 Feet

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Figure 3.15: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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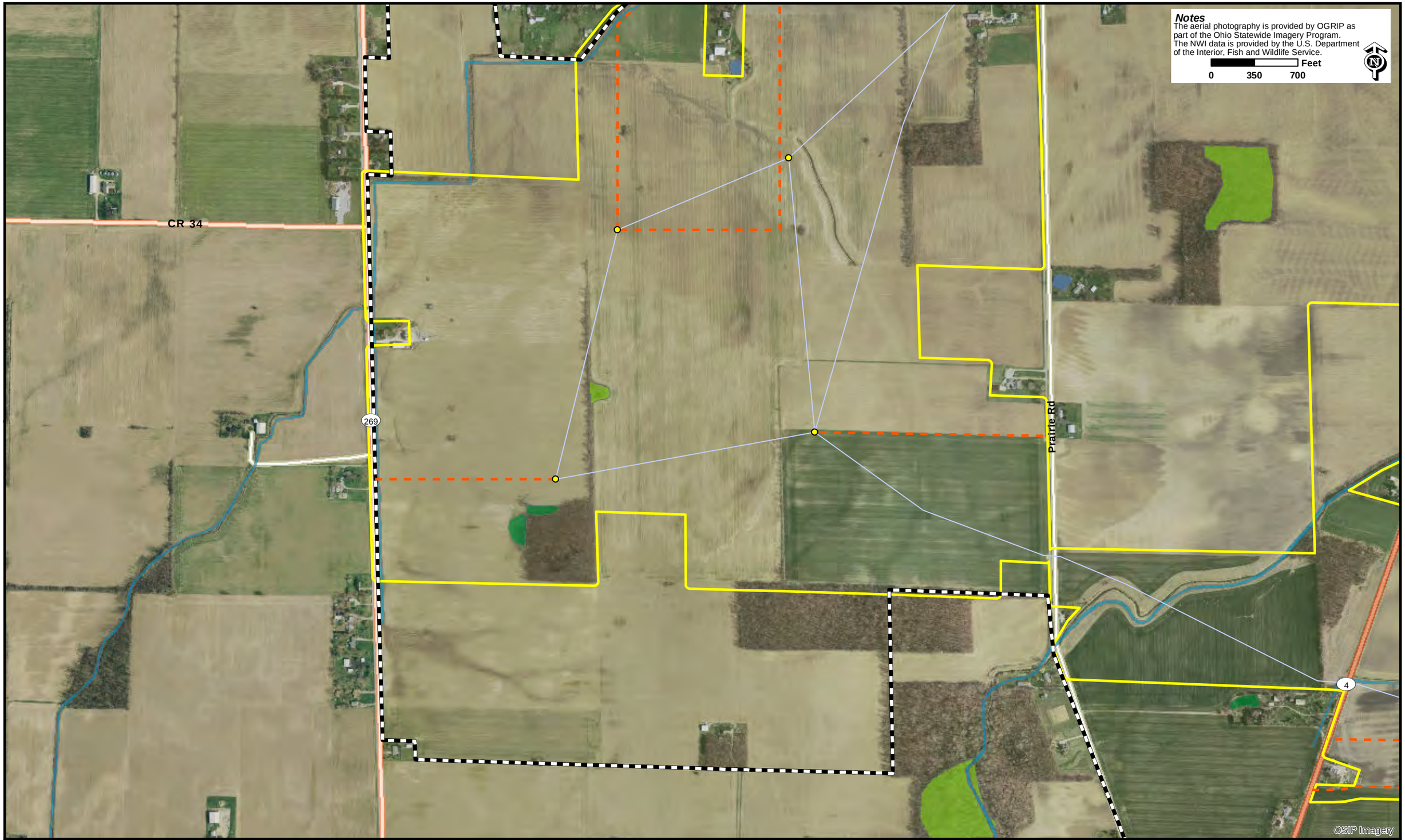

Notes
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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

Feet
0 350 700

N

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Figure 3.16: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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0 350 700 Feet

N

Section Line Rd

4

Opperman Rd

TWHY 25

Opperman Rd

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Figure 3.17: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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0 350 700 Feet

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Figure 3.18: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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CR 32

269

TWHY 186

4

547

Heyman Rd

Notes
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Feet
0 350 700

N

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Figure 3.19: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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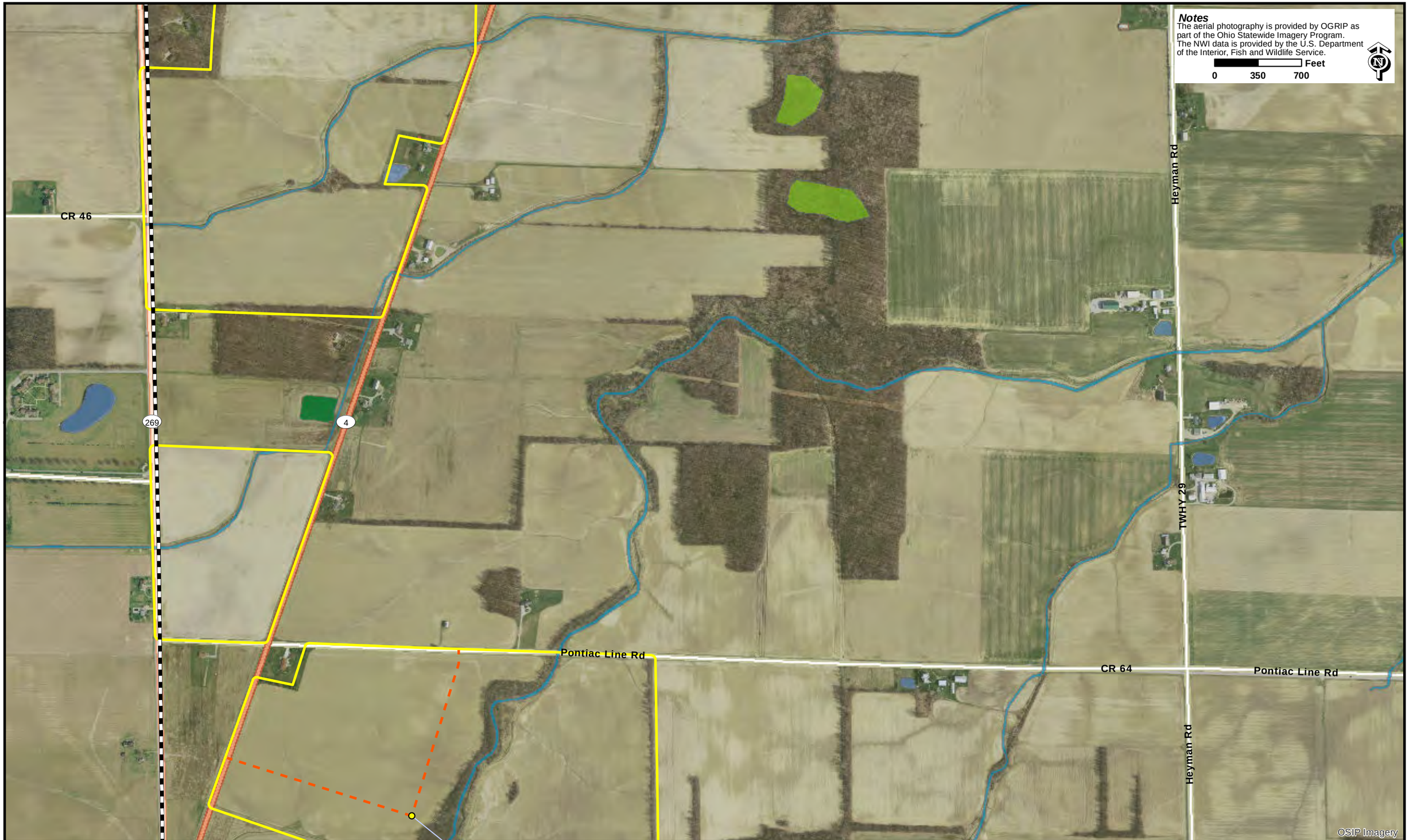

Notes
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Feet
0 350 700

N

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Figure 3.20: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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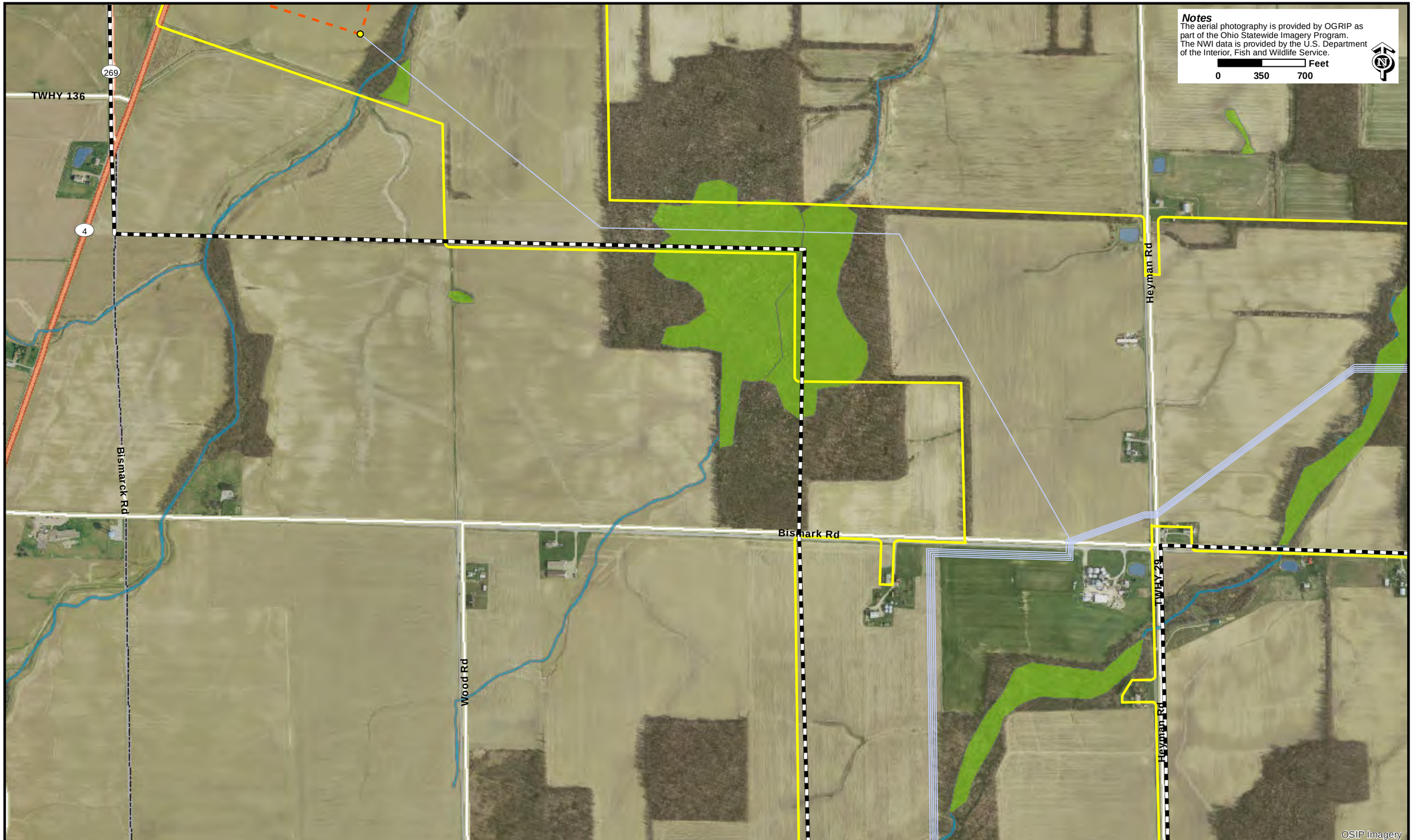

Notes
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Feet
0 350 700

N

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Figure 3.21: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Feet
0 350 700

Section Line Rd

Dogtown Rd

Breit Rd

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Figure 3.22: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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0 350 700 Feet

Section Line Rd

Dogtown Rd

Pontiac Line Rd

Pontiac Section Line Rd

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Figure 3.23: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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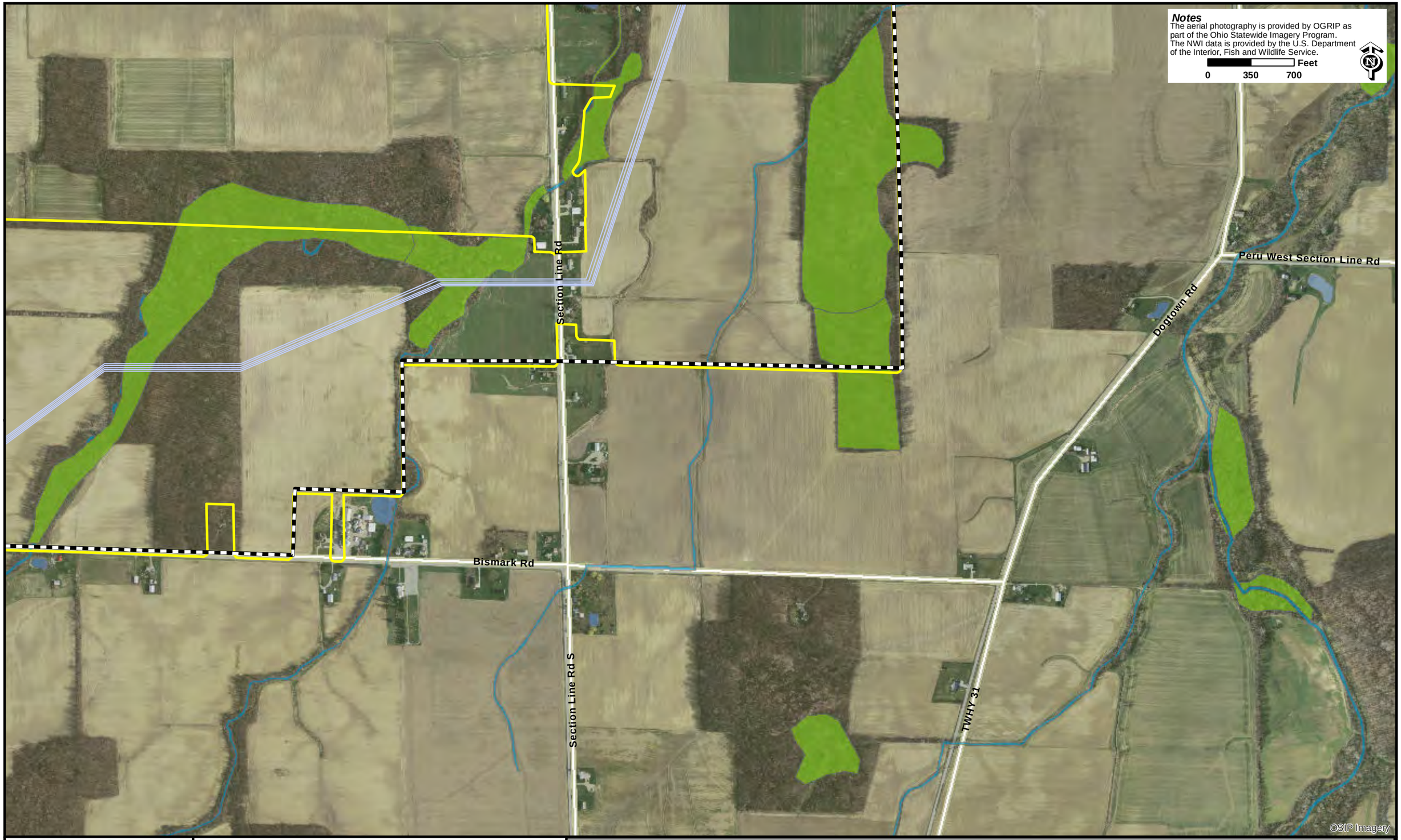

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Figure 3.24: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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0 350 700 Feet

Wood Rd
TWHY 205
TWHY 67
Heyman Rd
Jennifer Rd
Sherman Norwich Rd
OSIP Imagery

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Figure 3.25: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
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Feet
0 350 700

TWHY 31
Dogtown Rd
Section Line Rd S
Thomas Rd
Sherman Norwich Rd
OSIP Imagery

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Figure 3.26: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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0 350 700 Feet

Sherman Norwich Rd

Section Line Rd S

Old Military Rd

OSIP Imagery

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Figure 3.27: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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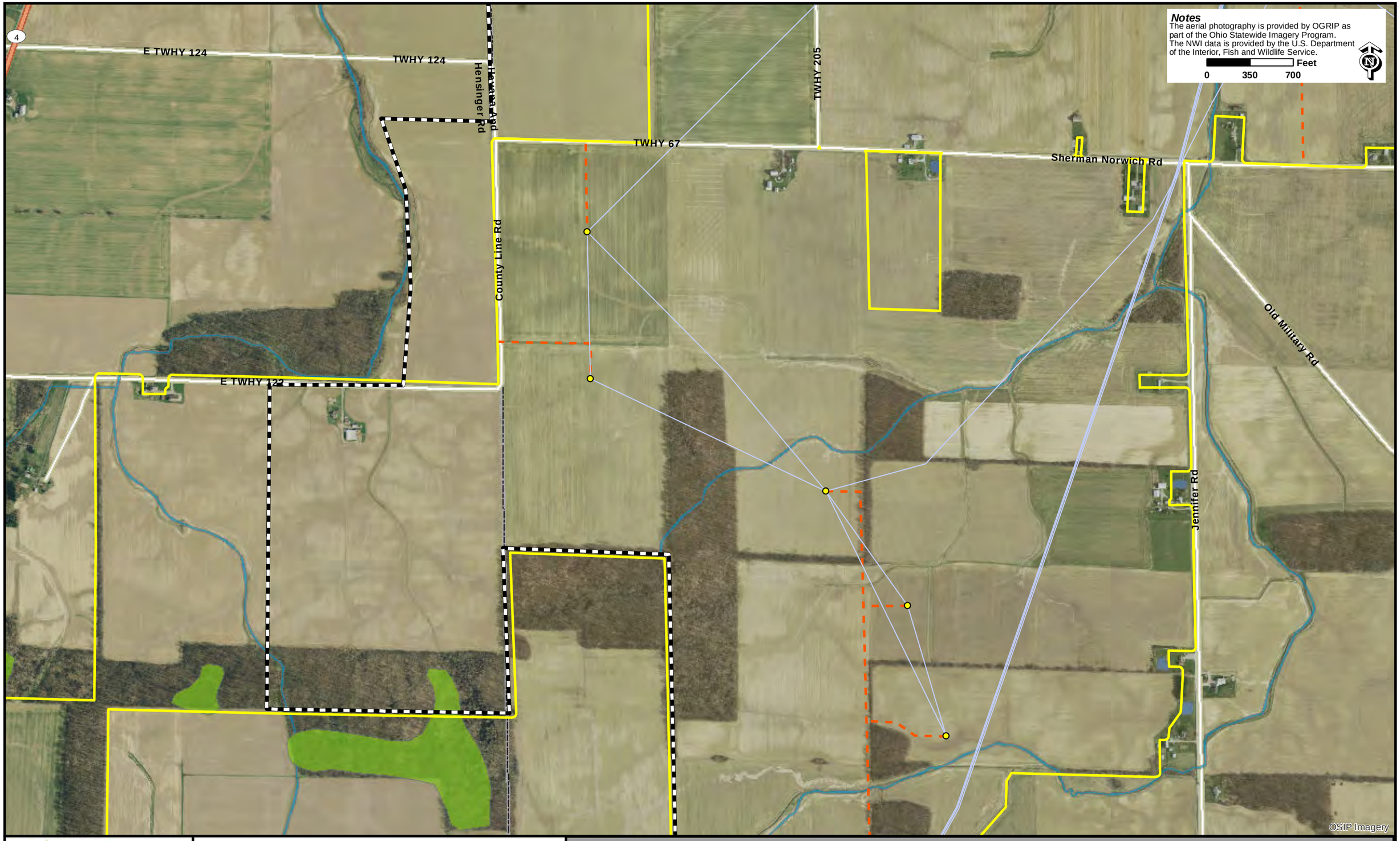

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0 350 700 Feet

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Figure 3.28: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Feet
0 350 700

N

4
162
S TWHY 197
E TWHY 9
TWHY 9
Scottwood Rd

OSIP Imagery

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Figure 3.29: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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0 350 700 Feet

162

Jennifer Rd

TWHY 9

Scottwood Rd

OSIP Imagery

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Figure 3.30: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Figure 3.31: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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0 350 700 Feet

Scottwood Rd
Thomas Rd
Townline Rd S
162
Miller Rd
Niver Rd
Abby Ln
Big Bass Rd
Portage Path
OSIP Imagery

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Figure 3.32: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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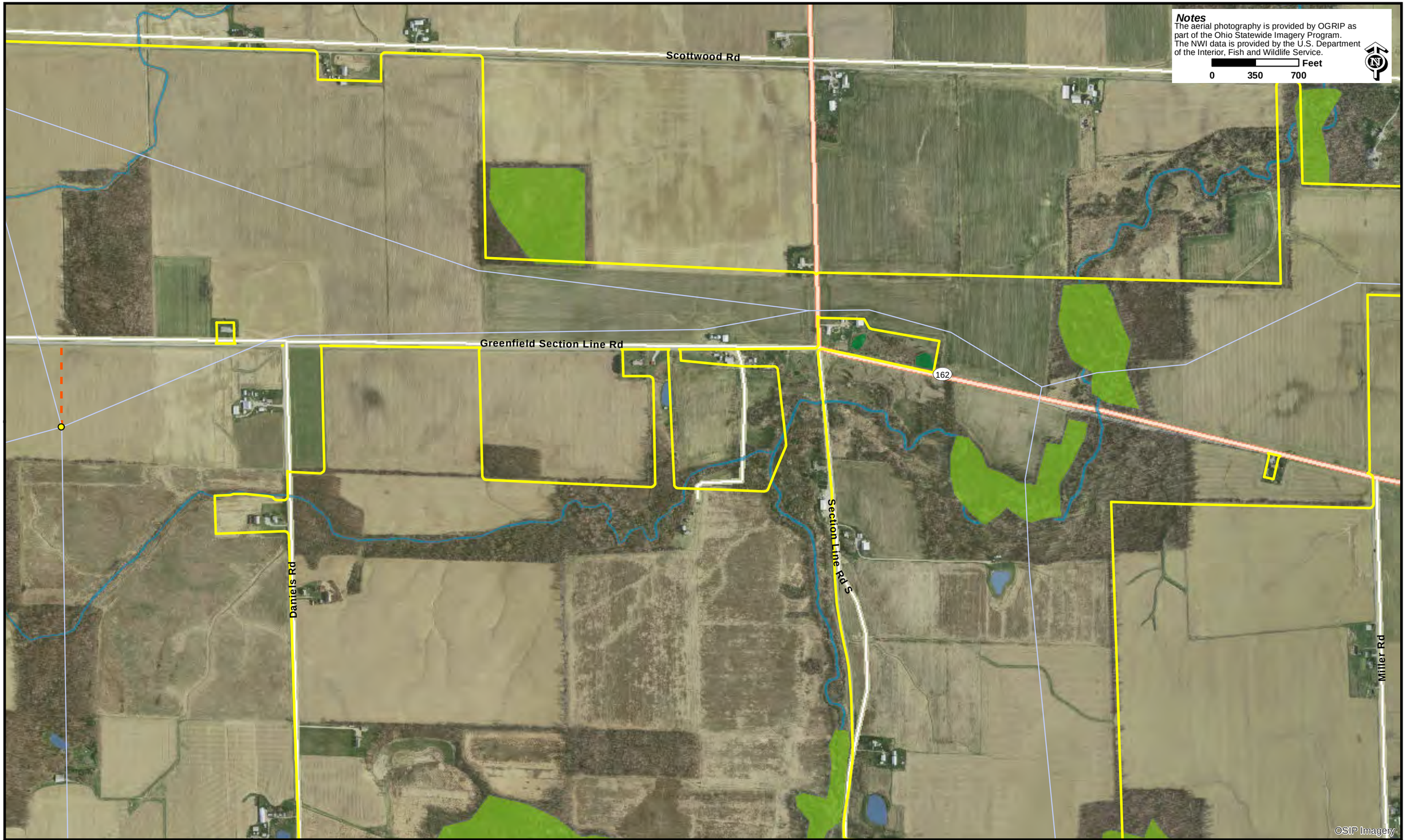

Notes
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Feet
0 350 700

N

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Figure 3.33: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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0 350 700 Feet

Jennifer Rd

Greenfield Section Line Rd

Wurtz Rd

Daniels Rd

OSIP Imagery

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Figure 3.34: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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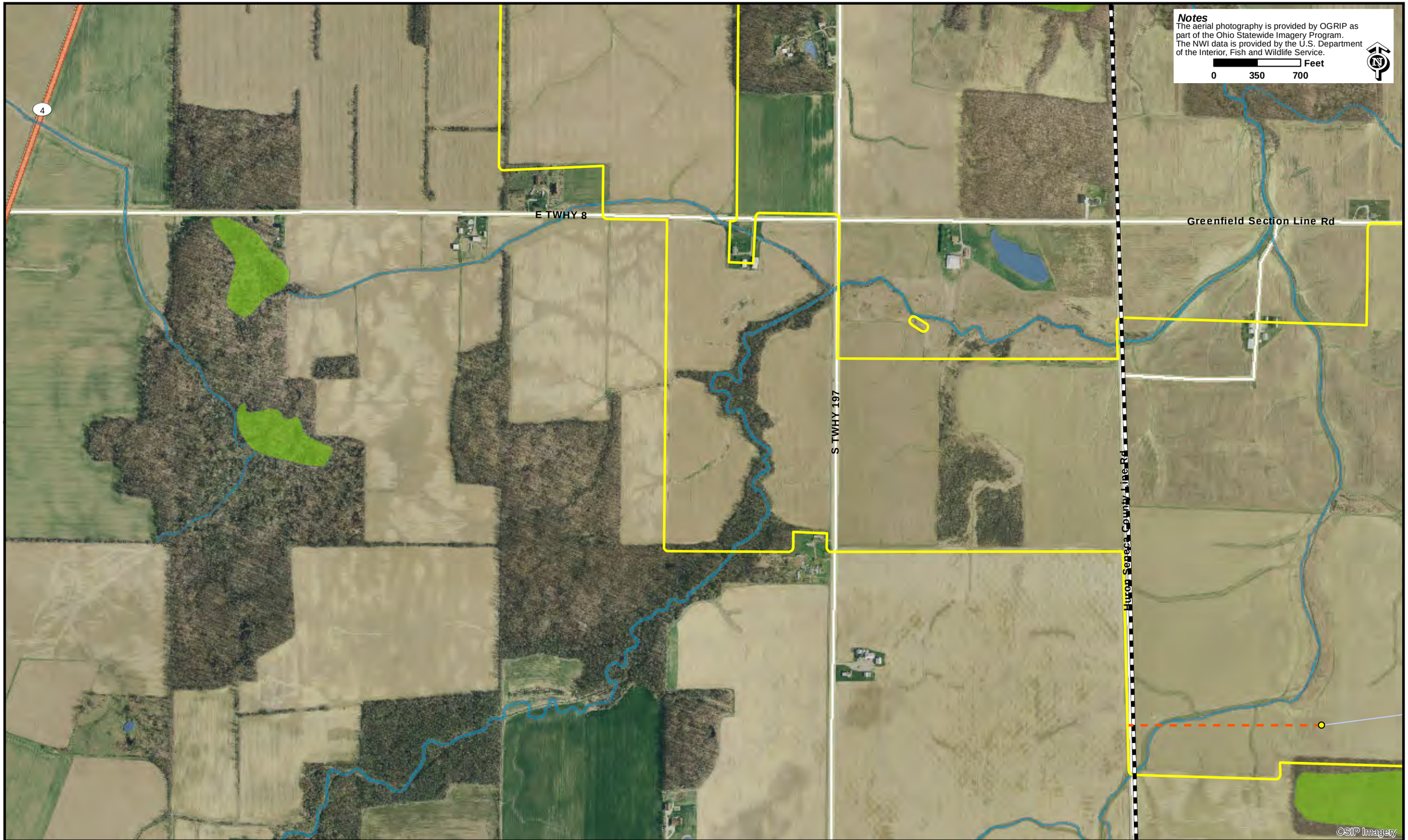

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

N

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Figure 3.35: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

E TWHY 106

Huron Seneca County Line Rd

Wurtz Rd

Daniels Rd

Egypt Rd

E TWHY 104

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Figure 3.36: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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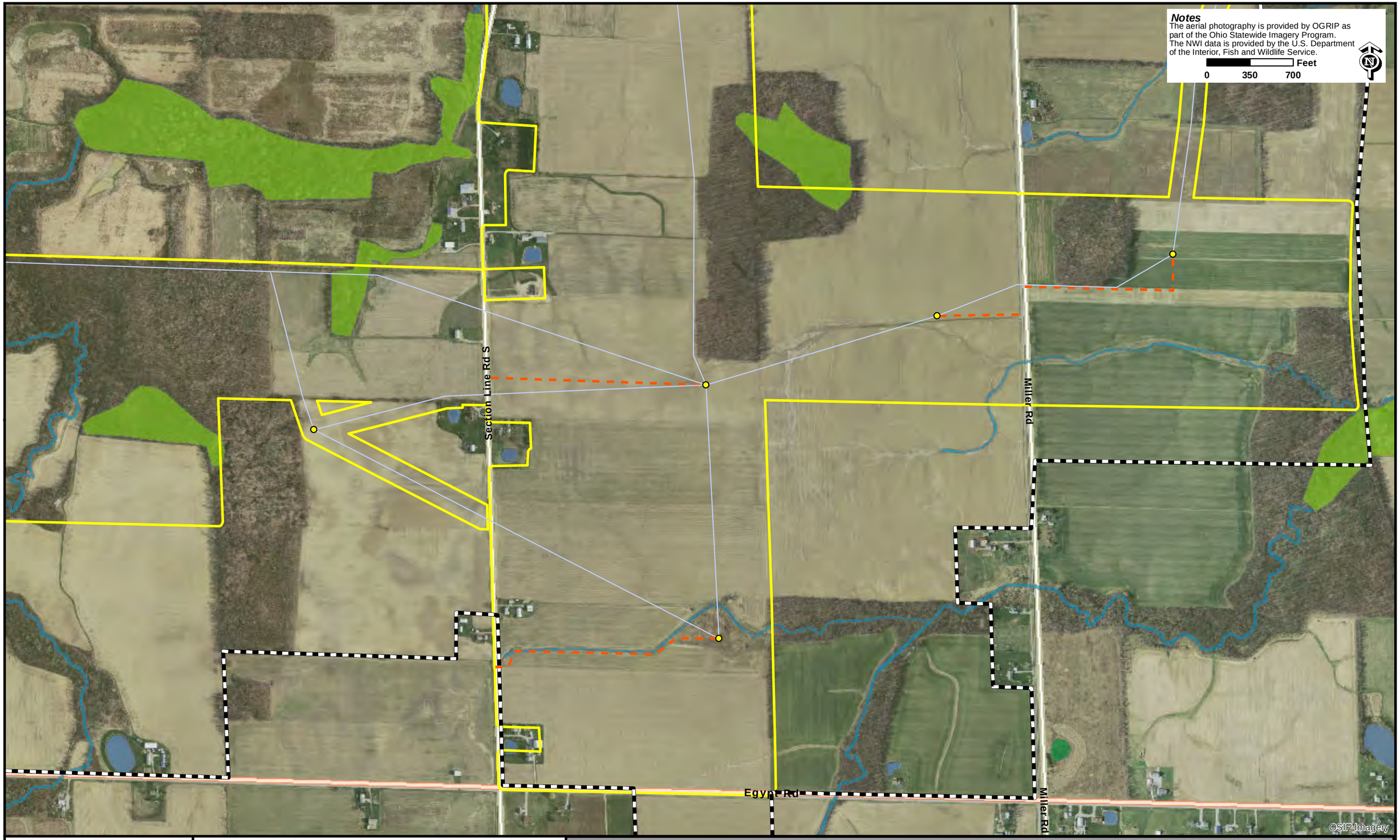

Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

N

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Figure 3.37: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes
The aerial photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.
The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

N

Wurtz Rd

Wurtz Rd

Daniels Rd

Townline Rd

Willoughby Rd

E TWHY 12

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Figure 3.38: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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Notes

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The NWI data is provided by the U.S. Department of the Interior, Fish and Wildlife Service.

0 350 700 Feet

Willard West Rd

Willoughby Rd

County Line Rd

224

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Figure 3.39: NWI
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Proposed Turbine
- Proposed Collection Line
- Proposed Access Road
- Proposed Substation
- Proposed Laydown Yard
- Proposed O&M
- Project Boundary
- Study Area
- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Other Freshwater
- Riverine

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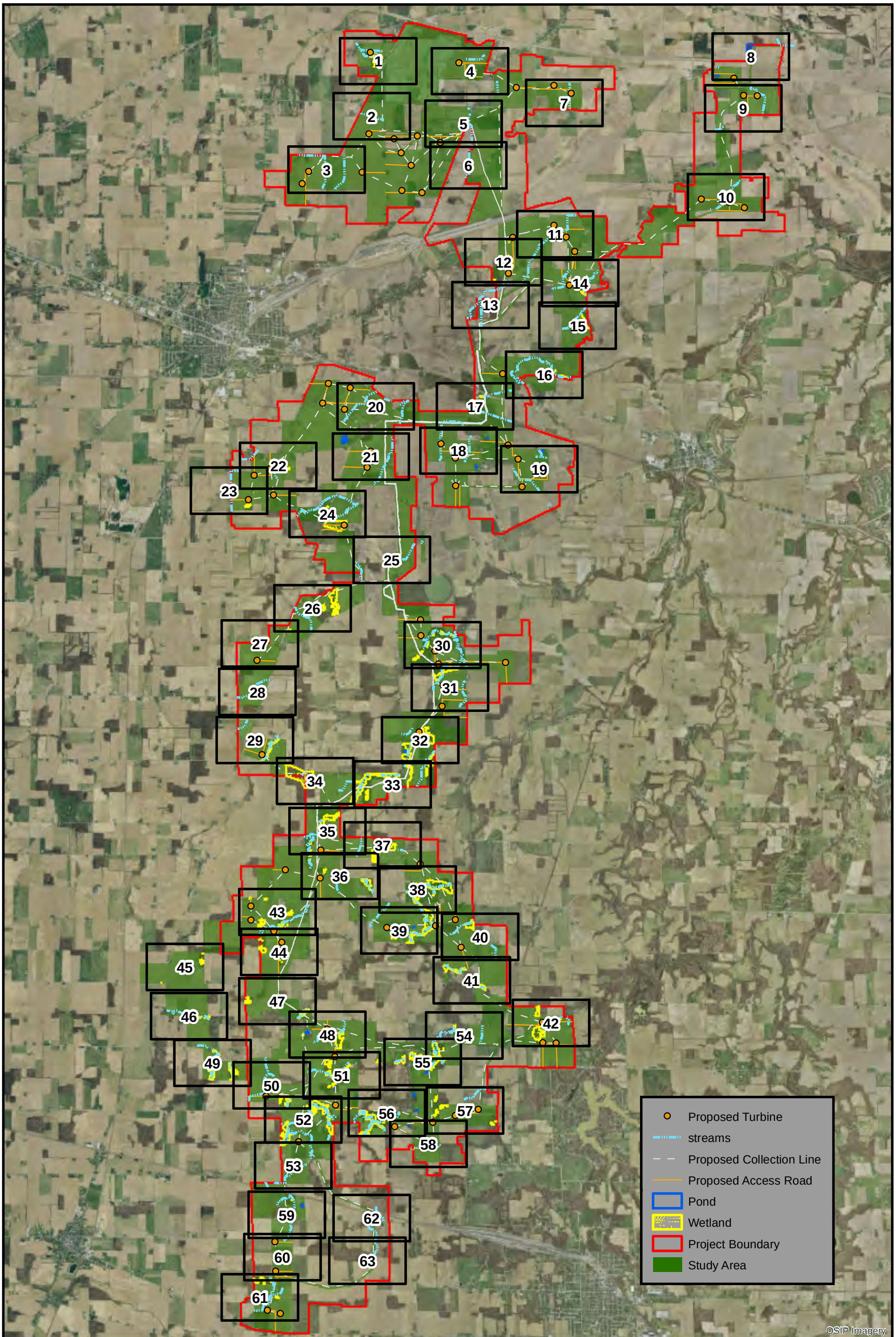

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Grid for Surface Water Delineation Figures
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Notes
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0 1 2 Miles

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Figure 4.1: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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Strecker Rd

Bragg Rd

Billings Rd

S1M-025

T6

T72

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Figure 4.2: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

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S1M-145

S1M-026

Bragg Rd

T73

T74

T11

OSIP Imagery

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Figure 4.3: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
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Figure 4.4: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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Strecker Rd

S2M-093

S2M-093

4

S2M-093

W1M-137
0.11 Ac.

WIM_137

WIM_137

T8

OSIP Imagery

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Figure 4.5: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

N

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Figure 4.6: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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T84

T86

S1M-159

WB1M-158
0.929 Ac.

99

Strecker Rd

Bemis Rd

OSIP Imagery

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Figure 4.7: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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Figure 4.8: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Figure 4.9: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
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Higbee Rd

Ransom Rd

T14

T15

T16

S1M-004-1

S1M-004-1

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Figure 4.10: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes

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Feet

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Figure 4.11: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Figure 4.12: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
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Figure 4.13: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Figure 4.14: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

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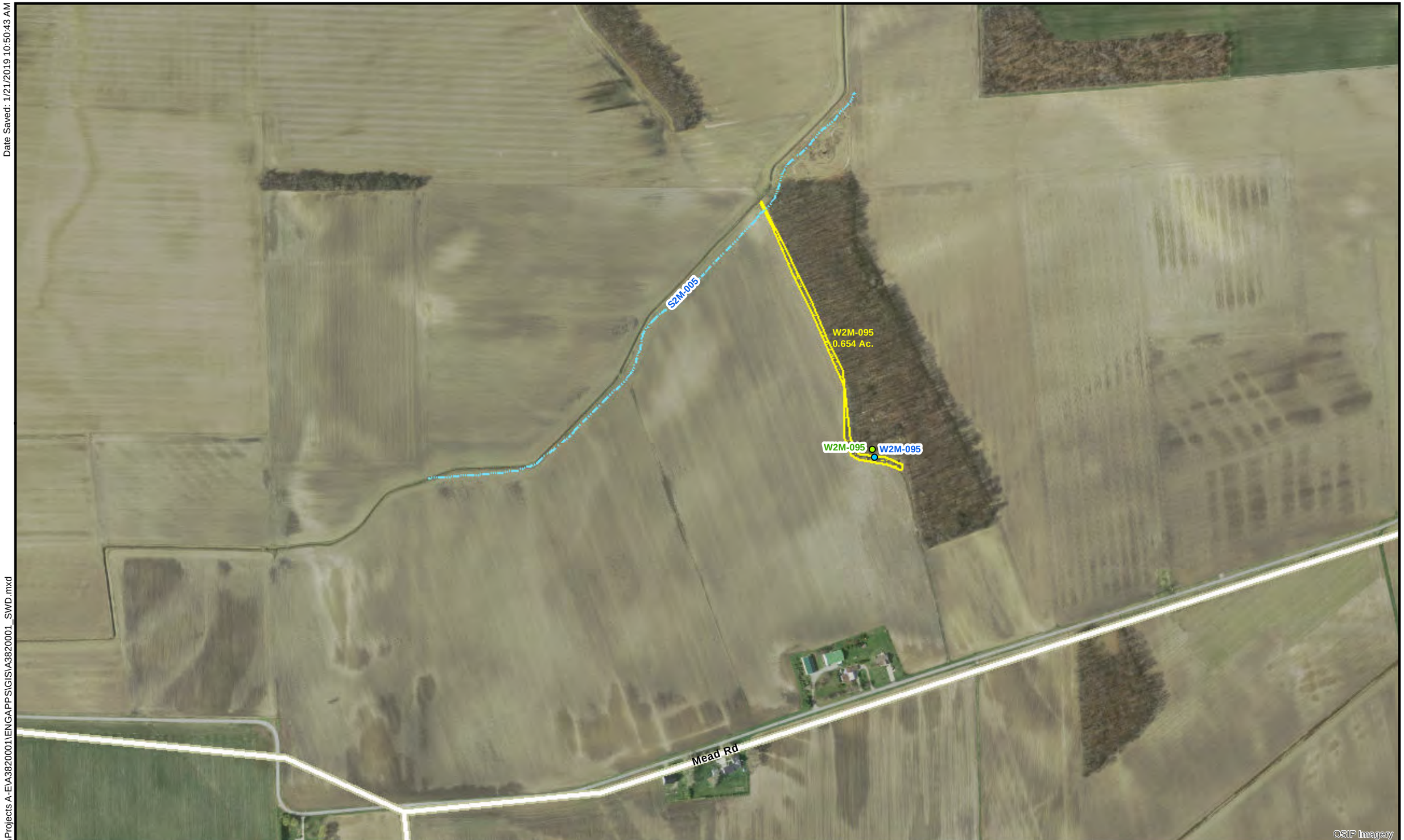

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Figure 4.15: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

0 200 400 Feet

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S1M-009
S1M-006
W1M-008
W1M-008
W1M-008
0.038 Ac.
W1M-007
0.185 Ac.
W1M-007
W1M-005
W1M-005
W1M-005/007
0.115 Ac.
S1M-006
Williams Rd
S1M-006
S1M-010
S1M-006
OSIP Imagery

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Figure 4.16: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
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Figure 4.17: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Figure 4.18: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Figure 4.19: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

0 200 400 Feet

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T75

T26

S1M-143

S1M-143

S1M-143

S1M-143

S1M-143

S1M-014

4

Section Line Rd

Young Rd

Young Rd

TWHY 23

OSIP Imagery

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Figure 4.20: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Laydown Yard
O&M
Pond
Wetland
Stream
Proposed Turbine

Notes
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Figure 4.21: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Laydown Yard
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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0 200 400 Feet

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Young Rd

Prairie Rd

S2M-017

S2M-017

S2M-092

W2M-008

W2M-008

W2M-008
0.543 Ac.

T87

T34

OSIP Imagery

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Figure 4.22: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

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CR 34

S2M-017

269

T34

W2M-016

W2M-016

W2M-016
0.014 Ac.

T38

W2M-015
1.326 Ac.

W2M-015

W2M-015

OSIP Imagery

Path: W:\Projects\Projects A-E\A3820001\ENGAPPS\GIS\A3820001_SWD.mxd

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Figure 4.23: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

0 200 400 Feet

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Figure 4.24: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Figure 4.25: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

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Figure 4.26: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

0 200 400 Feet

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Figure 4.27: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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0 200 400 Feet

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Figure 4.28: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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S2M-030

S2M-019

Pontiac Line Rd

W2M-033

W2M-033

269

4

W2M-033
7.18 Ac.

T47

TWHY 136

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Figure 4.29: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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W1M-086
0.071 Ac.
W1M-086
WIM_86
W1M-087
0.134 Ac.
S1M-083
W1M-085
0.039 Ac.
W1M-084
0.194 Ac.
W1M-084
W1M-084
W1M-082
0.385 Ac.
WIM_82
W1M-082
WB1M-081
0.195 Ac.
T41
WB1M-088
0.172 Ac.
S1M-089
W1M-090
0.574 Ac.
WIM_90
W1M-140
0.692 Ac.
WIM_140
WIM_140
WIM_141
W1M-141
1.113 Ac.
WIM_141
T42
T77
W1M-093
1.224 Ac.
W1M-092
0.015 Ac.
W1M_093
WIM_096
S1M-053
W1M-091/97
11.309 Ac.
W1M-091/97
11.309 Ac.
W1M_091
W1M_091
W1M_091
S1M-080
S1M-053
S1M-055
Dogtown Rd
OSIP Imagery

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Figure 4.30: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

Date Saved: 1/21/2019 10:50:43 AM

W1M_093
W1M-092
0.015 Ac.
W1M_096
W1M_091
W1M-093
1.224 Ac.
W1M_091
W1M-091/97
11.309 Ac.
W1M_091
S1M-055
S1M-053
WIM_096
Breit Rd
T44
Dogtown Rd
S1M-055
T45
OSIP Imagery

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Figure 4.31: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

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Figure 4.32: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

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W2M-021
36.832 Ac.

S2M-020

S2M-020

S2M-023

W2M-028
17.725 Ac.

S2M-020

W2M-025
3.782 Ac.

W2M-025

W2M-025

W2M-026

W2M-026
0.549 Ac.

S2M-027

Section Line Rd

W2M-024
2.876 Ac.

W2M-024

W2M-024

Bismark Rd

OSIP Imagery

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Figure 4.33: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
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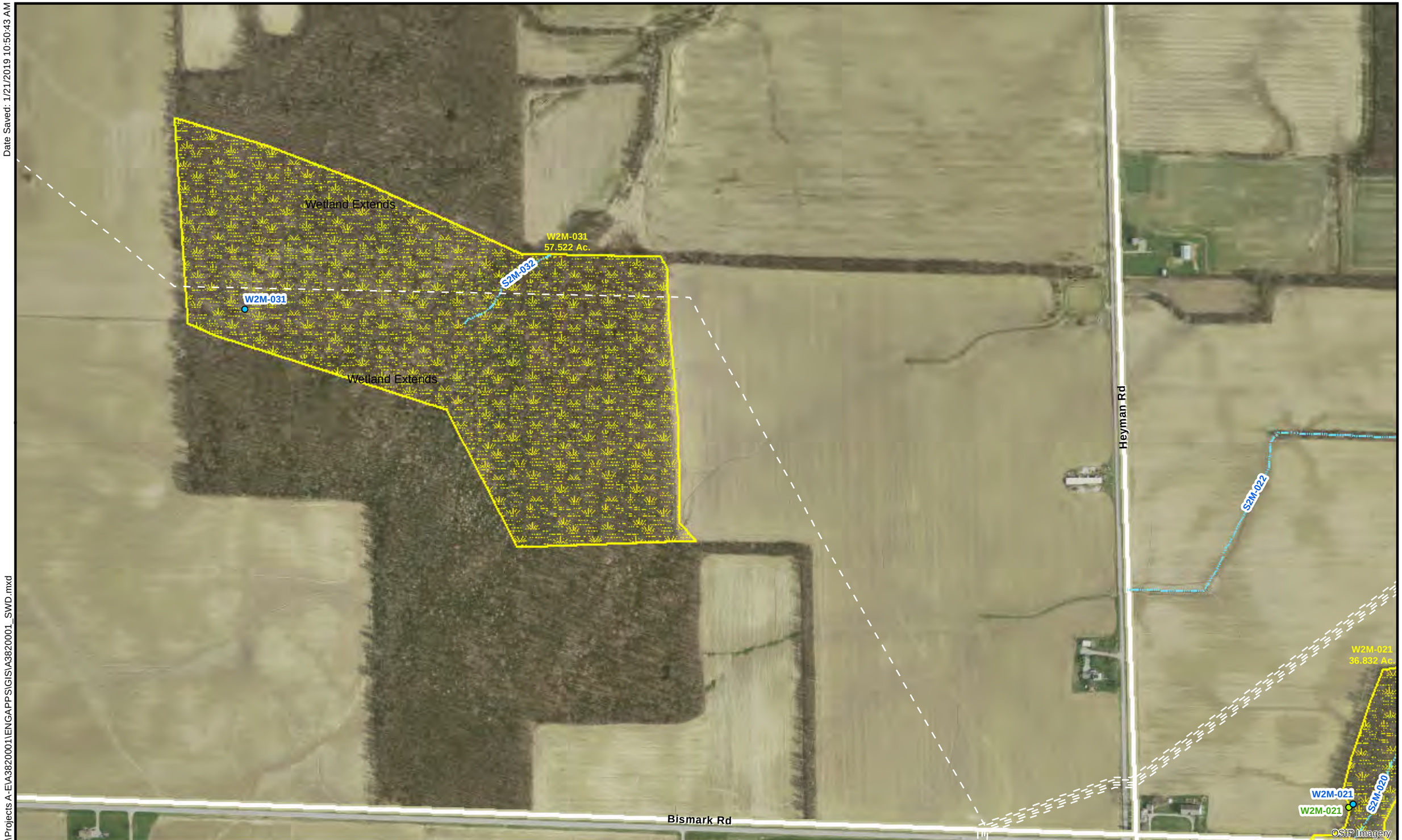

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Figure 4.34: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
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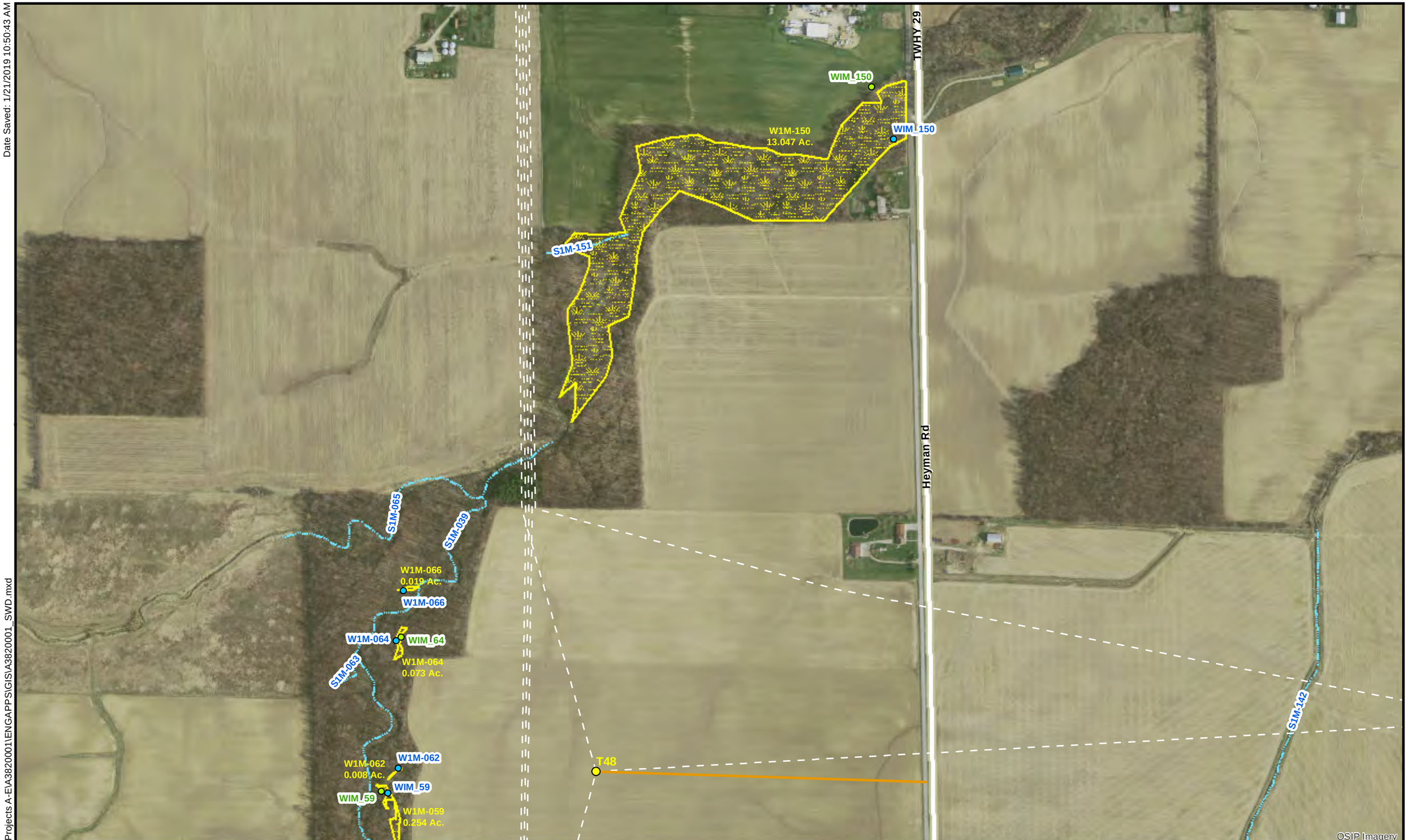

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Figure 4.35: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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0 200 400 Feet

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W1M-059
0.254 Ac.

W1M-061
0.226 Ac.

WIM 61

WIM 61

WIM 61

S1M-039

WIM 60

W1M-060

W1M-060
0.977 Ac.

T51

Heyman Rd

S1M-142

W2M-047
9.506 Ac.

W2M-042
6.537 Ac.

W2M-042

W2M-042

S1M-041

S2M-043

S2M-043

Sherman
Norwich Rd

OSIP Imagery

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Figure 4.36: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

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W2M-048
7.418 Ac.

W2M-048

W2M-048

S1M-142

W2M-047

W2M-047
9.566 Ac.

W2M-047

S2M-049

Section Line Rd S

T49

OSIP Imagery

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Figure 4.37: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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0 200 400 Feet

N

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Figure 4.38: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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S2M-038

T56

WB2M-046
0.249 Ac.

Pond
0.176 Ac.

Section Line Rd S

WB2M-045
0.594 Ac.

W2M-044

W2M-044
0.689 Ac.

W2M-036
31.959 Ac.

W2M-036

W2M-036

T55

S2M-037

Old Military Rd

OSIP Imagery

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Figure 4.39: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

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T54
W2M-034
W3M-034
W2M-034
7.091 Ac.
S2M-035
Dayton St
Church St
Madison St
Thomas Rd
T58
S2M-054
N Greenfield Rd
S2M-054
Thomas Rd
OSIP Imagery

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Figure 4.40: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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Feet
0 200 400

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Figure 4.41: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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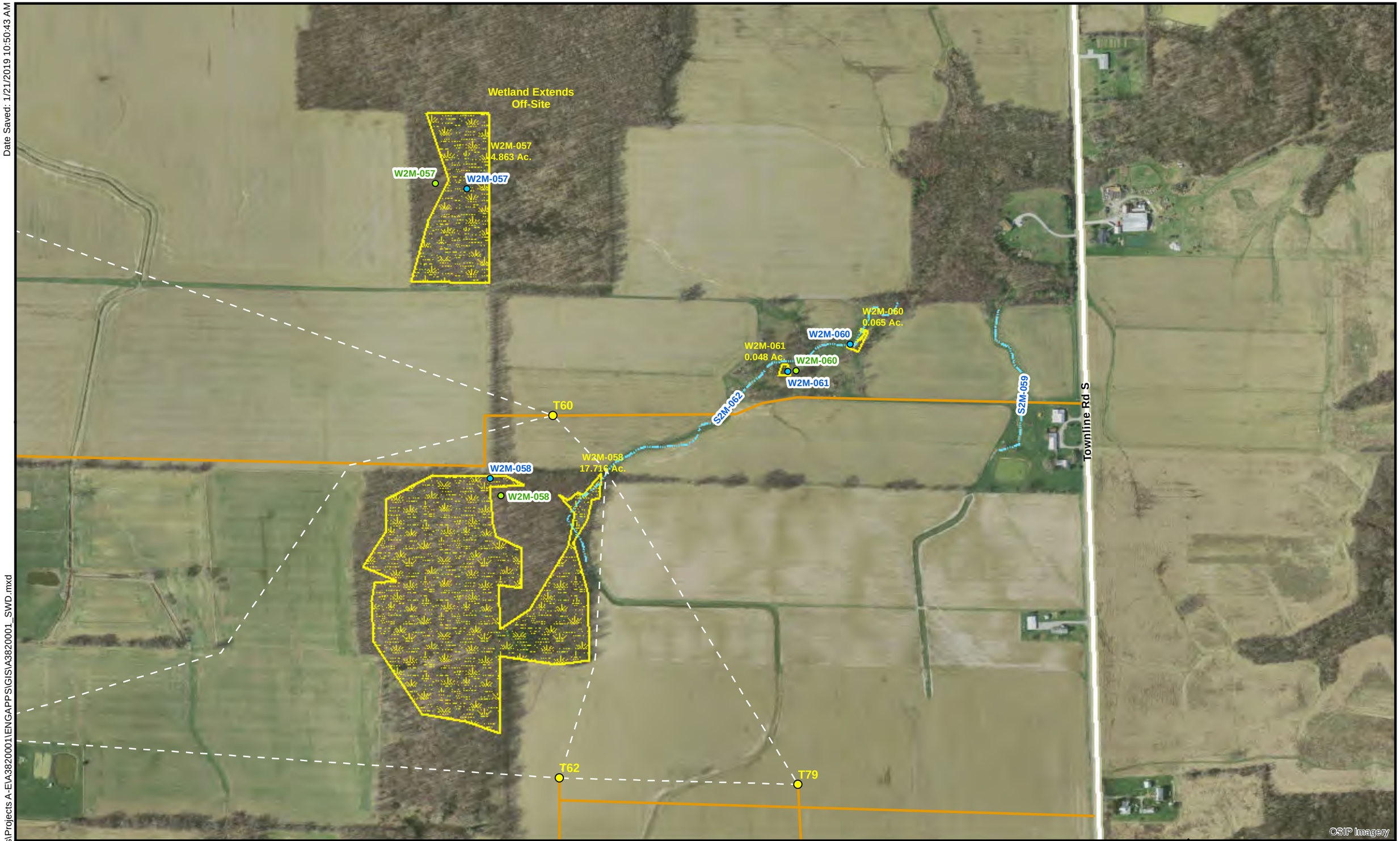

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Figure 4.42: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

N

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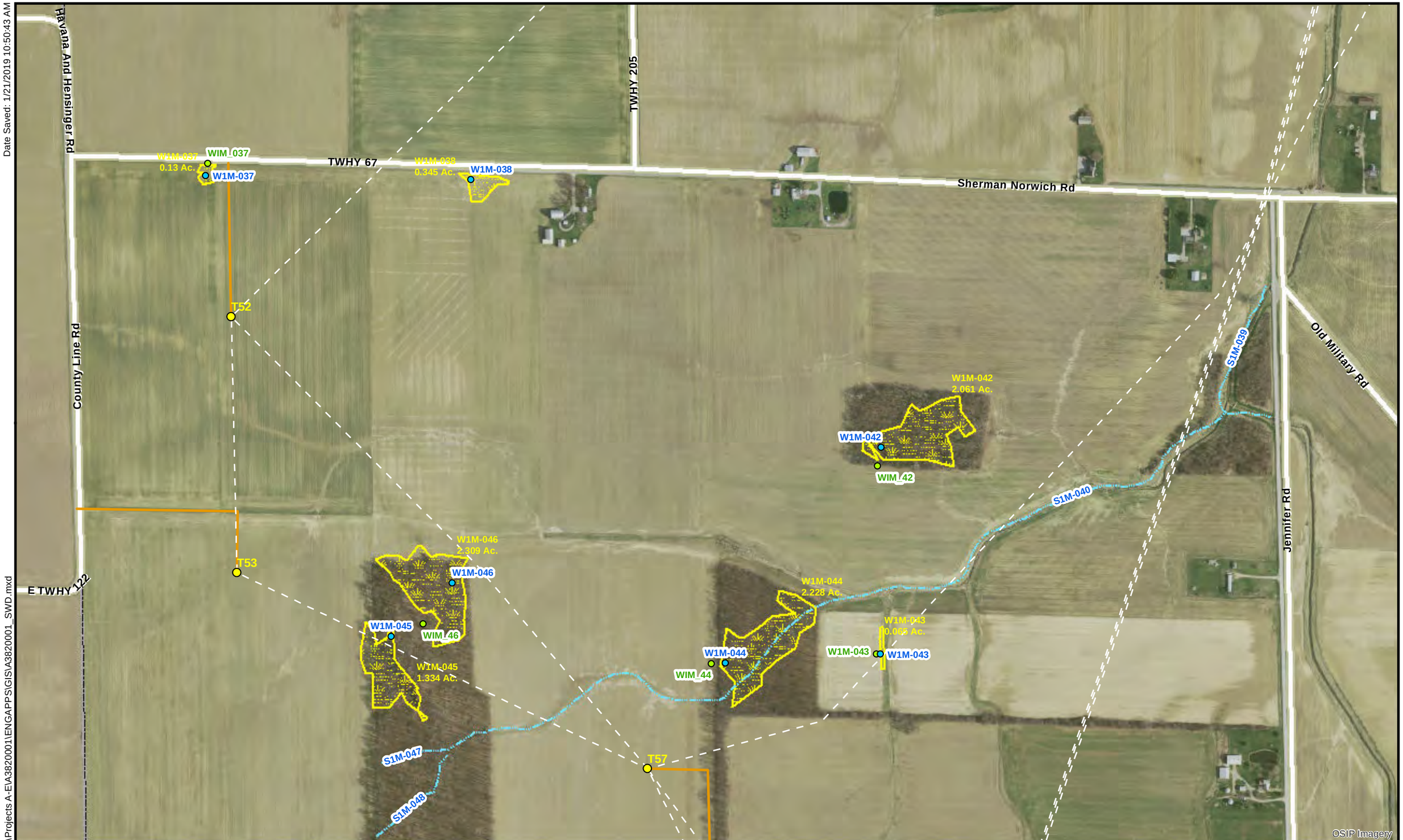

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Figure 4.43: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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0 200 400 Feet

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S1M-040
S1M-047
S1M-048
T57
W1M-049
0.153 Ac.
WIM_50
W1M-050
0.04 Ac.
WIM_50
T78
W1M-051
3.169 Ac.
W1M-051
WIM_51
W1M-075
0.032 Ac.
WIM_75
W1M-074
0.021 Ac.
W1M-074
T59
WIM_73
W1M-073
0.02 Ac.
WIM_73
W1M-072
W1M-072
0.029 Ac.
WIM_72
Jennifer Rd
OSIP Imagery

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Figure 4.44: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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0 200 400 Feet

N

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Figure 4.45: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Figure 4.46: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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0 200 400 Feet

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Figure 4.47: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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W1M-076
3.457 Ac.

W1M-079/78
1.108 Ac.

WIM-76

WIM-78

S1M-077

WIM-76

Scottwood Rd

Jennifer Rd

T61

WB2M-071
0.811 Ac.

W2M-072
0.02 Ac.

W2M-072

W2M-072

S2M-070

W2M-069
12.726 Ac.

S2M-068

W2M-069

W2M-069

Greenfield Section Line Rd

Wurtz Rd

Daniels Rd

T63

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Figure 4.48: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
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0 200 400 Feet

N

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S2M-079

E TWHY 8

S2M-079

W2M-077

W2M-077

S2M-078

W2M-077
14.583 Ac.

S TWHY 197

W2M-075
5.589 Ac.

S2M-076

W2M-075

W2M-075

Huron Seneca County Line Rd

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Figure 4.49: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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Feet
0 200 400

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W2M-075
5.589 Ac.

W2M-075

W2M-075

Huron Seneca County Line Rd

S2M-073

S2M-074

S2M-082

Wurtz Rd

T64

W2M-087
6.098 Ac.

W2M-087

W2M-087

S2M-088

WIM-109

WIM-109

W1M-109
0.038 Ac.

OSIP Imagery

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Figure 4.50: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

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T63

W2M-080
3.58 Ac.

W2M-080

W2M-081

W2M-081

S2M-082

W2M-081
8.503 Ac.

S2M-082

W2M-086
0.271 Ac.

W2M-086

W2M-086

Wurtz Rd

Daniels Rd

W2M-084
0.262 Ac.

W2M-084

W2M-084

WB2M-083
0.219 Ac.

WB2M-090
0.201 Ac.

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Figure 4.51: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

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T64

W2M-087

W2M-087
6.098 Ac.

W2M-087
6.098 Ac.

S2M-088

WIM_109

WIM_109

W1M-109
0.038 Ac.

T65

W1M-133
21.46 Ac.

W1M-131
2.433 Ac.

S1M-107

S1M-107

WIM_131

WIM_131

S1M-135

S1M-134

Wurtz Rd

S1M-107

WIM_108

W1M-108
4.309 Ac.

S1M-132

W1M-130
1.148 Ac.

WIM_108

WIM_108

WIM_130

WIM_130

W1M-108B
8.475 Ac.

S1M-106

W1M-133

W1M-133

S1M-139

S1M-138

T70

OSIP Imagery

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Figure 4.52: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
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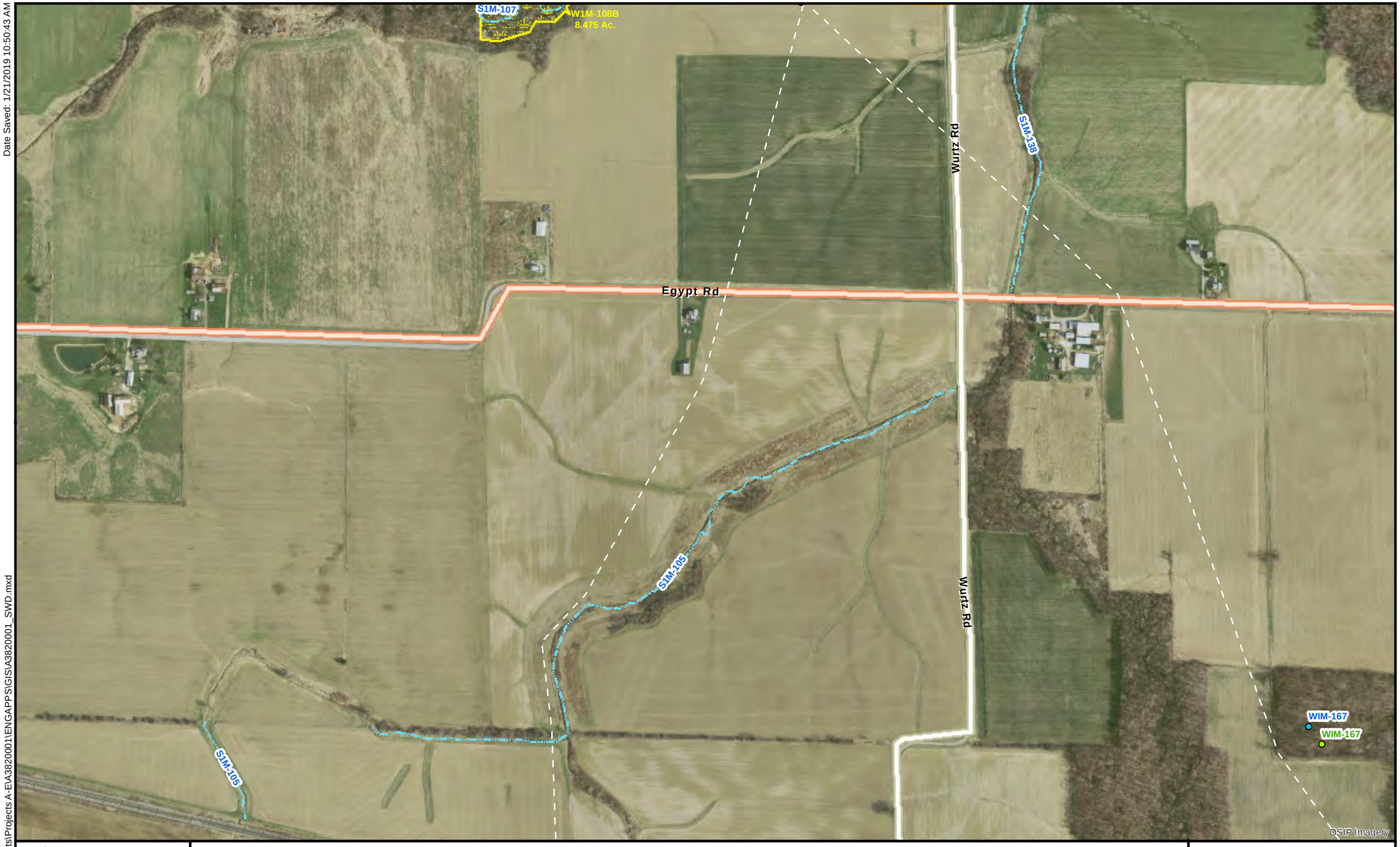

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Figure 4.53: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

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Figure 4.54: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
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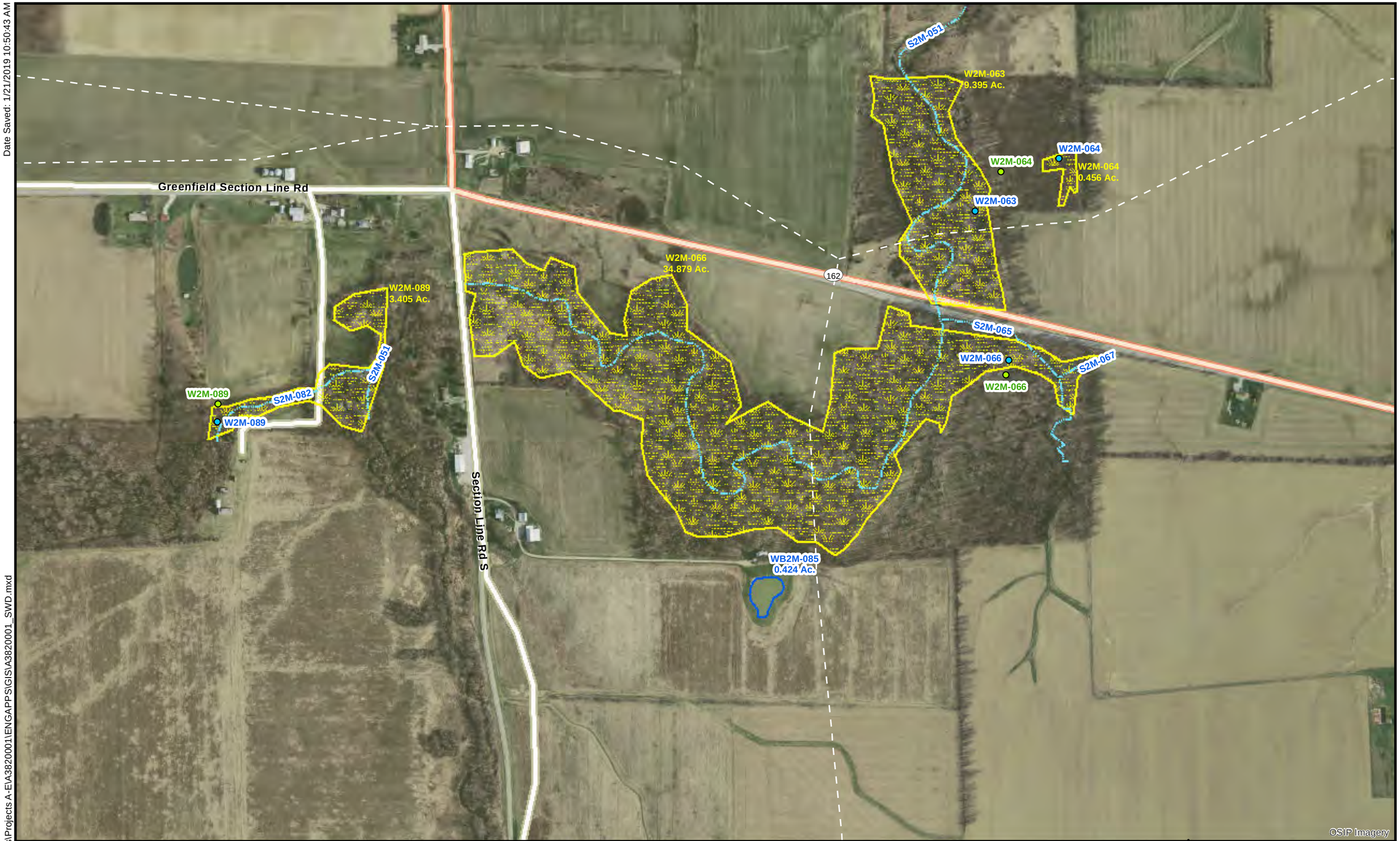

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Figure 4.55: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
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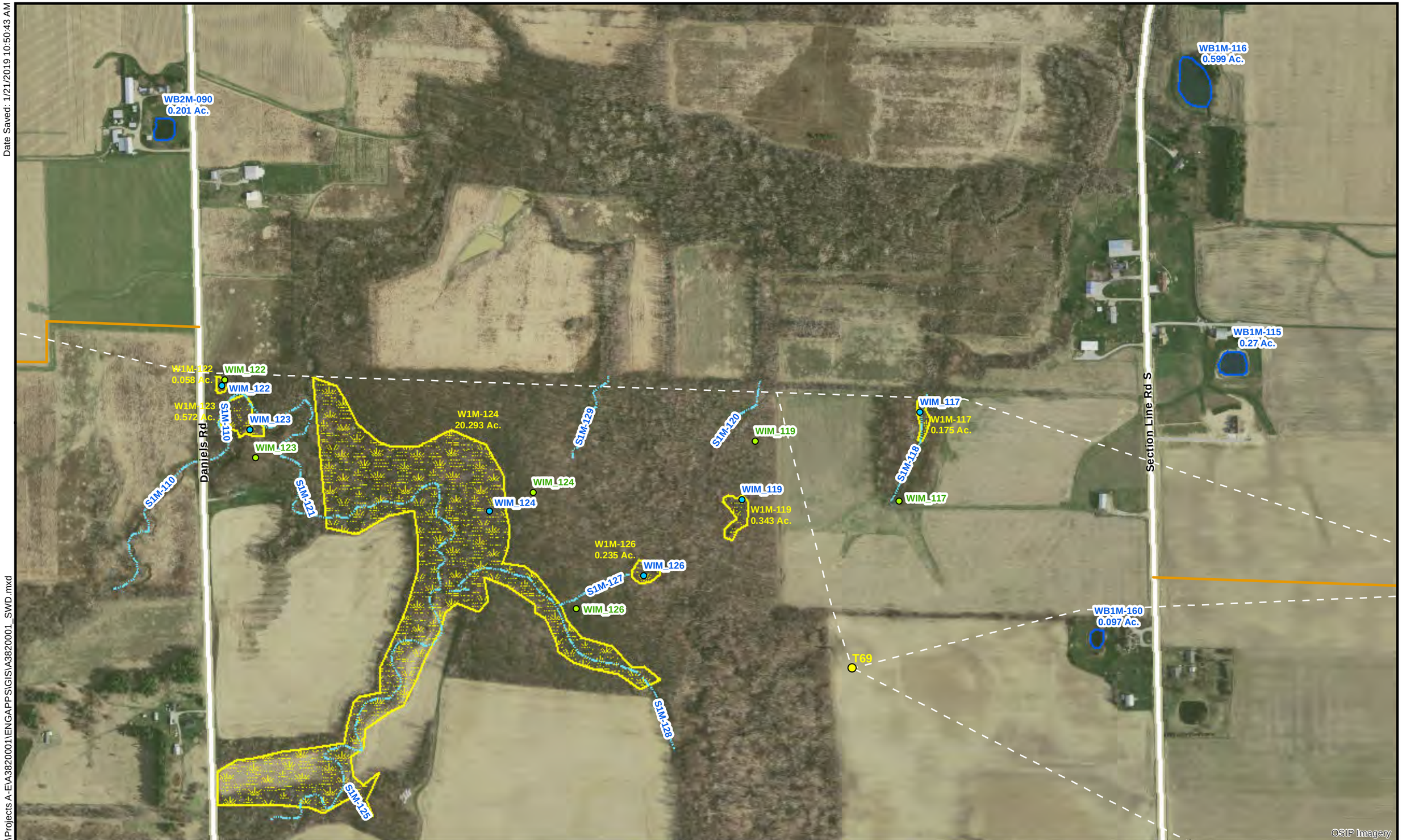

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Figure 4.56: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
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W1M-113
1.06 Ac.
WIM_113
WIM_112-113
W1M-114
2.423 Ac.
WIM_114
WIM_114
W1M-112
0.579 Ac.
WIM_111
W1M-111
0.45 Ac.
WIM_111
T67
T68
S1M-166
W1M-103
0.082 Ac.
WIM_103
W1M-104
0.235 Ac.
WIM_104
WIM_102-103-104
T66
W1M-102
0.027 Ac.
WIM_102
Miller Rd
WIM_100
W1M-100
0.04 Ac.
WIM_100
W1M-098
0.708 Ac.
WIM_098
OSIP Imagery

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Figure 4.57: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
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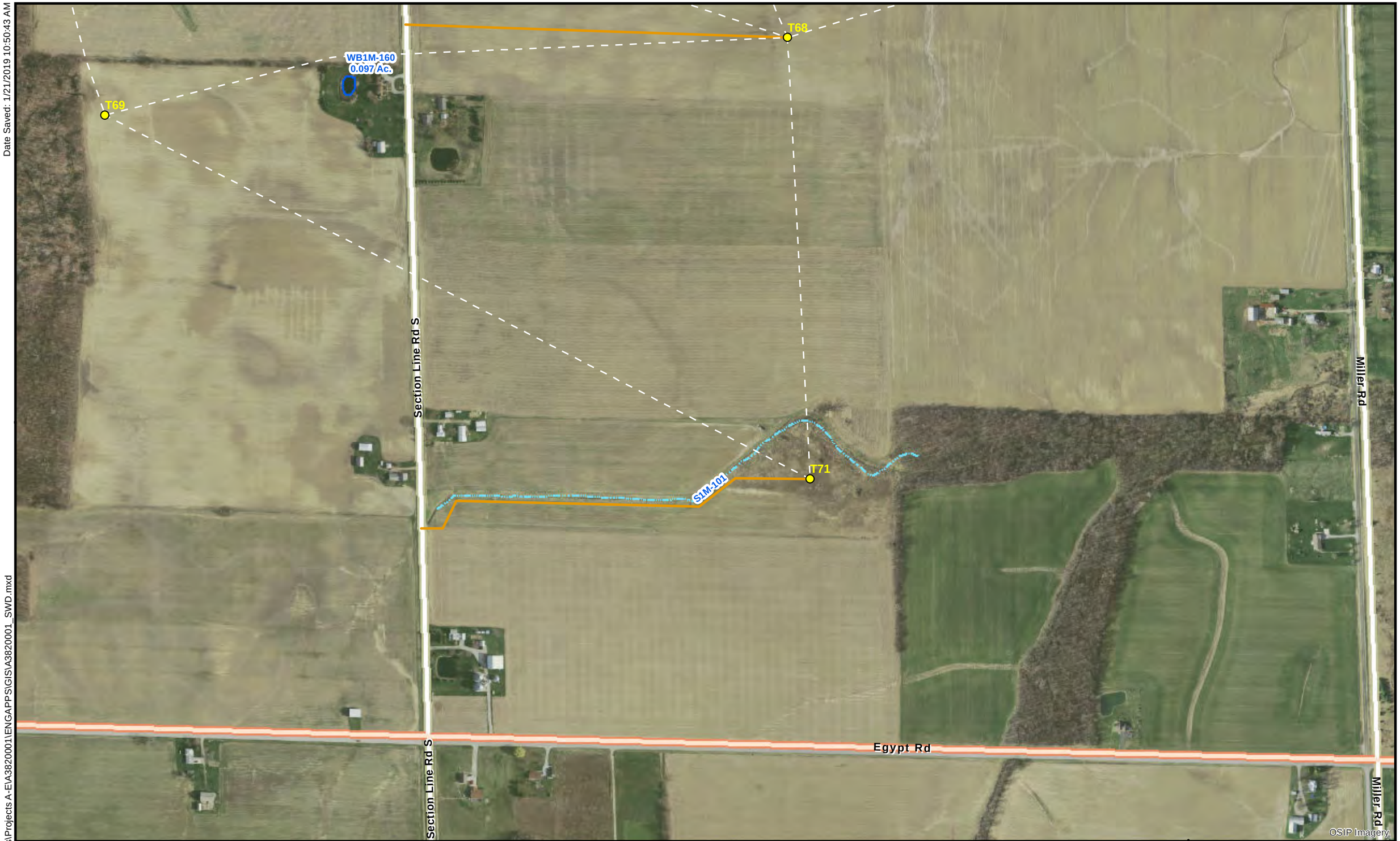

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Figure 4.58: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

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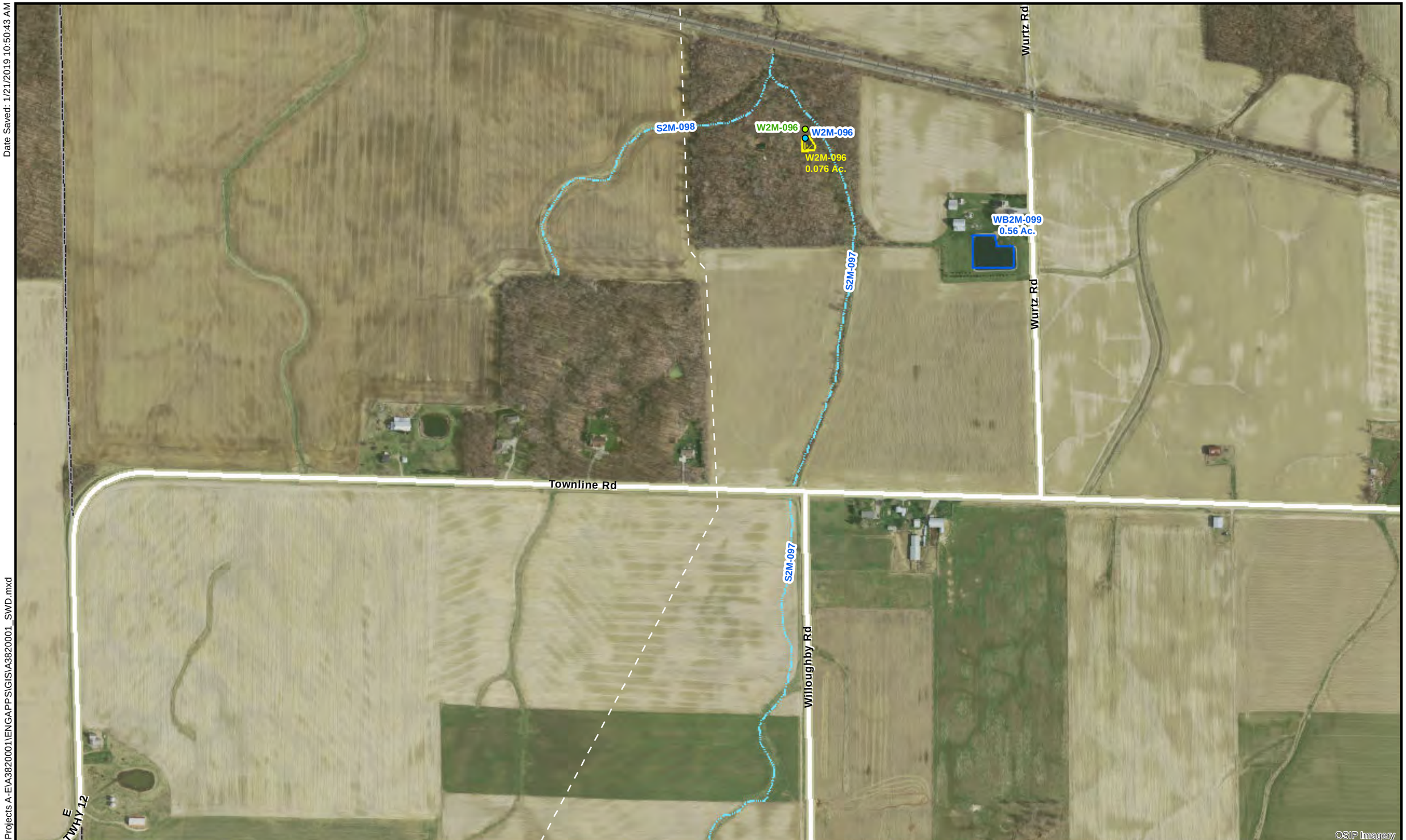

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Figure 4.59: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

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E TWHY 12

Townline Rd

S2M-097

T80

W1M-156
0.457 Ac.

W1M-157
0.631 Ac.

WIM_157

WIM_156

WIM_156

WIM_157

Willoughby Rd

T81

W2M-104
2.48 Ac.

W2M-103
0.779 Ac.

W2M-103

W2M-103

W2M-102
0.816 Ac.

S2M-101

W2M-102

W2M-102

Willard West Rd

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Figure 4.60: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

N

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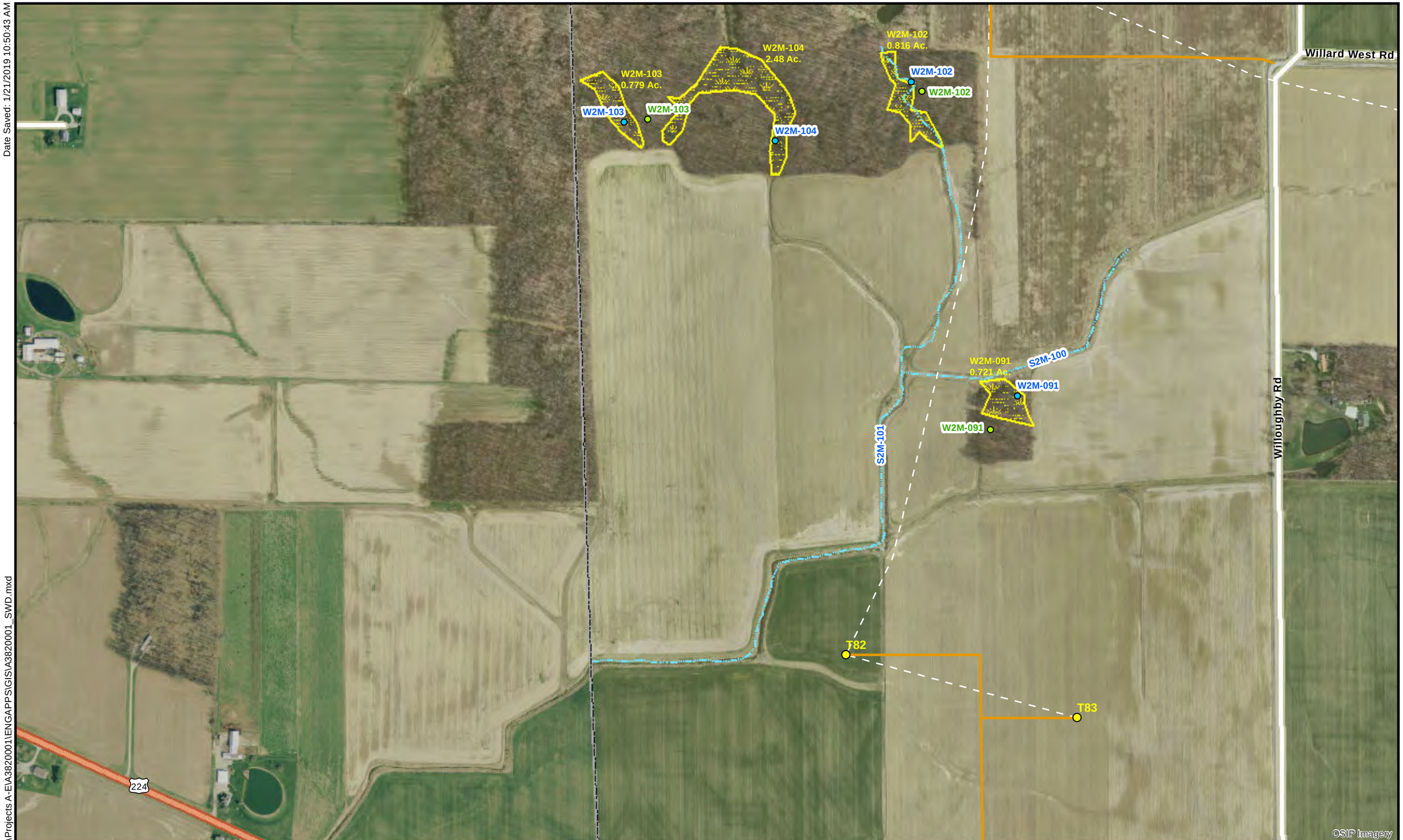

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Figure 4.61: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

Date Saved: 1/21/2019 10:50:43 AM

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Daniels Rd

S1M-161

S1M-165

Townline Rd

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Figure 4.62: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

- Wetland Sample Point
- Upland Sample Point
- Proposed Collection Line
- Proposed Acces Road
- Pond
- Wetland
- Stream
- Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

0 200 400 Feet

N

Date Saved: 1/21/2019 10:50:43 AM

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Figure 4.63: Surface Water Delineation
Emerson Creek Wind Project
Erie, Huron & Seneca Counties, Ohio

Wetland Sample Point
Upland Sample Point
Proposed Collection Line
Proposed Acces Road
Pond
Wetland
Stream
Proposed Turbine

Notes
The photography is provided by OGRIP as part of the Ohio Statewide Imagery Program.

Feet
0 200 400

APPENDIX A
SUMMARY TABLES

TABLE 1
Summary of Wetlands
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Wetland ID	Sample Point	Delineated Acreage within Study Area	Wetland Type[1]	ORAM Score	Wetland Category	Temporary Impacts (acres)	Permanent Impacts (acres)	Crossing Methodology	Potential Jurisdiction[2]
W1M-005	W1M-005-SP	0.115	PEM	12	1	0	0		USACE
W1M-007	W1M-007-SP	0.185	PEM	11	1	0	0		USACE
W1M-008	W1M-008-SP	0.0377	PEM	10	1	0	0		USACE
W1M-027	W1M-027-SP	0.0255	PFO	59	2	0	0		USACE
W1M-028	W1M-028-SP	1.61	PSS	48	2	0	0		USACE
W1M-029	W1M-029-SP	0.518	PFO	59	2	0	0		USACE
W1M-030	W1M-030-SP	1.68	PFO	59	2	0	0		USACE
W1M-031	W1M-031-SP	0.891	PFO	59	2	0	0		USACE
W1M-032	W1M-032-SP	12.94	PFO	64	2 or 3	0.175	0	Trench	USACE
W1M-034	W1M-034-SP	0.0577	PEM	27	1	0	0		USACE
W1M-037	W1M-037-SP	0.13	PEM	16.5	1	0	0		USACE
W1M-038	W1M-038-SP	0.345	PEM	16.5	1	0	0		USACE
W1M-042	W1M-042-SP	2.06	PFO	28	1	0	0		USACE
W1M-043	W1M-043-SP	0.0648	PEM	17	1	0.012	0	Trench	USACE
W1M-044	W1M-044-SP	2.23	PFO	40	Modified 2	0	0		USACE
W1M-045	W1M-045-SP	1.33	PFO/PEM	38	Modified 2	0.075	0	Trench	USACE
W1M-046	W1M-046-SP	2.31	PFO/PEM	35	Modified 2	0	0		USACE
W1M-049	W1M-049-SP	0.153	PFO	47	2	0	0		USACE
W1M-050	W1M-050-SP	0.04	PEM	31	2	0	0		USACE
W1M-051	W1M-051-SP	1.704	PSS/PFO/PEM	48	2	0	0		USACE
W1M-052	W1M-052-SP	14	PFO	36	Modified 2	0.156	0.03	Bore	USACE
W1M-058	W1M-058-SP	2.347	PEM/PSS/PFO	33	2	0	0		USACE
W1M-059	W1M-059-SP	0.253	PFO	49	2	0	0		USACE
W1M-060	W1M-060-SP	0.976	PFO/PEM	35.5	Modified 2	0	0		USACE
W1M-061	W1M-061-SP	0.226	PFO	41	Modified 2	0	0		USACE
W1M-062	W1M-062-SP	0.0084	PFO	42	Modified 2	0	0		USACE
W1M-064	W1M-064-SP	0.0734	PFO	49	2	0	0		USACE
W1M-066	W1M-066-SP	0.0191	PFO	42	Modified 2	0	0		USACE
W1M-067	W1M-067-SP	0.284	PSS/PFO	27	1	0	0		USACE

TABLE 1
Summary of Wetlands
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Wetland ID	Sample Point	Delineated Acreage within Study Area	Wetland Type[1]	ORAM Score	Wetland Category	Temporary Impacts (acres)	Permanent Impacts (acres)	Crossing Methodology	Potential Jurisdiction[2]
W1M-068	W1M-068-SP	0.158	PFO	39	Modified 2	0	0		USACE
W1M-069	W1M-069-SP	0.0694	PEM	13	1	0	0		USACE
W1M-070	W1M-070-SP	0.996	PFO	52.5	2	0	0		USACE
W1M-071	W1M-071-SP	0.0501	PFO	48	2	0	0		USACE
W1M-072	W1M-072-SP	0.0292	PFO	42	Modified 2	0	0		USACE
W1M-073	W1M-073-SP	0.0201	PFO	41	Modified 2	0	0		USACE
W1M-074	W1M-074-SP	0.0209	PFO	41	Modified 2	0	0		USACE
W1M-075	W1M-075-SP	0.031	PFO	41	Modified 2	0	0		USACE
W1M-076	W1M-076-SP	3.456	PFO	44.5	Modified 2	0.284	0	Trench (woods) / Bore (stream bed)	USACE
W1M-079/078	W1M-078-SP	1.107	PFO	49.5	Modified 2	0.033	0	Trench	USACE
W1M-079	W1M-079-SP	2.034	PFO/PEM	49.5	Modified 2	0	0		USACE
W1M-082	W1M-082-SP	0.384	PFO	52.5	2	0	0		USACE
W1M-084	W1M-084-SP	0.193	PFO	51	2	0	0		USACE
W1M-085	W1M-085-SP	0.039	PFO	51	2	0	0		USACE
W1M-086	W1M-086-SP	0.07	PFO	56	2	0	0		USACE
W1M-087	W1M-087-SP	0.1339	PFO	56	2	0	0		USACE
W1M-090	W1M-090-SP	0.574	PFO	36	Modified 2	0.025	0	Trench	USACE
W1M-092	W1M-092-SP	0.0149	PFO	41	Modified 2	0	0		USACE
W1M-093	W1M-093-SP	1.223	PFO	49	2	0	0		USACE
W1M-091/097	W1M-097-SP	11.3	PFO/PSS/PEM	46	2	0.577	0.142	Trench/Bore	USACE
W1M-098	W1M-098-SP	0.707	PFO	57	2	0	0		USACE
W1M-100	W1M-100-SP	0.04	PFO	51	2	0	0		USACE
W1M-102	W1M-102-SP	0.027	PEM	32	1 or 2 (Gray Zone)	0	0		USACE
W1M-103	W1M-103-SP	0.082	PFO	32	1 or 2 (Gray Zone)	0	0		USACE
W1M-104	W1M-104-SP	0.235	PFO	32	1 or 2 (Gray Zone)	0	0		USACE

TABLE 1
Summary of Wetlands
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Wetland ID	Sample Point	Delineated Acreage within Study Area	Wetland Type[1]	ORAM Score	Wetland Category	Temporary Impacts (acres)	Permanent Impacts (acres)	Crossing Methodology	Potential Jurisdiction[2]
W1M-108	W1M-108-SP	12.7	PFO	51	2	0	0		USACE
W1M-109	W1M-109-SP	0.0384	PEM	7	1	0	0		USACE
W1M-111	W1M-111-SP	0.45	PFO	65	3	0	0		USACE
W1M-112	W1M-112-SP	0.579	PFO	68	3	0	0		USACE
W1M-113	W1M-113-SP	1.059	PFO	62	1 or 2 (Gray Zone)	0	0		USACE
W1M-114	W1M-114-SP	2.423	PFO	45	2	0	0		USACE
W1M-117	W1M-117-SP	0.174	PEM	35	Modified 2	0.013	0	Trench	USACE
W1M-119	W1M-119-SP	0.342	PFO	61	2 or 3	0	0		USACE
W1M-122	W1M-122-SP	0.057	PFO	40	Modified 2	0	0		USACE
W1M-123	W1M-123-SP	0.572	PFO	67	3	0	0		USACE
W1M-124	W1M-124-SP	20.29	PSS/PFO/PEM	61	2 or 3	0.004	0	Trench	USACE
W1M-126	W1M-126-SP	0.235	PFO	67	3	0	0		USACE
W1M-130	W1M-130-SP	1.148	PFO	77	3	0	0		USACE
W1M-131	W1M-131-SP	2.432	PSS/PEM/PFO	37	Modified 2	0	0		USACE
W1M-133	W1M-133-SP	21.45	PFO/PEM	68	3	0.048	0	Trench	USACE
W1M-137	W1M-137-SP	0.11	PEM	11	1	0.064	0	Trench	USACE
W1M-140	W1M-140-SP	0.691	PEM/PSS	33	1 or 2 (Gray Zone)	0.058	0	Trench	USACE
W1M-141	W1M-141-SP	1.112	PFO	47	2	0	0		USACE
W1M-144	W1M-144-SP	0.548	PEM	23	1	0	0		USACE
W1M-150	W1M-150-SP	13.04	PFO	46	2	0	0		USACE
W1M-152	W1M-152-SP	1.669	PEM/PSS	17	1	0.008	0	Trench	USACE
W1M-153	W1M-153-SP	0.199	PFO	34	1 or 2 (Gray Zone)	0	0		USACE
W1M-156	W1M-156-SP	0.457	PFO	45	2	0.045	0	Trench	USACE
W1M-157	W1M-157-SP	0.631	PFO	39	Modified 2	0	0		USACE
W1M-167	W1M-167-SP	0.268	PFO	33	1 or 2 (Gray Zone)	0	0		USACE

TABLE 1
Summary of Wetlands
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Wetland ID	Sample Point	Delineated Acreage within Study Area	Wetland Type[1]	ORAM Score	Wetland Category	Temporary Impacts (acres)	Permanent Impacts (acres)	Crossing Methodology	Potential Jurisdiction[2]
W2M-001	W2M-001-SP	0.0158	PFO	15.5	1	0	0		USACE
W2M-003	W2M-003-SP	0.044	PFO	58	2	0	0		USACE
W2M-004	W2M-004-SP	0.122	PFO	35	Modified 2	0.014	0	Trench	USACE
W2M-006	W2M-006-SP	0.4356	PFO/PEM	46	2	0	0		USACE
W2M-008	W2M-008-SP	0.5428	PFO	47	2	0	0		USACE
W2M-009	W2M-009-SP	0.0436	PFO	41	Modified 2	0	0		USACE
W2M-011	W2M-011-SP	0.096	PEM	13	1	0	0		USACE
W2M-013	W2M-013-SP	23.71	PEM	24.5	1	0.980	0	Bore	USACE
W2M-015	W2M-015-SP	1.325	PFO	41	Modified 2	0	0		USACE
W2M-016	W2M-016-SP	0.0136	PEM	17.5	1	0	0		USACE
W2M-021	W2M-021-SP	36.83	PFO	81	3	1.665	0	Bore	USACE
W2M-024	W2M-024-SP	2.876	PFO	65	3	0	0		USACE
W2M-025	W2M-025-SP	3.78	PFO	65	3	0	0		USACE
W2M-026	W2M-026-SP	0.701	PFO	63	2 or 3	0	0		USACE
W2M-028	W2M-028-SP	17.73	PFO/PEM/PSS	45	2	0.108	0	Trench	USACE
W2M-031	W2M-031-SP	83.53	PFO	60	2 or 3	1.286	0	Bore	USACE
W2M-033	W2M-033-SP	7.18	PEM/PSS	27.5	1	0.131	0	Bore	USACE
W2M-034	W2M-034-SP	7.091	PFO/PEM	54.5	2	0	0		USACE
W2M-036	W2M-036-SP	31.96	PFO	72.5	3	0.398	0	Bore	USACE
W2M-039	W2M-039-SP	44.83	PFO	72.5	3	0.467	0	Bore	USACE
W2M-042	W2M-042-SP	6.537	PFO/PEM	52	2	0	0		USACE
W2M-044	W2M-044-SP	0.688	PEM	30	2	0	0		USACE
W2M-047	W2M-047-SP	9.51	PFO/PEM	46	2	0	0		USACE
W2M-048	W2M-048-SP	7.418	PFO/PEM	54	2	0	0		USACE
W2M-050	W2M-050-SP	5.21	PFO	57	2	0	0		USACE
W2M-052	W2M-052-SP	3.08	PFO/PSS/PEM	52.5	2	0.128	0	Trench (woods) / Bore (stream bed)	USACE
W2M-056	W2M-056-SP	1.422	PFO	67	3	0	0		USACE
W2M-057	W2M-057-SP	4.863	PFO	56	2	0	0		USACE

TABLE 1
Summary of Wetlands
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Wetland ID	Sample Point	Delineated Acreage within Study Area	Wetland Type[1]	ORAM Score	Wetland Category	Temporary Impacts (acres)	Permanent Impacts (acres)	Crossing Methodology	Potential Jurisdiction[2]
W2M-058	W2M-058-SP	17.72	PFO	60	2 or 3	0	0		USACE
W2M-060	W2M-060-SP	0.0649	PSS	19	1	0	0		USACE
W2M-061	W2M-061-SP	0.0477	PEM	28	1	0	0		USACE
W2M-063	W2M-063-SP	9.39	PFO	73	3	0.249	0	Trench (woods) / Bore (stream bed)	USACE
W2M-064	W2M-064-SP	0.456	PFO	43	Modified 2	0	0		USACE
W2M-066	W2M-066-SP	34.89	PFO/PEM/PSS	68	3	0.311	0	Trench (woods) / Bore (stream bed)	USACE
W2M-069	W2M-069-SP	12.73	PFO	51.5	2		0		USACE
W2M-072	W2M-072-SP	0.0205	PFO	38	Modified 2	0.009	0	Trench	USACE
W2M-075	W2M-075-SP	5.589	PSS/PEM	34	2	0	0		USACE
W2M-077	W2M-077-SP	14.58	PFO	43.5	Modified 2	0	0		USACE
W2M-080	W2M-080-SP	3.579	PFO	48	2	0	0		USACE
W2M-081	W2M-081-SP	8.503	PFO	56	2	0.263	0	Bore	USACE
W2M-084	W2M-084-SP	0.262	PFO	46	2	0	0		USACE
W2M-086	W2M-086-SP	0.271	PFO	37	Modified 2	0	0		USACE
W2M-087	W2M-087-SP	6.097	PFO	48.5	2	0	0		USACE
W2M-089	W2M-089-SP	3.41	PFO	61	2 or 3	0	0		USACE
W2M-091	W2M-091-SP	0.721	PFO	30	2	0	0		USACE
W2M-095	W2M-095-SP	0.654	PFO	33.5	2	0	0		USACE
W2M-096	W2M-096-SP	0.075	PFO	42.5	Modified 2	0	0		USACE
W2M-102	W2M-102-SP	0.816	PFO	45	2	0	0		USACE
W2M-103	W2M-103-SP	0.778	PFO	44	Modified 2	0	0		USACE
W2M-104	W2M-104-SP	2.479	PFO	39	Modified 2	0	0		USACE

[1] Wetland community type: PEM=palustrine emergent; PSS= palustrine scrub/shrub; PFO=palustrine forested and POW=palustrine open water

[2] Potential jurisdiction based on current USACE guidance and policy

TABLE 2
Summary of Streams
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Stream ID	HHEI/QHEI Score	Access Roads				Collection Lines		Crossing Methodology
		Temporary Impacts		Permanent Impacts		Temporary Impacts		
		Linear feet	acres	Linear feet	acres	Linear feet	acres	
S1M-001-1	47.5	0	0.000	0	0.000	0	0.000	
S1M-001-2	26.5	0	0.000	0	0.000	0	0.000	
S1M-003-1	35	0	0.000	0	0.000	0	0.000	Bore
S1M-004-1	33	0	0.000	0	0.000	0	0.000	Bore
S1M-006-3	48	0	0.000	0	0.000	0	0.000	Bore
S1M-009	26	0	0.000	0	0.000	0	0.000	
S1M-010	14	0	0.000	0	0.000	0	0.000	
S1M-011-1	37	0	0.000	0	0.000	545	0.318	Trench
S1M-013-1	22	36	0.081	16	0.036	0	0.000	Bore/Trench
S1M-014-1	30	0	0.000	0	0.000	0	0.000	Bore
S1M-015	31	0	0.000	0	0.000	0	0.000	
S1M-017-1	32	0	0.000	0	0.000	0	0.000	
S1M-025-1	27	0	0.000	0	0.000	0	0.000	Bore
S1M-026-1	42	0	0.000	0	0.000	0	0.000	Bore
S1M-033-1	30	0	0.000	0	0.000	0	0.000	
S1M-036	17	0	0.000	0	0.000	0	0.000	Bore
S1M-039-1	38.5	0	0.000	0	0.000	0	0.000	
S1M-039-2	64	0	0.000	0	0.000	0	0.000	
S1M-040	59	0	0.000	0	0.000	0	0.000	Bore
S1M-041	42	0	0.000	0	0.000	0	0.000	Bore
S1M-047	14	0	0.000	0	0.000	0	0.000	
S1M-048	12	0	0.000	0	0.000	0	0.000	
S1M-053	50.5	41	0.023	18	0.010	0	0.000	Bore/Trench
S1M-054	30	0	0.000	0	0.000	0	0.000	
S1M-055	58	72	0.040	32	0.018	0	0.000	Bore/Trench
S1M-056	37	0	0.000	0	0.000	0	0.000	
S1M-057	39	0	0.000	0	0.000	0	0.000	
S1M-063	21	0	0.000	0	0.000	0	0.000	
S1M-065	67.5	0	0.000	0	0.000	0	0.000	Bore
S1M-077	52.25	0	0.000	0	0.000	0	0.000	Bore
S1M-080	57	0	0.000	0	0.000	0	0.000	
S1M-083	69	0	0.000	0	0.000	0	0.000	Bore
S1M-089	22	0	0.000	0	0.000	0	0.000	Bore
S1M-099	65	0	0.000	0	0.000	0	0.000	

TABLE 2
Summary of Streams
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Stream ID	HHEI/QHEI Score	Access Roads				Collection Lines		Crossing Methodology
		Temporary Impacts		Permanent Impacts		Temporary Impacts		
		Linear feet	acres	Linear feet	acres	Linear feet	acres	
S1M-101	45	0	0.000	0	0.000	0	0.000	Bore
S1M-105	41	0	0.000	0	0.000	0	0.000	Bore
S1M-106	57.5	0	0.000	0	0.000	0	0.000	Bore
S1M-107	53	0	0.000	0	0.000	0	0.000	Bore
S1M-110	62	0	0.000	0	0.000	0	0.000	
S1M-118	16	0	0.000	0	0.000	0	0.000	Bore
S1M-120	44	0	0.000	0	0.000	0	0.000	Bore
S1M-121	66.5	0	0.000	0	0.000	0	0.000	
S1M-125	32	0	0.000	0	0.000	0	0.000	
S1M-127	39	0	0.000	0	0.000	0	0.000	
S1M-128	52	0	0.000	0	0.000	0	0.000	
S1M-129	37	0	0.000	0	0.000	0	0.000	Bore
S1M-132	32	0	0.000	0	0.000	0	0.000	
S1M-134	15	0	0.000	0	0.000	0	0.000	
S1M-135	26	0	0.000	0	0.000	0	0.000	
S1M-136	29	0	0.000	0	0.000	0	0.000	
S1M-138	42	0	0.000	0	0.000	0	0.000	Bore
S1M-139	43	0	0.000	0	0.000	0	0.000	
S1M-142	49	0	0.000	0	0.000	0	0.000	Bore
S1M-143	48	39	0.022	17	0.010	0	0.000	Bore/Trench
S1M-145	57	0	0.000	0	0.000	0	0.000	Bore
S1M-146	42	0	0.000	0	0.000	0	0.000	
S1M-147	62	37	0.021	16	0.009	0	0.000	Bore/Trench
S1M-149	48	0	0.000	0	0.000	0	0.000	Bore
S1M-151	37	0	0.000	0	0.000	0	0.000	
S1M-154	59	0	0.000	0	0.000	0	0.000	
S1M-155	46	0	0.000	0	0.000	0	0.000	
S1M-159	33	0	0.000	16	0.009	0	0.000	Bore/Trench
S1M-161	42	0	0.000	0	0.000	0	0.000	
S1M-162	62	0	0.000	0	0.000	0	0.000	Bore
S1M-163	53	0	0.000	0	0.000	0	0.000	
S1M-165	70	0	0.000	0	0.000	0	0.000	Bore
S1M-166	50	0	0.000	0	0.000	0	0.000	Bore
S1M-168	33	0	0.000	0	0.000	0	0.000	

TABLE 2
Summary of Streams
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Stream ID	HHEI/QHEI Score	Access Roads				Collection Lines		Crossing Methodology
		Temporary Impacts		Permanent Impacts		Temporary Impacts		
		Linear feet	acres	Linear feet	acres	Linear feet	acres	
S1M-169	44	0	0.000	0	0.000	0	0.000	
S2M-002	40	0	0.000	0	0.000	0	0.000	Bore
S2M-005	54	0	0.000	0	0.000	0	0.000	
S2M-007	46	36	0.025	16	0.009	0	0.000	Bore/Trench
S2M-012	21	0	0.000	0	0.000	0	0.000	Bore
S2M-014	51	0	0.000	0	0.000	0	0.000	
S2M-017	50	36	0.021	16	0.009	0	0.000	Trench
S2M-018	36	0	0.000	0	0.000	0	0.000	
S2M-019	43	0	0.000	0	0.000	0	0.000	Bore
S2M-020	51	0	0.000	0	0.000	0	0.000	Bore
S2M-022	32	0	0.000	0	0.000	0	0.000	
S2M-023	47.5	0	0.000	0	0.000	0	0.000	Bore
S2M-027	27	0	0.000	0	0.000	0	0.000	
S2M-030	56	0	0.000	0	0.000	0	0.000	
S2M-032	54	0	0.000	0	0.000	0	0.000	Bore
S2M-035	35	0	0.000	0	0.000	0	0.000	Bore
S2M-037	83	0	0.000	0	0.000	0	0.000	Bore
S2M-038	39	0	0.000	0	0.000	0	0.000	Bore
S2M-040	61	0	0.000	0	0.000	0	0.000	
S2M-041	60	0	0.000	0	0.000	0	0.000	
S2M-043	66	0	0.000	0	0.000	0	0.000	
S2M-049	34	0	0.000	0	0.000	0	0.000	
S2M-051	75	0	0.000	0	0.000	0	0.000	Bore
S2M-053	67	0	0.000	0	0.000	0	0.000	Bore
S2M-054	34	0	0.000	0	0.000	0	0.000	
S2M-055	67	0	0.000	0	0.000	0	0.000	Bore
S2M-059	59	36	0.021	16	0.009	0	0.000	Culvert
S2M-062	55	51	0.029	22	0.013	0	0.000	Culvert/HDD
S2M-065	55	0	0.000	0	0.000	0	0.000	
S2M-067	31	0	0.000	0	0.000	0	0.000	
S2M-068	53	0	0.000	0	0.000	0	0.000	
S2M-070	56	0	0.000	0	0.000	0	0.000	Bore
S2M-073	69	52	0.030	23	0.013	0	0.000	Culvert
S2M-074	54	0	0.000	0	0.000	0	0.000	

TABLE 2
Summary of Streams
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Stream ID	HHEI/QHEI Score	Access Roads				Collection Lines		Crossing Methodology
		Temporary Impacts		Permanent Impacts		Temporary Impacts		
		Linear feet	acres	Linear feet	acres	Linear feet	acres	
S2M-076	64	0	0.000	0	0.000	0	0.000	
S2M-078	74	0	0.000	0	0.000	0	0.000	
S2M-079	58	0	0.000	0	0.000	0	0.000	
S2M-082	64	0	0.000	0	0.000	0	0.000	Bore
S2M-088	37	0	0.000	0	0.000	0	0.000	
S2M-092	48	0	0.000	0	0.000	0	0.000	Bore
S2M-093	54	0	0.000	0	0.000	0	0.000	Bore
S2M-094	49	0	0.000	0	0.000	0	0.000	
S2M-097	69	0	0.000	0	0.000	0	0.000	
S2M-098	49	0	0.000	0	0.000	0	0.000	Bore
S2M-100	59	0	0.000	0	0.000	0	0.000	Bore
S2M-101	52	0	0.000	0	0.000	0	0.000	Bore
S2M-105	47	0	0.000	0	0.000	0	0.000	

TABLE 3
Summary of Waterbodies
Proposed Emerson Creek Wind Farm
Erie, Huron, and Seneca Counties, Ohio

Waterbody ID	Type	Temporary Impacts (acres)	Permanent Impacts (acres)	Crossing Methodology
WB1M-012	Constructed	0	0	
WB1M-016	Constructed	0	0	
WB1M-018	Constructed	0	0	
WB1M-019	Constructed	0	0	
WB1M-020	Constructed	0	0	
WB1M-021	Constructed	0	0	
WB1M-022	Constructed	0	0	
WB1M-023	Constructed	0	0	
WB1M-024	Constructed	0	0	
WB1M-035	Constructed	0	0	
WB1M-081	Constructed	0	0	
WB1M-088	Constructed	0	0	
WB1M-115	Constructed	0	0	
WB1M-116	Constructed	0	0	
WB1M-148	Constructed	0	0	
WB1M-158	Constructed	0	0	
WB2M-029	Constructed	0	0	
WB2M-045	Constructed	0	0	
WB2M-046	Constructed	0	0	
WB2M-071	Constructed	0	0	
WB2M-083	Constructed	0.001	0	Trench
WB2M-085	Constructed	0	0	
WB2M-090	Constructed	0	0	
WB2M-099	Constructed	0	0	

APPENDIX B
WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/12/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-005

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: T4N R23W

Landform (hillslope, terrace, etc.): SIDESLOPES Local relief (concave, convex, none): CONVEX

Slope (%): 0 Lat: 41.26331879 Long: -82.7382633 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	
Hydric Soil Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
WETLAND W1M-005. SURROUNDED BY AGRICULTURAL FARMLAND, HAS BEEN PLOWED

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Abutilon theophrasti	40	X	FACU
2. Sida spinosa	40	X	FACU
3. Cyperus esculentus	10		FACW
4. BRISTLE GRASS SP???	8		
5. Glycine max	5		FACU
6. Hibiscus trionum	5		FACU
7. XANTHIUM DINERDE?	5		
8. Amaranthus retroflexus	3		FACU
9.			
10.			
	116 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	93	x 4 =	372
UPL species	0	x 5 =	0
Column Totals:	103 (A)		392 (B)

Prevalence Index = B/A = 3.81

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-0

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					sil	
8-12	10YR 4/2	90	10YR 5/4	10	C	M	sil	
12-18	10YR 5/2	60	7.5YR 5/6	40	C	M, PL	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/12/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-005

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.26315348 Long: -82.73829459 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
UPLAND W1M-005

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Rhus glabra	10	X	FACU
2.			
3.			
4.			
5.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rhus glabra	10	X	FACU
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Glycine max	40	X	FACU
2. Dactylis glomerata	30	X	FACU
3. Verbesina alternifolia	25		FACW
4. Solidago canadensis	20		FACU
5. Ambrosia trifida	10		FAC
6. Rubus allegheniensis	5		FACU
7. Equisetum arvense	5		FAC
8. Toxicodendron radicans	5		FAC
9. Rhus glabra	3		FACU
10.			
	143	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	20	x 3 =	60
FACU species	118	x 4 =	472
UPL species	0	x 5 =	0
Column Totals:	163 (A)		582 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-00

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/2	100					sil	
13-18	10YR 4/3	70	10YR 5/3	30	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/12/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-007

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: T4N R23W

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.26340424 Long: -82.73901345 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-007

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cyperus esculentus	50	X	FACW
2. Panicum dichotomiflorum	30	X	FACW
3. Symphyotrichum puniceum	20		OBL
4. Sida spinosa	5		FACU
5. Bidens discoidea	5		FACW
6. Hibiscus trionum	3		FACU
7.			
8.			
9.			
10.			
	113 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	8	x 4 =	32
UPL species	0	x 5 =	0
Column Totals:	113 (A)		222 (B)

Prevalence Index = B/A = 1.96

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-00

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	100					sil	
7-12	10YR 4/2	80	10YR 5/4	20	C	M	sil	
11-18	10YR 5/2	70	10YR 5/4	30	C	M, PL	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/12/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-008

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: T4N R24W

Landform (hillslope, terrace, etc.): SWALE Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.26485224 Long: -82.74115866 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-008, PREVIOUSLY FARMED AND PLOWED

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Panicum dichotomiflorum	80	X	FACW
2. Amaranthus retroflexus	8	X	FACU
3. Glycine max	5		FACU
4. Sida spinosa	3		FACU
5.			
6.			
7.			
8.			
9.			
10.			
	96 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	16	x 4 =	64
UPL species	0	x 5 =	0
Column Totals:	96 (A)		224 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-00

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					sil	
4-11	10YR 4/2	80	10YR 5/4	20	C	M	sil	
11-18	2.5Y 5/2	70	7.5YR 5/6	30	C	M, PL	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/12/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-008

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): CONVEX

Slope (%): _____ Lat: 41.26485676 Long: -82.74138295 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
UPLAND W1M-008

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Plantago lanceolata	70	X	FACU
2. Cirsium arvense	10	X	FACU
3. Fraxinus pennsylvanica	8		FACW
4. Plantago major	5		FAC
5. Daucus carota	2		UPL
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	5	x 3 =	15
FACU species	80	x 4 =	320
UPL species	2	x 5 =	10
Column Totals:	95 (A)		361 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-00

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					sil	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/14/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-027

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: T3N R24W

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.20887453 Long: -82.80831783 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-027

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	15	X	FACU
2. Carya glabra	10	X	FACU
3. Ulmus americana	10	X	FACW
4.			
5.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Ulmus americana	15	X	FACW
2. Fraxinus pennsylvanica	10	X	FACW
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Fraxinus pennsylvanica	5	X	FACW
2. Symphyotrichum lanceolatum	5	X	FAC
3. Symphyotrichum puniceum	3		OBL
4. CAREX SP	3		
5.			
6.			
7.			
8.			
9.			
10.			
	16	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	40	x 2 =	80
FAC species	5	x 3 =	15
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	73 (A)		198 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					muck	
1-10	10YR 5/2	90	7.5YR 5/6	10	C	M	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: HARDPAN

Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/14/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-027

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.20883138 Long: -82.80843083 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
UPLAND W1M-027

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	40	X	FACU
2. Carya glabra	30	X	FACU
3.			
4.			
5.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Ulmus americana	20	X	FACW
2. Carya glabra	20	X	FACU
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Parthenocissus quinquefolia	30	X	FACU
2. Toxicodendron radicans	10	X	FAC
3. Fraxinus pennsylvanica	5		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	10	x 3 =	30
FACU species	125	x 4 =	500
UPL species	0	x 5 =	0
Column Totals:	160 (A)		580 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					cl	
6-8	10YR 4/3	100					cl	
8-12	10YR 5/3	95	7.5YR 5/4	5	C	M	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: HARDPAN

Depth (inches): 12

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/14/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-028

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: T3N R24W

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): _____

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-028

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tilia americana	15	X	FACU
2.			
3.			
4.			
5.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Lindera benzoin	60	X	FACW
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Scirpus atrovirens	60	X	OBL
2. Lindera benzoin	20		FACW
3. Solidago canadensis	8		FACU
4. Symphyotrichum dumosum	5		FAC
5. Toxicodendron radicans	5		FAC
6. Parthenocissus quinquefolia	3		FACU
7.			
8.			
9.			
10.			
	101	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. Parthenocissus quinquefolia	4	X	FACU
2.			
	4	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	80	x 2 =	160
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	180 (A)		370 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					sicl	
2-6	10YR 4/2	80	7.5YR 4/6	20	C	M	sic	
6-18	10YR 6/1	70	10YR 5/6	30	C	M	sic	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/14/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-028

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): RIDGE Local relief (concave, convex, none): CONVEX

Slope (%): _____ Lat: 41.20980782 Long: -82.81088959 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
UPLAND W1M-028

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tilia americana	30	X	FACU
2. Juglans nigra	20	X	FACU
3.			
4.			
5.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Lindera benzoin	25	X	FACW
2. Carya cordiformis	15	X	FACU
3. Fraxinus pennsylvanica	5		FACW
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Geum canadense	40	X	FAC
2. Parthenocissus quinquefolia	40	X	FACU
3. Viola sororia	30	X	FAC
4. Symphyotrichum dumosum	5		FAC
5. Rubus idaeus	5		FACU
6.			
7.			
8.			
9.			
10.			
	120	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. Smilax tamnoides	3	X	FAC
2.			
	3	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	73	x 3 =	219
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals:	213 (A)		719 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					sil	dry
6-10	10YR 5/3	100					sil	dry
8-10-14	10YR 6/3	100					sil	dry

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/14/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-029

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: T3N R24W

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): CONCAVE

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-029

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	X	FAC
2. Quercus rubra	30	X	FACU
3. Ulmus americana	25	X	FACW
4.			
5.			
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.6 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	40	x 3 =	120
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	95 (A)		290 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					muck	
1-7	10YR 5/2	90	7.5YR 5/6	10	C	M	cl	
7-16	10YR 6/2	90	7.5YR 5/8	10	C	M	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/14/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-029

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.21078843 Long: -82.80787572 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
UPLAND W1M-029

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	40	X	FACU
2. Carya glabra	20	X	FACU
3. Ostrya virginiana	20	X	FACU
4.			
5.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Ulmus americana	2	X	FACW
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Toxicodendron radicans	10	X	FAC
2. Ribes americanum	8	X	FACW
3. Fraxinus pennsylvanica	5		FACW
4. Parthenocissus quinquefolia	3		FACU
5.			
6.			
7.			
8.			
9.			
10.			
	26	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	10	x 3 =	30
FACU species	83	x 4 =	332
UPL species	0	x 5 =	0
Column Totals:	108 (A)		392 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					sil	dry
4-9	10YR 4/2	100					sil	dry
9-16	10YR 6/3	100					cl	dry

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/17/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-030

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): _____

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-030

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus bicolor	40	X	FACW
2. Ulmus americana	10	X	FACW
3.			
4.			
5.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Ulmus americana	25	X	FACW
2. Carya laciniosa	20	X	FACW
3. Fraxinus pennsylvanica	8		FACW
4. CRATAEGUS SP.	5		
5.			
	58	= Total Cover	
Herb Stratum (Plot size: _____)			
1. CAREX SP	75	X	
2. Glyceria striata	20		OBL
3. Toxicodendron radicans	10		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	103	x 2 =	206
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	133 (A)		256 (B)

Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	98	7.5YR 4/4	2	C	PL	sicl	
7-16	2.5YR 4/1	65	10YR 5/6	35	C	M	sic	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/17/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-031

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): _____

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-031

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	30	X	FACU
2. Acer rubrum	25	X	FAC
3. Ulmus americana	25	X	FACW
4.			
5.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Fraxinus pennsylvanica	15	X	FACW
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Fraxinus pennsylvanica	20	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	25	x 3 =	75
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	115 (A)		315 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	92	7.5YR 4/6	8	C	PL	sicl	
4-16	10YR 4/1	85	10YR 5/8	15	C	M	sic	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/17/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-032

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): _____

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-032

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	40	X	FACU
2. Quercus bicolor	20	X	FACW
3. Carya laciniosa	20	X	FACW
4. Ulmus americana	10		FACW
5.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Carya laciniosa	10	X	FACW
2. Fraxinus pennsylvanica	5	X	FACW
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Fraxinus pennsylvanica	5	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	110 (A)		300 (B)

Prevalence Index = B/A = 2.73

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 5/1	92	10YR 5/6	8	C	PL	cl	
7-14	10YR 4/1	90	7.5YR 4/4	10	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/17/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-032

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.21031774 Long: -82.8070545 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
UPLAND W1M-032

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya laciniosa	30	X	FACW
2. Ostrya virginiana	20	X	FACU
3. Ulmus americana	10	X	FACW
4. Quercus rubra	10		FACU
5.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Ulmus americana	15	X	FACW
2. Celtis occidentalis	8	X	FAC
3.			
4.			
5.			
	23	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Geum canadense	30	X	FAC
2. Fraxinus pennsylvanica	10	X	FACW
3. Toxicodendron radicans	10	X	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	48	x 3 =	144
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	143 (A)		394 (B)

Prevalence Index = B/A = 2.76

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					cl	
5-9	10YR 5/3	90	7.5YR 5/6	10	C	M	cl	
9-16	10YR 6/2	90	7.5YR 5/6	10	C	M	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/17/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-034

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): CONCAVE

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-034

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	35	X	FACW
2. Populus deltoides	15	X	FAC
3. Salix nigra	10		OBL
4.			
5.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Typha angustifolia	15	X	OBL
2. Bidens discoidea	8	X	FACW
3. Lysimachia nummularia	5		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	28	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. Toxicodendron radicans	10	X	FAC
2.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	48	x 2 =	96
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		300 (B)

Prevalence Index = B/A = 2.73

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/2	100						HIGH O.M.
3-6	10YR 4/1	97	5YR 4/4	3	C	PL	cl	
			10YR 5/6	4	C	M		
6-16	10YR 5/1	75	10YR 5/6	25	C	M	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/17/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-034

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): _____

Slope (%): _____ Lat: 41.20518448 Long: -82.82139446 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
UPLAND W1M-034

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	30	X	FACW
2.			
3.			
4.			
5.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Juncus tenuis	30	X	FAC
2. Fragaria virginiana	15	X	FACU
3. Solidago canadensis	10		FACU
4. Rubus idaeus	5		FACU
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. Vitis riparia	8	X	FACW
2.			
	8 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	38	x 2 =	76
FAC species	30	x 3 =	90
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	98 (A)		286 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3	100					cl	
5-10	10YR 4/2	80	7.5YR 5/4	20	C	M	cl	
10-16	10YR 5/3	95	7.5YR 5/6	5	C	M	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/18/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-037

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): FLAT

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-037

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eleocharis palustris	35	X	OBL
2. Lindernia dubia	10	X	OBL
3. Echinochloa crus-galli	5		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	28 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		55 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 5/1	98	7.5YR 5/6	2	C	M	cl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 2

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/18/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-037

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): FLAT

Slope (%): _____ Lat: 41.14394907 Long: -82.83307085 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
UPLAND W1M-037

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. FESTUCA SP	50	X	
2. Aruncus dioicus	10		FACU
3. Echinochloa crus-galli	5		FACW
4. Asclepias syriaca	4		FACU
5. Daucus carota	3		UPL
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	14	x 4 =	56
UPL species	3	x 5 =	15
Column Totals:	22 (A)		81 (B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: W1M-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	100					cl	moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 8

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: A3820001/EMERSON CREEK WIND FARMS City/County: NORWALK Sampling Date: 9/18/2018

Applicant/Owner: APEX CLEAN ENERGY State: OH Sampling Point: W1M-038

Investigator(s): J. FREELAND, A. PETERS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): FLAT

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
WETLAND W1M-038

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Echinochloa crus-galli	90	X	FACW
2. Setaria pumila	5		FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		195 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

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

Summary: Application - Part 10 of 17 electronically filed by Christine M.T. Pirik on behalf of Firelands Wind, LLC