Nation Rise Wind Farm
Natural Heritage Site Investigation Report

Prepared for:
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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Natural Heritage Site Investigation Report

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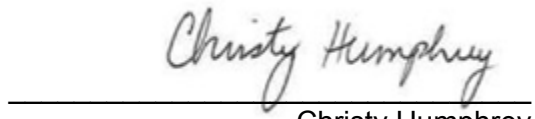

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Appendix I: Site Investigation Field Notes

1.0 Project Description

Natural Resource Solutions Inc. (NRSI) was retained in April 2016 by DNVGL, on behalf of Nation Rise Wind Farm Limited Partnership (the Proponent) to conduct a Natural Heritage Assessment (NHA) in accordance with the Renewable Energy Approval (REA) Regulation, Ontario Regulation (O.Reg.) 359/09. This assessment includes a records review, site investigation, evaluation of significance, and environmental impact study of any candidate significant natural features or wildlife habitats at a proposed wind energy generating facility of up to 34 permitted wind turbines, with a nameplate capacity of approximately 100 megawatts (MW).

The Nation Rise Wind Farm (Nation Rise WF or Project) is being proposed by Nation Rise Wind Farm Limited Partnership, a wholly-owned subsidiary of EDP Renewables Canada Ltd. (EDPR), and is located in the Township of North Stormont, Ontario. The Nation Rise Wind Farm is located in eastern Ontario, within the Township of North Stormont and the United Counties of Stormont, Dundas and Glengarry, Ontario. More specifically, the Project is located in the western portion of North Stormont bounded to the south by the Township of South Stormont and to the west by the boundary of the Township of North Dundas. The north portion of the Project is delimited by the municipality boundaries of Russell and The Nation. Courville Road and MacMillan Road are the east boundaries of the Project.

According to Ontario Regulation (O. Reg.) 359/09, as amended, and as per the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR 2012), the Project Location is defined as "...*a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposes to engage in the project*". As described therein, the Project Location boundary is the outer limit of where site preparation and construction activities will occur (i.e., construction disturbance areas described below) and where permanent infrastructure will be located, including the air space occupied by turbine blades.

Construction disturbance areas surrounding various Project components have been identified; such areas correspond to the outer limits of the "Project Location" boundaries

on the maps. These areas denote zones where temporary disturbance during the construction phase may occur such as temporary Project component laydown and storage areas.

In accordance with Section 26 of the REA Regulation, O. Reg. 359/09, NRSI has conducted a site investigation to identify any potentially significant natural features and wildlife habitats in and within 120m of the Project Location. This includes areas within 120m of proposed turbines, measured from blade tip, as well as within 120m of any areas that may be used as temporary staging and laydown areas, crane pads, access roads, electrical collector lines, substation, and meteorological towers. For the purposes of this report, NRSI will refer to the areas in and within 120m of the Project Location as the „Project Area". See Map 1 for an illustration of the Project Area and a general overview of the Project.

2.0 REA Requirements

Ontario Regulation 359/09 – *Renewable Energy Approvals* under *Part V.0.1 of the Act* (herein referred to as the REA Regulation), made under the *Environmental Protection Act*, identifies the requirements for the development of renewable energy projects in Ontario. In accordance with the REA Regulation, the Project is classified as a Class 4 wind facility and is required to complete a REA.

Section 26 of the REA Regulation requires proponents of Class 4 wind projects to undertake a natural heritage site investigation for the purpose of determining:

1. whether the results of the analysis summarized in the [Natural Heritage Records Review] report prepared under subsection 25 (3) are correct or require correction, and identifying any required corrections;
2. whether any additional natural features exist, other than those that were identified in the Natural Heritage Records Review Report prepared under subsection 25 (3);
3. the boundaries, located within 120m of the project location, of any natural feature that was identified in the records review or the site investigation; and,
4. the distance from the project location to the boundaries determined under clause (c).

Natural Features are defined in Section 1.1 of the REA Regulation to be all or part of:

- an area of natural and scientific interest (ANSI; life science or earth science),
- a coastal, northern, or southern wetland,
- a wildlife habitat, or
- a woodland.

Subsection 3 of Section 26 of the REA Regulation requires the proponent to prepare a report that includes the following:

1. A summary of any corrections to the report prepared under subsection 25 (3) and the determinations made as a result of conducting the site investigations under subsection (1);
2. Information relating to each natural feature identified in the records review and in the site investigations, including the type, attributes, composition and function of the feature;
3. A map showing:
   a) the boundaries mentioned in clause (1) (c),
   b) the location and type of each natural feature identified in relation to the project location, and
   c) the distance mentioned in clause (1) (d);
4. The dates and times of the beginning and completion of the site investigation;

5. The duration of the site investigation;
6. The weather conditions during the site investigation;
7. A summary of methods used to make observations for the purposes of the site investigation;
8. The name and qualifications of any person conducting the site investigation;
9. Field notes kept by the person conducting the site investigation.

This *Natural Heritage Site Investigation Report* has been organized and prepared to satisfy the conditions of the requirements outlined above.

As part of the Project, NRSI has considered all aspects relating to provincially Threatened and Endangered species; however, since these species are addressed through a separate permitting process under the *Endangered Species Act* (2007), they have not been discussed within any of the NHA reports. These species will be addressed in full detail, including a description and results of field assessments, potential impacts, and recommended mitigation measures, as part of a separate reporting process to be addressed with the Ministry of Natural Resources and Forestry (MNRF), as required.

3.0 Staff Roles

The requirements of the REA process indicate that the name and qualifications of staff participating in the site investigation should be included. As a result, the qualifications and roles of key staff participating in the site investigation for the Project have been outlined below.

Andrew Ryckman, B.Sc.
Andrew is a Senior Terrestrial and Wetland Biologist with more than 11 years of experience working on a variety of environmental projects. He has considerable experience managing Environmental Assessments and NHAs for wind project developments across Canada, including experience with project management, report generation, data analysis, and considerable field monitoring. Andrew specializes in acoustic bat inventories and sonogram analysis, and has working experience with bat monitoring equipment and various bat analysis software. He routinely utilizes analysis software to identify bat species, and has helped create a reference call library using recorded bat calls. Andrew is certified in Ecological Land Classification (ELC) for southern Ontario (2010) and completed an Acoustic Monitoring Workshop led by Bat Conservation International (2009).

Andrew's role in this Project was to act as the project advisor, overseeing all aspects of the NHA, including all associated field work and reporting.

Christy Humphrey, B.E.S.
Christy is a Terrestrial and Wetland Biologist with more than 8 years of experience in biological monitoring and routinely conducts environmental impact assessments on a variety of project types. Her areas of expertise include bats, as well as vegetation mapping and floral inventories. Christy has managed a variety of environmental projects, and has conducted and coordinated numerous types of surveys, including vegetation community delineations, wetland evaluations, bat surveys, mammal studies, breeding bird surveys and herpetofauna studies. Christy is certified in ELC for southern (2010) and northeastern Ontario (2010), and in the Ontario Wetland Evaluation System (OWES; 2012). She has also received training in Eastern Bat Acoustic Field Techniques (Bat Conservation and Management Inc. 2012) and Eastern Bat Survey Techniques (Bat Conservation and Management Inc. 2015), and designs and carries out bat research monitoring programs including the use of visual, acoustic, and capture surveys. Christy has managed biological monitoring programs and reporting for a number of wind power projects throughout Ontario and Manitoba, and has extensive experience with client and agency liaison through her project management role on similar projects.

Christy's role in this project was to act as the project manager, overseeing all aspects of the NHA, including all associated field work and reporting. She was the main contact point for agency staff and assisted with the preparation of all corresponding reports. Christy was also a lead biologist during the site investigation, conducting ELC mapping, wetland assessments, and wildlife

habitat assessment surveys within the Project Area. She also compiled and reviewed data and completed the reporting component for wetlands.

Charlotte Teat, M.E.S.
Charlotte is a Terrestrial and Wetland Biologist with more than 7 years of experience in biological monitoring and routinely conducts environmental impact assessments on a variety of project types. Charlotte has managed a variety of environmental projects, and has coordinated numerous types of surveys, including vegetation community delineations, bat surveys, mammal studies, breeding bird surveys and herpetofauna studies. She is certified in OWES (2012) and in the ELC system for southern Ontario (2013). Charlotte has managed the biological monitoring and reporting for numerous wind power projects throughout Ontario and Saskatchewan, and has extensive experience with client and agency liaison through her project management role on similar projects.

Charlotte assisted with the preparation of this report.

Erin Bannon, B.E.S.
Erin is a Terrestrial and Wetland Biologist with more than 5 years of experience in the environmental field. She routinely completes natural resource inventories, surveys of amphibians, plants, and mammals, and research and impact studies. Erin has worked on projects focusing on the identification of important natural features and the evaluation of the significance and sensitivity of these features. During her consulting experience, Erin has conducted bird and bat assessments, amphibian studies, and other flora and fauna assessments throughout Ontario. She is certified in the ELC system for southern Ontario (2013), is a Certified Arborist (2014) and certified Butternut Health Assessor (2014), and has participated in field investigations and reporting for wind power projects throughout Ontario.

Erin was a lead biologist during the site investigation, conducting ELC mapping, wetland assessments, and wildlife habitat assessment surveys within the Project Area.

James Barber, B.Sc.
James Barber is an Environmental Scientist with a Bachelor of Science degree in Earth Science from University of Waterloo. He has extensive field experience, both volunteer and professional, including habitat assessments and monitoring programs. James has 6 years of professional experience in the environmental sector, with a focus on environmental baseline surveys for the renewable energy and mining sectors. James has wide range of avian skills and has conducted bird surveys throughout the province, including carrying out surveys during the breeding, migrating and winter seasons.

James was a lead biologist during the site investigation, conducting wildlife habitat assessment surveys within the Project Area.

Jeremy Bannon, B.E.S.
Jeremy is a Terrestrial and Wetland Biologist with over 4 years of environmental consulting experience. Jeremy is certified in ELC for southern Ontario (2013), is a Certified Arborist (2015), and specializes in vegetation mapping and vascular plant inventories. Jeremy also has experience conducting a wide variety of field work for renewable energy projects, including habitat assessments and wildlife surveys. He regularly conducts wildlife and wildlife habitat inventories for birds, bats, and herpetofauna.

Jeremy was a lead biologist during the site investigation, conducting ELC mapping, wetland assessments, and wildlife habitat assessment surveys within the Project Area.

Ken Burrell, M.E.S.
Ken is a Terrestrial and Wetland Biologist with over 8 years of extensive experience in terrestrial ecology, with a strong background in avian research. Ken is regarded as one of the leading ornithologists in Ontario, having developed his skills through a wide range of avian surveys and from his extensive background volunteering for numerous organizations and working as a field biologist. Ken has extensive bird migration monitoring experience throughout Ontario, as well as in Canada and the United States. Ken also has extensive experience conducting a wide variety of other flora and fauna surveys, including floral inventories and wildlife studies and habitat assessments focused on amphibians, reptiles, bats, Lepidoptera, and mammals. Ken is certified in ELC for northeastern Ontario (2010).

Ken was a lead biologist during the site investigation, conducting ELC mapping, wetland assessments, and wildlife habitat assessment surveys within the Project Area.

Pat Deacon, B.E.S.
Pat is a Terrestrial and Wetland Biologist with more than 6 years of environmental consulting experience. He regularly conducts vegetation inventories and community mapping, and specializes in ecological restoration with particular focus on Species at Risk, tallgrass prairie ecosystems, and invasive species management. Pat is certified in ELC for northeastern Ontario (2011) and is OWES certified (2012). He is also a certified Butternut Health Assessor (2014).

Pat was a lead biologist during the site investigation, conducting ELC mapping, wetland assessments, and wildlife habitat assessment surveys within the Project Area.

4.0 Summary of Records Review

In accordance with the REA Regulation, the Project Location, and the area within 120m of the Project Location, was examined for natural heritage features, including known Areas of Natural and Scientific Interest (ANSI), woodlands, wetlands, and wildlife habitat. Numerous agencies were contacted to compile the records review, including (but not limited to) the MNRF and the South Nation Conservation Authority (SNCA). NRSI also utilized numerous online and published background review resources, such as the Natural Heritage Information Centre (NHIC), Ontario Breeding Bird Atlas (OBBA), Ontario Herpetofauna Atlas, Atlas of the Mammals of Ontario and the Ontario Butterfly Atlas. The results of the records review are summarized in Table 1.

Table 1. Summary of Records Review for the Project

Criteria	Result
1. In or within 120m of a Provincial Park or Conservation Reserve	The Project is not located in or within 120m of a Provincial Park or Conservation Reserve.
2. In a Natural Feature	The results of this records review indicate the Project Location (i.e. disturbance area, collection lines, access roads, etc.) overlaps with natural features. A total of 63 woodlands have the potential to overlap with the Project Location. Species associations and distances of these habitats to the Project Location will be confirmed during the site investigation phase of this NHA. A total of 12 wetlands have the potential to overlap with the project location. Species associations and distances of these habitats to the Project Location will be confirmed during the site investigation phase of this NHA. No PSWs overlap with the project location. The intention of the proposed Project Location is to avoid overlap with natural features, including woodlands and wetlands, wherever practicable.
3. Within 50m of a Provincially Significant ANSI-Earth Science (ES)	No Provincially Significant ANSI-ES is located in or within 50m of the Project Location.
4. Within 120m of a Natural Feature	
Provincially Significant ANSI-Life Science (LS)	No Provincially Significant ANSI-LS is located in or within 120m of the Project Location.
Coastal Wetland	No coastal wetlands are located in or within 120m of the Project Location.
Northern Wetland	No northern wetlands are located in or within 120m of the Project Location.
Southern Wetland	There are 45 unevaluated wetlands in or within 120m of the Project Location. All of these potential wetland habitats will be further

Criteria	Result
	examined during the site investigation phase of this NHA.
Wildlife Habitat	A total of 137 woodlands and 45 unevaluated wetlands are located in or within 120m of the Project Location and could provide several types of Significant Wildlife Habitat (SWH). Other natural features such as naturalized drainage ditches and hedgerows have been identified in or within 120m of the Project Location and could also provide SWH, and will be assessed in more detail during the site investigation phase of the NHA. All of these wildlife habitats will be examined during the site investigation phase to confirm presence of candidate significant wildlife habitat.
Woodland	A total of 137 woodlands are located in or within 120m of the Project Location. Basemapping indicates these habitats range in size from 0.06 to 133.39ha. These woodlands are expected to be dominated by a variety of deciduous, mixed, and coniferous forests of various ages.

The results of the records review of wildlife habitat are provided in Table 2. This table summarizes the presence of the full range of potential wildlife habitats in and within 120m of the Project Location. The purpose of this table was to guide the site investigation to further refine the types of wildlife habitats that have the potential to occur in or within 120m of the Project Location. Any wildlife habitats that have already been confirmed to be not applicable to the Project Location or are known to be absent from the Project Location and the area within 120m will not be discussed in this, or subsequent, NHA reports for the Project.

Table 2. Summary of Wildlife Habitat Records Review for the Project

Wildlife Habitat	Present Within the Project Area	Present Within Project Location	Carried Forward to Site Investigation (Y/N)
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial)	Unknown	Unknown	**Yes**
Waterfowl Stopover and Staging Areas (Aquatic)	Possible	Possible	**Yes**
Shorebird Migratory Stopover Area	Unknown	Unknown	**Yes**
Raptor Wintering Area	Unknown	Unknown	**Yes**
Bat Hibernacula	Unknown	Unknown	**Yes**
Bat Maternity Colonies	Unknown	Unknown	**Yes**
Turtle Wintering Areas	Unknown	Unknown	**Yes**
Reptile Hibernaculum	Unknown	Unknown	**Yes**
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)	Unknown	Unknown	**Yes**

Wildlife Habitat	Present Within the Project Area	Present Within Project Location	Carried Forward to Site Investigation (Y/N)
Colonially – Nesting Bird Breeding Habitat (Tree/Shrubs)	Unknown	Unknown	**Yes**
Colonially – Nesting Bird Breeding Habitat (Ground)	Unknown	Unknown	**Yes**
Migratory Butterfly Stopover Areas	N/A	N/A	No
Landbird Migratory Stopover Areas	N/A	N/A	No
Deer Winter Congregation Areas	No	No	No
Rare Vegetation Communities			
Cliffs and Talus Slopes	Unknown	Unknown	**Yes**
Sand Barrens	Unknown	Unknown	**Yes**
Alvar	Unknown	Unknown	**Yes**
Old Growth Forest	Unknown	Unknown	**Yes**
Savannah	Unknown	Unknown	**Yes**
Tallgrass Prairie	Unknown	Unknown	**Yes**
Other Rare Vegetation Communities	Unknown	Unknown	**Yes**
Specialized Wildlife Habitats			
Waterfowl Nesting Area	Unknown	Unknown	**Yes**
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Unknown	Unknown	**Yes**
Woodland Raptor Nesting Habitat	Unknown	Unknown	**Yes**
Turtle Nesting Areas	Unknown	Unknown	**Yes**
Seeps and Springs	Unknown	Unknown	**Yes**
Amphibian Breeding Habitat (Woodland)	Unknown	Unknown	**Yes**
Amphibian Breeding Habitat (Wetlands)	Unknown	Unknown	**Yes**
Woodland Area-Sensitive Bird Breeding Habitat	Unknown	Unknown	**Yes**
Habitats for Species of Conservation Concern			
Marsh Bird Breeding Habitat	Unknown	Unknown	**Yes**
Open Country Bird Breeding Habitat	Unknown	Unknown	**Yes**
Shrub/Early Successional Bird Breeding Habitat	Unknown	Unknown	**Yes**
Terrestrial Crayfish	No	No	No
Special Concern and Rare Wildlife Species (Refer to Appendix II of the Records Review Report)	Possible	Possible	**Yes**
Animal Movement Corridors			
Amphibian Movement Corridors	Unknown	Unknown	**Yes**
Deer Movement Corridors	N/A	N/A	No

5.0 Site Investigation Methods

Comprehensive site investigations to document the environmental and biological characteristics of the Project were undertaken in accordance with the REA Regulation and the requirements of the MNRF. These site-specific field investigations focused on vegetation community mapping to support and build on the information collected during the records review phase of this Project. The results of these site investigations were used to identify and map the boundaries of the natural features in and within 120m of the Project Location, and to identify candidate SWH. Much of the information collected at this stage (site investigation) will be used to evaluate the significance of features in a subsequent report.

5.1 Survey Dates

In accordance with the REA Regulation, NRSI recorded dates, times, duration, and weather conditions during each site investigation. This information has been summarized below in Table 3. Detailed descriptions of staff roles and qualifications can be found in Section 3.0 of this report, and detailed field forms have been appended to this report (Appendix I). The crew lead for each survey is indicated in bold font within the table.

Table 3. Site Investigation Survey Dates

Staff Name(s)	Purpose	Date	Start Time (hours)	Duration (hours)	Weather Conditions		
					Temp. (ºC)	Beaufort Wind	Cloud Cover (%)
Christy Humphrey Amanda Bichel	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	May 16, 2016	0853	9	5-9	4	100
		May 17, 2016	0950	9	10-20	1-3	5-50
		May 18, 2016	1310	5.5	18	1	70
		May 19, 2016	0815	10	7-22	0-3	30-100
		May 20, 2016	1035	2.25	20	0	50
Christy Humphrey Carlene Perkin	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	June 6, 2016	0945	8.75	18-21	3-5	20-100
		June 7, 2016	1010	6.75	14-20	3-4	65-100
		June 8, 2016	0940	9.25	10-12	2-5	90-100
		June 9, 2016	0815	13.25	8-14	2-5	80-100
		June 10, 2016	1015	2.75	11-14	2-3	5
Christy Humphrey Christina Carter	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	December 6, 2016	0930	7.75	-2 - +4	0-1	0-70
Pat Deacon			0810	8	-3	0-1	0-10
Erin Thompson Kathryn Broadbelt			0755	6.75	-7-0	1-2	0-20
Christy Humphrey Christina Carter	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	December 7, 2016	0830	7.5	-4- +4	1-3	70-100
Pat Deacon			0725	6.5	-1- -3	0-1	20-100
Erin Thompson Kathryn Broadbelt			0730	9.25	-4- +2	2	30-100
Pat Deacon	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	December 8, 2016	0745	6.75	-1- +2	2	80-100
Erin Thompson Kathryn Broadbelt			0730	9	-10- -2	2-3	10-100
Christy Humphrey Christina Carter	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	December 9, 2016	0740	5	-8- -4	0-3	0-100
Pat Deacon			0745	4.75	-7	1	5
Erin Thompson Kathryn Broadbelt			0745	5.5	-8- -4	2-3	10-90

Staff Name(s)	Purpose	Date	Start Time (hours)	Duration (hours)	Weather Conditions		
					Temp. (ºC)	Beaufort Wind	Cloud Cover (%)
Jeremy Bannon	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	January 20, 2017	1035	3.75	2	1	100
Jeremy Bannon Ashley Cantwell	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	January 30, 2017	1630	1	-12	0	0-25
		January 31, 2017	0815	11	-23- -9	0-1	0-70
		February 1, 2017	0751	10.25	-13- -9	0-1	30-100
		February 2, 2017	0750	7.5	-15- -5	1-3	5-100
		February 3, 2017	1000	7.5	-8- -5	0-4	5-70
		February 4, 2017	0800	5.25	-5- -10	1-3	70-100
Ken Burrell James Barber	ELC/Wetland Assessments and Candidate Wildlife Habitat Assessment	February 10, 2017	0855	7.75	-17- -13	2-3	0-60
		February 11, 2017	0910	0.75	-12	3	100
James Barber	Candidate Wildlife Habitat Assessment	March 2, 2017	0825	6	-10	4	100
		March 8, 2017	0815	8.25	4-10	3-6	20
		March 21, 2017	0910	5.25	1-4	1	95-100
		March 29, 2017	0800	7	2-5	2	90-100

5.2 Alternative Site Investigations

As identified in Part IV, Section 26 (1.1) of the REA Regulation, an alternative site investigation may be conducted if the applicant determines that it is not reasonable to visit a site to conduct a site investigation. The denial of site access by adjacent landowners and unsafe site conditions, such as natural hazards or unstable soils, are examples of suitable situations where conducting a site investigation would not be reasonable (OMNR 2012).

All landowners with properties containing natural features in or within 120m of the Project Location were contacted, either by phone, in person, and/or by mail with a specific request to obtain site access. Where adjacent landowners were reached and site access was denied, or when adjacent landowners could not be reached after multiple attempts to contact the landowner, alternative site investigations were conducted. Where this alternative method had to be employed, it is clearly indicated in this report and also on the field data sheets found in Appendix I of this report. The specific methods used during the alternative site investigations are detailed in Sections 5.4, 5.5, and 5.6 of this report. In all other instances, site access was granted through verbal confirmation and site investigations were conducted.

5.3 Designated Natural Areas

Natural areas, including provincial parks, conservation reserves, and ANSIs are identified and confirmed by regulatory agencies. None of these types of designated natural areas are present in or within 120m of the Project Location, and as such, provincial parks, conservation reserves, and ANSIs are not discussed further in this report.

5.4 Woodlands

Woodlands, as identified by the NHA Guide for Renewable Energy Projects (OMNR 2012), are defined as being a *"treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees, that is located south and east of the Canadian Shield"*. The NHA Guide suggests that the ELC definition for "forest" (>60% tree cover) can be used to help identify woodlands in addition to the definition in the Guide (OMNR 2012).

To assist in the identification of woodlands in and within 120m of the Project Location, NRSI biologists have conducted detailed ELC mapping of all vegetation communities in and within 120m of the Project Location. The ELC mapping was completed using the modified ELC system for southern Ontario (Lee *et al*. 1998) and ELC code assignment was based on updates made to the system in 2008 (Lee 2008). ELC polygons were delineated during site investigations and through visual observations of vegetation communities. These observations were compared with available aerial photography to finalize boundaries, and woodland boundaries were delineated along the dripline of the woodland. No previous ELC mapping was available or used during these surveys.

ELC surveys included performing area searches within each polygon and the concurrent completion of detailed vegetation inventories for private properties where right-of-entry was obtained. During these area searches, NRSI biologists documented a wide range of applicable information as outlined in the ELC manual (Lee *et al*. 1998), including vegetation layer cover codes and dominance, polygon descriptions, stand composition, size class analysis, and the completion of detailed plant inventory lists and wildlife habitat assessments. The completion of substrate sampling (soil augers) was determined unnecessary for the identification of woodlands, but was used to assist in assigning ELC codes in some cases (particularly in shallow soil areas). Soil sampling was also completed for the identification of wetlands, and is discussed in more detail below. The complete suite of information collected within each polygon can be found on the completed field data sheets (Appendix I).

ELC vegetation community codes assigned to polygons were based on the second approximation of ELC codes. Any natural features classified as forested communities (>60% canopy cover) are considered to be woodlands, and any natural features classified as savannahs or woodlands were roughly compared to the criteria above to determine if they meet the provincial criteria for woodlands. All woodlands have been delineated at the dripline using site-specific field evaluations combined with the use of detailed aerial photography.

For properties where site-specific access could not be obtained, NRSI biologists conducted ELC mapping from the closest observable point (i.e. roadside, neighbouring

property, etc.) and compared this to a detailed review of aerial photographs to characterize the polygon to the most detailed level possible. Where this alternative methodology had to be employed, it is clearly indicated on the ELC field data sheets found in Appendix I of this report.

For any woodlands identified in or within 120m of the Project Location, ecological characteristics were collected, including the general composition (i.e. ELC code) and attributes (i.e. ELC description and species composition). This information has been collected for the purpose of comparing the characteristics of the wooded feature against the woodland definition in the NHA Guide for Renewable Energy Projects (OMNR 2012) which excludes plantations and orchards in areas south and east of the Canadian Shield.

The completed ELC mapping is provided on Maps 2-1 to 2-13 and field notes and field maps can be found in Appendix I.

5.5 Wetlands

Wetlands include habitats that are seasonally or permanently covered by shallow water and display the presence of specific soil types and vegetation communities (OMNR 2012). Preliminary wetland identifications were made through the implementation of ELC mapping to identify lowland forests, wetlands, or other habitat types that may function as wetlands.

In addition to the detailed ELC methods described above, soil sampling (augering) was conducted in suspected wetlands to confirm the moisture regime. Vegetation inventories were also used to identify the presence and abundance of wetland indicator species. These habitats were then compared to the OWES manual to confirm their wetland status. Any communities identified as wetlands were delineated using site-specific field investigations combined with the use of detailed aerial photography. In accordance with OWES, wetland boundaries were delineated where 50% (or more) of the plant community consisted of wetland species. Data collected on specific wetland data forms included wetland type, site type, presence of inflows/outflows, vegetation community delineation, number and types of forms (>25% cover), dominant species, dominant form, and soil type. In order to ensure accuracy of the information obtained, the delineated

wetland boundary and field note information was collected and/or thoroughly reviewed by OWES-certified staff.

In potential wetlands where site access or right-of-entry could not be obtained, NRSI biologists conducted ELC mapping to the most detailed level possible from the nearest observation point, such as roadside or property boundary or through air photo interpretation using detailed aerial photography. The limitations of this alternative method are that detailed habitat or substrate information is not easily determined, and could not be properly assessed. In these instances where borderline wetlands are present, and there is no direct overlap with the Project Location, NRSI has assumed these features to be wetlands in the absence of information on appropriate habitat characteristics. Instances where site access could not be obtained are clearly identified on the ELC and wetland field data sheets found in Appendix I of this report.

5.6 Wildlife Habitat

The identification of wildlife habitat in and within 120m of the Project Location uses the definitions provided in the NHA Guide for Renewable Energy Projects (OMNR 2012), SWH Technical Guide (OMNR 2000), and SWH Criteria Schedules for Ecoregion 6E (MNRF 2015), which generally include areas where plants and animals live with adequate food, water, shelter and space to sustain their populations (OMNR 2012).

NRSI has used Table 19 of the NHA Guide for Renewable Energy Projects (OMNR 2012) to determine whether candidate significant wildlife habitats are required to be individually identified and delineated within 50m or 120m of each proposed project component (marked with an “X” and/or “Y” in Table 19 of the Guide). In accordance with Appendix D of the NHA Guide for Renewable Energy Projects (OMNR 2012), some habitats are not required to be individually identified and delineated within 50m or 120m of a project component and have been grouped together as generalized candidate SWH.

Candidate wildlife habitat assessments took place during ELC surveys so that as vegetation communities were delineated, surveys were also conducted for wildlife habitat features that are associated with the identified vegetation communities. These surveys were undertaken through area searches for habitat features and through recording wildlife observations (i.e. visual sightings, vocalizations, tracks, etc.) of specific

species. Habitat features for which area searches were performed included, but were not limited to: nests, snags, fallen logs, tree cavities, cliffs/banks, caves, burrows, dens, rock piles/stone walls, organics piles, karst features, old foundations, vernal pools/woodland ponds, sand, and fine sandy gravel. Sites identified as requiring further study will be assumed to contain the applicable candidate wildlife habitat, and revisited during a time of year appropriate for the specific type of wildlife habitat being assessed, at the time of Evaluation of Significance surveys. All preliminary candidate wildlife habitat assessments were conducted between May 16, 2016 and March 29, 2017.

For properties where site-specific access could not be obtained, NRSI biologists conducted candidate wildlife habitat assessments from the closest observable point (i.e. roadside, neighbouring property, etc.), using binoculars, where appropriate, to observe any candidate wildlife habitat features. Where this alternative methodology had to be employed, it is clearly indicated on the wildlife habitat assessment field data sheets found in Appendix I of this report.

For the purposes of the NHA reports, NRSI has separated the discussion on wildlife habitat into the 4 habitat categories, including seasonal concentration areas, rare vegetation communities and specialized wildlife habitats, habitats for species of conservation concern, and animal movement corridors. Each of these broad habitat types is described in more detail in the following sections, and the field notes for each are provided in Appendix I.

5.6.1 Seasonal Concentration Areas

Wildlife seasonal concentration areas are defined as areas where animals occur in relatively high densities for all, or portions, of their life cycle (OMNR 2012). These areas are generally relatively small in size, particularly when compared to areas used by these species during other times of the year. Habitats of seasonal concentrations of animals have been identified by using the habitat criteria found in the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015). The habitat criteria for each potential seasonal concentration area have been summarized in Table 4.

Table 4. Characteristics Used to Identify Candidate Seasonal Concentration Areas

Candidate Seasonal Concentration Areas	Criteria[1]	Methods
Habitat Characteristics		
Waterfowl Stopover and Staging Areas (Terrestrial)	• Fields with sheet water or annual spring melt water flooding found in any of the following Community Types: Meadow (ME) or Thicket (TH) on mineral substrates. • Agricultural fields with waste grains and spring melt water flooding may also be suitable.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential waterfowl stopover and staging locations. • Surveys of field conditions were conducted in March 2017 to determine the presence of seasonal flooding.
Waterfowl Stopover and Staging Areas (Aquatic)	• The following Community Types: Shallow Marsh (MAS), Shallow Aquatic (SA), Deciduous Swamp (SWD). • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). • Sewage treatment ponds and storm water ponds do not qualify as a SWH; however, a reservoir managed as a large wetland or pond/lake does qualify.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential waterfowl stopover and staging locations, recording the presence of suitable permanent open water containing an abundant food supply for waterfowl.
Shorebird Migratory Stopover Area	• The following Community Types: Shoreline (BB), Sand Dune (SD), and Meadow Marsh (MAM). • Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential shorebird stopover locations.

Candidate Seasonal Concentration Areas	Criteria[1]	Methods
	water ponds do not qualify as SWH.	
Raptor Wintering Area	• For hawks/owls: presence of fields and woodlands (i.e. at least one Forest (FO) Community Type, in addition to one of the following Community Types: Meadow (ME), Thicket (TH), Savannah (SV), Woodland (WO) (<60% cover) that are >20ha and provide roosting, foraging and resting habitats for wintering raptors). • Upland habitat (ME, TH, SV, WO) must represent at least 15ha of the 20ha minimum size. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • In this area, shallow (10-15cm) soils over bedrocks may result in the identification of open, shrub, or sparsely treed Rock Barren (RB) habitats that contain relatively shallow soils over bedrock. These areas are likely to have similar ecological functions as ME, TH, or SV habitats for candidate Raptor Wintering Areas (i.e. they may provide an abundance of prey accessible to raptors). As a result RBO, RBS, and sparsely treed RBT habitats have also been considered to represent upland habitats for Raptor Wintering Areas at the Project. • Idle/fallow fields, including lightly grazed fields (OAGM4) or long-established hay fields with infrequent harvesting (OAGM2) are also included as the upland portion of this habitat type. • For bald eagle (*Haliaeetus leucocephalus*): any of the following Community Types: Forest (FO) or Treed Swamp (SWD, SWM, SWC) on shoreline areas adjacent to large rivers or lakes with open water (for hunting). • Eagle sites have open water and large trees and snags available for roosting.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • The potential for open water habitat in the winter on the South Nation River was identified during winter field investigations. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential raptor wintering locations. • Habitat sizes were determined using GIS calculations based on site-specific ELC delineations.
Bat Hibernacula	• Caves, mine shafts, underground	• Habitat identification

Candidate Seasonal Concentration Areas	Criteria[1]	Methods
	foundations, karsts or one of the following Community Types: Crevice (CCR), Cave (CCA). • The area includes 1000m radius around the entrance of the hibernaculum. • Does not include buildings or active mine shafts.	occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential bat hibernacula locations and documented characteristics of any karst habitat encountered.
Bat Maternity Colony	• Any of the following Community Types: Deciduous Forest (FOD), Mixed Forest (FOM), Deciduous Treed Swamp (SWD), Mixed Treed Swamp (SWM) that have >25cm diameter at breast height (dbh) wildlife trees. • Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • If snag/ cavity tree density is ≥10 snags per hectare of trees ≥25 cm dbh, the site is a candidate for maternity colony roosts. • Female bats prefer wildlife trees (snags/cavity trees) in early stages of decay (i.e. Class 1-3).	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Snag/cavity tree density was calculated by randomly selecting plots within a candidate natural feature. Ten plots were selected for natural features ≤10ha, with one plot being added for each hectare over 10ha to a maximum of 35 plots. These sampling plots were 12.6m radius (0.05ha) plots. The number of snag/cavity trees ≥25cm dbh were counted in each plot. The snag/cavity tree density of these plots was then extrapolated to the natural feature[2]. • Where candidate natural features were too narrow to conduct 12.6m radius plots, or were very small in size, all snag/cavity trees within the natural feature were counted.
Turtle Wintering Area	• Over-wintering areas are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen, and are generally the same habitat as their core habitat. • Water has to be deep enough not to freeze, and have soft mud substrates. • These habitats are found in the following Community Types:	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential turtle wintering locations.

Candidate Seasonal Concentration Areas	Criteria[1]	Methods
	Swamp (SW), Marsh (MA), Open Water (OA), Shallow Water (SA), Open Fen (FEO), Open Bog (BOO). • Man-made ponds, such as sewage lagoons or storm water ponds, are not considered SWH.	
Reptile Hibernaculum	• Hibernation occurs in sites located below frost lines in burrows, rock crevices, broken and fissured rock, wetlands such as conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • For all snakes, habitat may be found in any Ecosite other than very wet ones. • The following Community Types may be directly related to reptile hibernacula: Talus (TA), Rock Barren (RB), Crevice (CCR), Cave (CCA), and Alvar (RBOA1, RBSA1, RBTA1).	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential reptile hibernation locations.
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)	• Eroding banks, sandy hills, borrow pits, steep slopes, sand piles or cliff faces found in any of the following Community Types: Meadow (ME), Thicket (TH), Savannah (SV), Bluff (BL), Cliff (CL). • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential colonial bird nesting locations.
Colonially – Nesting Bird Breeding Habitat (Tree/Shrubs)	• Any of the following Community Types: Mixed Swamp (SWM), Deciduous Swamp (SWD), Coniferous Treed Fen (FETC1). • Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15m from ground, near the top of the tree.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any stick/bowl nests within potentially suitable habitats.

Candidate Seasonal Concentration Areas	Criteria[1]	Methods
Colonially – Nesting Bird Breeding Habitat (Ground)	• Any rocky island or peninsula within a lake or large river. • Nesting colonies of gulls and terns on islands or peninsulas associated with open water or in marshy areas. • Brewer"s Blackbird (*Euphagus cyanocephalus*) colonies are found loosely on the ground or in low bushes in close proximity to streams and irrigation ditches within farmlands.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches associated with ELC mapping, NRSI biologists documented the presence of any potential colonial bird nesting locations.

[1] SWH Criteria Schedules for Ecoregion 6E (MNRF 2015)
[2] OMNR Bat and Bat Habitats: Guidelines for Wind Power Projects (OMNR 2011)

5.6.2 Rare Vegetation Communities and Specialized Wildlife Habitat

Rare vegetation communities are areas that contain a provincially rare vegetation community and/or areas that contain a vegetation community that is rare within the planning area (MNRF 2015). Specialized wildlife habitats are areas that support wildlife species that have highly specific habitat requirements, areas with exceptionally high species diversity or community diversity, or areas that provide habitat that greatly enhances a species" survival (MNRF 2015).

Rare vegetation communities and specialized wildlife habitats have been identified in or within 120m of the Project Location by using the habitat criteria found in the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015). The habitat criteria for rare vegetation communities and specialized wildlife habitats have been summarized in Table 5.

Table 5. Characteristics Used to Identify Candidate Rare Vegetation Communities and Specialized Wildlife Habitats

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
Rare Vegetation Communities		
Cliffs and Talus Slopes	• Any of the following Community Types: CLO (Open Cliff), CLS (Shrub Cliff), CLT (Treed Cliff),	• Habitat identification occurred through the detailed ELC mapping that

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
	TAO (Open Talus), TAS (Shrub Talus), TAT (Treed Talus).	was conducted throughout the Project Area.
Sand Barren	• Any of the following Community Types: SBO1 (Open Sand Barren Ecosite), SBS1 (Shrub Sand Barren Ecosite), SBT1 (Treed Sand Barren Ecosite) that are >0.5ha in size. • Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Habitat sizes were determined using GIS calculations based on site-specific ELC delineations.
Alvar	• Any of the following Community Types: RBOA1 (Open Alvar Rock Barren Ecosite), RBSA1 (Alvar Shrub Rock Barren Ecosite), RBTA1 (Treed Alvar Rock Barren Ecosite), FOCS1 (Dry Pine Calcareous Shallow Coniferous Forest Ecosite), FOCS3 (Dry Cedar Calcareous Shallow Coniferous Forest Ecosite), FOCM1 (Dry-Fresh Pine Coniferous Forest Ecosite), FOCM2 (Dry-Fresh Cedar Coniferous Forest Ecosite), MEGR1 (Dry-Fresh Calcareous Bedrock Graminoid Meadow Ecosite), MEFR1 (Dry-Fresh Calcareous Bedrock Forb Meadow Ecosite), MEMR1 (Dry-Fresh Calcareous Bedrock Mixed Meadow Ecosite), SVCR1 (Dry-Fresh Calcareous Bedrock Coniferous Savannah), SVMR1 (Dry-Fresh Calcareous Bedrock Mixed Savannah Ecosite), SVDR1 (Dry-Fresh Calcareous Bedrock Deciduous Savannah Ecosite), THCR1 (Dry-Fresh Calcareous Bedrock Coniferous Thicket Ecosite), THMR1 (Dry-Fresh Calcareous Bedrock Mixed Savannah Ecosite), THDR1 (Dry-Fresh Calcareous Bedrock Deciduous Savannah Ecosite), WOCR1 (Dry-Fresh Calcareous Bedrock Coniferous Woodland Ecosite), WOMR1 (Dry-Fresh	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Habitat sizes were determined using GIS calculations based on site-specific ELC delineations.

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
	Calcareous Bedrock Mixed Woodland Ecosite), WODR1 (Dry-Fresh Calcareous Bedrock Deciduous Woodland Ecosite) that are >0.5ha in size	
Old Growth Forest	• Any of the following Community Types: FOD (Deciduous Forest), FOM (Mixed Forest), FOC (Coniferous Forest), SWD (Deciduous Swamp), SWM (Mixed Swamp), SWC (Coniferous Swamp) found in woodland areas that are >30ha in size, or in woodlands that have at least 10ha of interior habitat (assuming a 100m buffer from edge of forest).	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Tree age was estimated during ELC surveys and any tree stand estimated to be Old Growth will be carried forward as candidate significant wildlife habitat. • Habitat sizes were determined using GIS calculations based on site-specific ELC delineations.
Savannah	• Any of the following Community Types: SVCR1 (Dry-Fresh Calcareous Bedrock Coniferous Savanna Ecosite), SVCR2 (Dry-Fresh Non-Calcareous Bedrock Coniferous Savanna Ecosite), SVMR1 (Dry-Fresh Calcareous Bedrock Mixed Savanna Ecosite), SVMR2 (Dry-Fresh Non-Calcareous Bedrock Mixed Savanna Ecosite), SVMM1 (Dry-Fresh Tallgrass Mixed Savanna Ecosite), SVMM2 (Dry-Fresh Mixed Savanna Ecosite), SVDR1 (Dry-Fresh Calcareous Bedrock Deciduous Savanna Ecosite), SVDR2 (Dry-Fresh Non-Calcareous Bedrock Deciduous Savanna Ecosite), SVDM1 (Dry-Fresh Tallgrass Bedrock Deciduous Savanna Ecosite), SVDM2 (Fresh-Moist Tallgrass Deciduous Savanna Ecosite), WOMM1 (Dry Pine-Oak Tallgrass Deciduous Woodland Ecosite), WOMM2 (Dry Pine-Hardwood Tallgrass Deciduous Woodland Ecosite), WODM1 (Dry-Fresh Oak Tallgrass Deciduous Woodland Ecosite),	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area.

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
	WODM2 (Dry Hardwood Deciduous Tallgrass Woodland Ecosite). • These communities can be either restored or natural. • Remnant sites, such as railway right of ways, are not considered candidate SWH. • No minimum size requirements for a site to be considered candidate SWH.	
Tallgrass Prairie	• Any of the following Community Types: MEGM1 (Dry-Fresh Graminoid Tallgrass Prairie Ecosite), MEFM2 (Dry-Fresh Forb Tallgrass Prairie Ecosite), MEFM3 (Fresh-Moist Forb Tallgrass Prairie Ecosite), MEMM1 (Dry-Fresh Mixed Tallgrass Prairie Ecosite), MEMM2 (Fresh-Moist Mixed Tallgrass Prairie Ecosite), THDM1-1 (New Jersey Tea Lowshrub Tallgrass Thicket Type). • These communities can be either restored or natural. • Remnant sites, such as railway right of ways, are not considered candidate SWH. • No minimum size requirements for a site to be considered candidate SWH.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area.
Other Rare Vegetation Communities	• Provincially Rare S1, S2 and S3 Communities Types are listed in Appendix M of the SWH Technical Guide (MNR 2000). • Any ELC Ecosite Code that has a possible ELC Vegetation Type that is provincially rare is candidate SWH. • Rare vegetation communities may include beaches, fens, forests, marshes, barrens, dunes, and swamps.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area.
Candidate Specialized Wildlife Habitats		
Waterfowl Nesting Area	• Upland habitats of any kind located adjacent to (≤120m) any PSW or the following wetland Community Types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area.

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
	Aquatic (SA), Mineral Thicket Swamp (SWTR1, SWTR2, SWTM1, SWTM2, SWTM3, SWTM4, SWTM5), or Mineral Deciduous Swamp (SWDR1, SWDR2, SWDM1, SWDM2, SWDM3, SWDM4). • Wetland is >0.5ha, or a cluster of 3 or more smaller wetlands within 120m of each other, or a wetland >0.5ha with smaller wetlands within 120m, where waterfowl nesting occurs. • Wetland communities should have permanent open water available during the nesting season (April-June).[2] • Upland areas should be at least 120m wide. • Wood Ducks (*Aix sponsa*) and Hooded Mergansers (*Lophodytes cucullatus*) utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites.	• During area searches associated with ELC mapping, NRSI biologists identified potential waterfowl nesting area locations, recording the presence of suitable permanent open water, in addition to shrubland/grassland or suitable cavity trees for nesting in upland areas >40cm dbh • Proximity of upland habitat to wetland habitat and determination of wetland size have been confirmed through GIS mapping.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	• Any of the following Community Types: Forest (FOC, FOM, or FOD) or Treed Swamp (SWC, SWM, SWD) that is immediately adjacent to rivers, lakes, ponds, and wetlands. • Nests may be located in dead trees over water along forested shorelines, islands or structures. • Nests located on man-made objects (e.g. telephone poles and constructed nesting platforms) are not SWH.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • During area searches of this habitat, NRSI biologists looked for large suitable trees, or the presence of stick nests within suitable treed habitats located near water features.
Woodland Raptor Nesting Habitat	• Any of the following Community Types: Forest (FO), Treed Swamp (SWC, SWM, SWD), Coniferous Plantation (TAGM1) that are >30ha in size with >10ha of interior habitat. • Interior habitat is determined by excluding a 200m buffer around the inside edge of the forest.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Habitat size, interior habitat, and edge buffer were all determined through GIS mapping.
Turtle Nesting Areas	• Exposed mineral soil (sand or gravel) areas <100m from or within the following Community Types:	• Habitat identification occurred through the detailed ELC mapping that

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
	Shallow Marsh (MAS), Shallow Aquatic (SA), Open Bog (BOO), Open Fen (FEO). • For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. • Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH.	was conducted throughout the Project Area.
Seeps and Springs	• Locations where groundwater comes to surface, often in forested headwater areas. • Any forested area (with <25% meadow, field, or pasture) within the headwaters of a stream or river system may have seeps or springs.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area.
Amphibian Breeding Habitat (Woodland)	• Forests (FO) and Treed Swamps (SWC, SWM, SWD), in addition to wetlands/lakes/ponds/vernal pools that are >500m^2 in size (about 25m diameter) that are found within or adjacent (<120m) to the woodland.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Initial surveys were conducted for a subset of woodlands during assessments in May and June of 2016. Some preliminary information from surveys in December 2016 and January 2017 was also obtained. • The potential for vernal pools, or vernal pool permanency, for the remainder of woodlands was determined through examination of local topography, habitat community, and vegetation species present. An assessment for vernal pools will be conducted within these remaining woodlands prior to the first evaluation of significance surveys in April

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
		2017. • If there are vernal pools present in any candidate habitats, evaluation of significance surveys will be undertaken. • Habitat size and proximity to other habitats were determined through GIS mapping.
Amphibian Breeding Habitat (Wetland)	• Any of the following Community Types: Swamp (SW), Marsh (MA), Fen (FE), Bog (BO), Open Water (OA), Shallow Aquatic (SA) that are >500m^2 or 25m in diameter, and located >120m from woodlands.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Initial surveys were conducted for a subset of wetlands during assessments in May and June of 2016. Some preliminary information from surveys in December 2016 and January 2017 was also obtained. • The potential for vernal pools, or vernal pool permanency, for the remainder of wetlands was determined through examination of local topography, habitat community, and vegetation species present. An assessment for vernal pools will be conducted within these remaining wetlands prior to the first evaluation of significance surveys in April 2017. • If there are vernal or permanent pools present in any candidate habitats, evaluation of significance surveys will be undertaken. • If Bullfrog is identified during evaluation of significance surveys in a candidate Amphibian Breeding Habitat (Woodland) containing

Candidate Rare Vegetation Communities and Specialized Wildlife Habitats	Criteria[1]	Methods
		permanent water bodies with abundant emergent vegetation, applicable habitats will also be identified under the consideration of Amphibian Breeding Habitat (Wetland). • Habitat size and proximity to other habitats were determined through GIS mapping.
Woodland Area-Sensitive Bird Breeding Habitat	• Habitats where interior forest (at least 200m from the forest edge) breeding birds are breeding. • These include any of the following Community Types: Forest (FO), Treed Swamp (SWC, SWM, SWD) that are mature forest stands (>60 years old) or woodlots >30ha.	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Woodland size and interior forest calculations were determined through GIS mapping.

[1] SWH Criteria Schedules for Ecoregion 6E (MNRF 2015)
[2] SWH Technical Guide (OMNR 2000)

5.6.3 Habitats for Species of Conservation Concern

Habitats of species of conservation concern are those habitats that have been identified as important in maintaining long-term, viable populations of these species. The habitat characteristics for species of conservation concern have been summarized in Table 6 and Table 7. The presence of these habitat characteristics was examined during site investigations in order to determine whether habitat for species of conservation concern is present in or within 120m of the Project Location.

Table 6. Characteristics Used to Identify Candidate Habitats for Species of Conservation Concern

Candidate Habitats for Species of Conservation Concern	Criteria[1]	Methods
Marsh Bird Breeding Habitat	• Nesting occurs in wetlands with shallow water and emergent aquatic vegetation. • For Green Heron, habitat is at the	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area.

Candidate Habitats for Species of Conservation Concern	Criteria[1]	Methods
	edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest at a considerable distance from water. • May include any of the following Community Types: Meadow Marsh (MAM), Shallow Aquatic (SA), Open Bog (BOO), Open Fen (FEO), or for Green Heron: SW (Swamp), MA (Marsh) and Meadow (ME) Community Types.	• During ELC mapping and area searches, NRSI biologists documented the presence of any potential nesting locations, as well as the presence of shallow water and emergent aquatic vegetation.
Open Country Bird Breeding Habitat	• Large grassland areas (including natural and cultural fields and meadows) >30ha, not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 years, in the following Community Type: Meadow (ME).	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Habitat size was determined through GIS mapping. • Previous land use was determined through discussions with the landowner and review of current and historical aerial photography.
Shrub/Early Successional Bird Breeding Habitat	• Large old field areas succeeding to shrub and thicket habitats >10ha, not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 years, in the following Community Types: Thickets (TH), Savannahs (SV), Woodlands (WO).	• Habitat identification occurred through the detailed ELC mapping that was conducted throughout the Project Area. • Habitat size was determined through GIS mapping. • Previous land use was determined through discussions with the landowner and review of aerial photography.
Special Concern and Rare Wildlife Species	• All Special Concern or provincial rare (S1-S3, SH) plant and animal species element occurrences within a 1 or 10km grid.	• Area searches to determine candidate habitat for any identified species or communities were conducted during ELC mapping. • See Table 7 below for specific criteria for each Special Concern or provincially rare plant and animal species that may be present within the Project Area.

[1] SWH Criteria Schedules for Ecoregion 6E (MNRF 2015)

Table 7. Criteria for Species of Conservation Concern Identified Near the Project Area

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
Birds					
Short-eared Owl (*Asio flammeus*)	S2N S4B	SC	SC	• Prefers large open areas including grasslands, meadows that are grassy or bushy, marshes, bogs, and tundra[1,2]. • Requires 75-100 ha of contiguous open habitat[2].	• Breeding habitat for this species is addressed under the consideration of Open Country Bird Breeding Habitat. • Overwintering habitat for this species is addressed under the consideration of Raptor Wintering Areas. • Migratory habitat for this species has been determined through the consideration of Landbird Migratory Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.
Canada Warbler *(Cardellina Canadensis*)	S4B	SC	T	• Breeds in a range of deciduous and coniferous (usually wet) forest types, all with a well- developed, dense shrub layer[3]. • Nests are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks[3]. • This species overwinters in South America[8]. As such, overwintering habitat for this species is not applicable in or within 120m of the Project Location.	• Breeding habitat for this species is addressed under the consideration of Woodland Area-sensitive Bird Breeding Habitats. • Migratory habitat for this species has been determined through the consideration of Landbird Migratory Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
Black Tern *(Chlidonias niger)*	S3B	SC	NAR	• Prefers wetlands, specifically large coastal or inland cattail marshes[2]. • Occupies marshy edges of rivers, lakes or ponds, wet open fens and wet meadows[2]. • Must have shallow water (0.5-1.0m deep) and areas of open water near nests[2]. • Marshes greater than 20ha in size are generally required for suitable habitat, with a minimum recorded size of 5.3ha[2,4]. • Grasslands adjacent to nesting habitat are also required for foraging of insects; however, this species will also feed on fish, crayfish and frogs[2]. • This species overwinters in South America[4]. As such, overwintering habitat for this species is not applicable in or within 120m of the Project Location.	• Breeding habitat for this species is addressed through the consideration of Marsh Bird Breeding Habitat. • Migratory habitat for this species has been determined through the consideration of Landbird Migratory Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.
Common Nighthawk *(Chordeiles minor)*	S4B	SC	THR	• Prefers open habitats, such as forest clearings, open woodlands, ploughed fields, or gravel beaches[2]. • Nests on open ground, in clearings in dense forests, ploughed fields, gravel beaches or barren areas with rocky soils, in open woodlands and on flat gravel roofs[2]. • This species overwinters in South America[9]. As such, overwintering habitat for this species is not applicable in or within 120m of the Project	• Area searches for breeding habitat were conducted in conjunction with ELC mapping (open ground in RB, SH, ME, TH, SV, WO, and FO that contains large clearings). • Breeding habitat for this species (if present) is addressed through Species of Conservation Concern (Common Nighthawk). • Migratory habitat for this species has been determined through the consideration of Landbird Migratory

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
				Location.	Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.
Olive-sided Flycatcher (*Contopus cooperi*)	S4B	SC	THR	• Prefers semi-open conifer forest, particularly spruce (*Picea* spp.) or tamarack (*Larix laricina*), near ponds, lakes or rivers[2]. • Uses treed wetlands for nesting and burns with dead trees for perching[2]. • This species overwinters in South America[10]. As such, overwintering habitat for this species is not applicable in or within 120m of the Project Location.	• Area searches for breeding habitat were conducted in conjunction with ELC mapping (WOC, WOM, FOC, FOM, SWC, or SWM with openings, located adjacent to or in close proximity to ponds, lakes or rivers). • Breeding habitat for this species (if present) is addressed through Species of Conservation Concern (Olive-sided Flycatcher). • Migratory habitat for this species has been determined through the consideration of Landbird Migratory Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.
Eastern Wood-Pewee *(Contopus virens)*	S4B	SC	SC	• Prefers open deciduous, mixed or coniferous forests predominated by oak with little understory; forest clearings, edges, farm woodlots, and parks[2]. • This species overwinters in South America[11]. As such, overwintering habitat for this species is not applicable in or within 120m of the Project Location.	• Area searches for breeding habitat were conducted in conjunction with ELC mapping (WO, FO, TAGM2, TAGM3, SWC, SWM, SWD). • Breeding habitat for this species (if present) is addressed through Species of Conservation Concern (Eastern Wood-Pewee). • Migratory habitat for this species has been determined through the consideration of Landbird Migratory Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
Peregrine Falcon *(Falco peregrinus anatum)*	S3B	SC	SC	• Nests on rock cliffs and crags, especially situated near water, and on tall buildings in urban centres[2]. • This species overwinters along lake shores with concentrations of waterbirds, pigeons, or doves[12]. As such, overwintering habitat for this species is not applicable in or within 120m of the Project Location.	• Area searches for breeding habitat were conducted in conjunction with ELC mapping (CL, TA). • Migratory habitat for this species has been determined through the consideration of Landbird Migratory Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.
Bald Eagle *(Haliaeetus leucocephalus)*	S2N S4B	SC	NAR	• Requires large continuous areas of deciduous or mixed woods near large lakes or rivers[2]. • Require an area of 255ha for nesting, shelter, feeding and roosting[2]. • Prefers open woods with 30 to 50% canopy cover and will nest in trees 50 to 200m from the shore of a water body. Requires tall, dead or partially dead trees within 400m of a nest for perching[2].	• Breeding habitat for this species is addressed under the consideration of Bald Eagle and Osprey Nesting, Foraging and Perching Habitat. • Overwintering habitat for this species is addressed under the consideration of Raptor Wintering Areas.
Wood Thrush *(Hylocichla mustelina)*	S4B	SC	THR	• Prefers undisturbed, moist, mature deciduous or mixed forest with deciduous sapling growth and some trees >12m in height[2]. • This species overwinters in South America[13]. As such, overwintering habitat for this species is not applicable in or within 120m of the Project Location.	• Area searches for breeding habitat were conducted in conjunction with ELC mapping (FOM, FOD, SWM, SWD). • Breeding habitat for this species (if present) is addressed through Species of Conservation Concern (Wood Thrush). • Migratory habitat for this species has been determined through the consideration of Landbird Migratory Stopover Areas, which is not applicable as the Project is located

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
					>5km from Lake Ontario.
Wilson"s Phalarope *(Phalaropus tricolor)*	S3B	-	-	• Uses open wetlands, ponds, lakes, marshes and sloughs with wet meadow vegetation. Can be found in freshwater and coastal marshes[2]. • Nests on ground in loose colonies; sewage lagoons with grassy edges, may nest in loose colonies where nests are 9 to 12m apart[2]. • Since this species is considered rare during the breeding season only[1], overwintering and migratory habitat considerations are not applicable.	• Area searches for breeding habitat were conducted in conjunction with ELC mapping (MAS or MAM adjacent to SA or OA). • Breeding habitat for this species (if present) is addressed through Species of Conservation Concern (Wilson"s Phalarope).
Herpetofauna					
Snapping Turtle *(Chelydra serpentina)*	S3	SC	SC	• Resides in habitat that consists of permanent or semi-permanent fresh water, marshes, swamps or bogs or rivers and streams with soft muddy banks or bottoms[2]. • Uses soft soil or clean dry sand on south-facing slopes for nest sites, which can be some distance from water. They will also take advantage of man-made structures for nest sites, including roads (especially with gravel shoulders), dams and aggregate pits[2]. • Often hibernate together in groups in mud under water[2].	• Habitat for this species is addressed under the consideration of Turtle Nesting Area and Turtle Wintering Area Habitat. • If Turtle Nesting Areas are deemed significant, travel routes from wetlands to nesting areas will also be considered as part of the NHA Evaluation of Significance.

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
Northern Map Turtle *(Graptemys geographica)*	S3	SC	SC	• Found in large bodies of water with soft bottoms and aquatic vegetation[2]. • Basks in groups on logs, rocks, beaches or sandy edges and uses soft soil or clean dry sand for nest sites that can be some distance from water[2]. • Home range size is larger for females (approximately 70ha) than males (approximately 30ha) and includes hibernation, basking, nesting and feeding areas, while aquatic corridors (e.g. streams) are required for movement[2].	• Habitat for this species is addressed under the consideration of Turtle Nesting Area and Turtle Wintering Area Habitat. • If Turtle Nesting Areas are deemed significant, travel routes from wetlands to nesting areas will also be considered as part of the NHA Evaluation of Significance.
Western Chorus Frog (Great Lakes/St. Lawrence - Canadian Shield Population) (*Pseudacris triseriata* population 2)	S3	NAR	T	• Inhabits forest openings around woodlands ponds but can also be found in or near damp meadows, marshes, roadside ditches, bottomland swamps and temporary ponds in open country or even urban areas[2,5]. • Breeds in almost any fishless pond with at least 10cm of water including quiet, shallow, usually temporary waterbodies with vegetation that is submerged or protrudes from the water, and especially in rain-flooded meadows and ditches, and in temporary ponds on floodplains[5].	• Habitat for this species is addressed under the consideration of Amphibian Breeding Habitat (Woodland) and Amphibian Breeding Habitat (Wetland). • If Amphibian Breeding Habitat (Wetland) is deemed significant, Amphibian Movement Corridors will be considered as part of the NHA Evaluation of Significance.

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
Eastern Musk Turtle (*Sternotherus odoratus)*	S3	SC	SC	• Uses aquatic habitats, except when laying eggs[2]. • Uses shallow, slow-moving water of lakes, streams, marshes and ponds[2]. • Hibernates in underwater mud, in banks or in muskrat lodges and sometimes congregates at hibernation sites[2]. • Underwater shelters (e.g. rocks, sunken logs etc.) are necessary[6]. • Eggs are laid in debris or under stumps or fallen logs near the waters" edge; this species often shares nest sites with others or with other species of turtles[2,6]. • The home range of this species averages 1.75ha or less, and it is likely confined to one body of water unless drought causes the water body to dry up. Studies examining terrestrial movements indicate an average movement of only 13m from the water body and a maximum of 49m[6].	• Area searches for nesting or overwintering habitat were conducted in conjunction with ELC mapping (MAS, SA, or OA with downed woody debris; SW, FE, or BO with slow-moving permanent watercourses or permanent ponds containing downed woody debris. All sites require soft bottoms with deep water that does not fully freeze in winter). • Nesting and overwintering habitat for this species (if present) is addressed through Species of Conservation Concern (Eastern Musk Turtle).
Eastern Ribbonsnake (*Thamnophis sauritus septentrionalis)*	S4	SC	SC	• Inhabits sunny, grassy areas with low dense vegetation near bodies of shallow, permanent, quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams[2]. • Generally found near forested areas, and tends to be absent from non-forested areas[5]. • Hibernates in groups[2].	• Habitat for this species is addressed under the consideration of Reptile Hibernacula.
Vegetation					

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
Atlantic Sedge *(Carex atlantica)*	S1S2	-	-	• Prefers clearings in shrubby bogs[2].	• Area searches for suitable habitat were conducted in conjunction with ELC mapping (BOS).
Mühlenberg's Weissia *(Weissia muhlenbergiana)*	S2	-	-	• Prefers soils, lawns, fields, roadsides; may grow amongst grasses[14]. • Grows at moderate elevations[14].	• Area searches for suitable habitat were conducted in conjunction with ELC mapping (RBO, MEG, MEM, SV).
Insects					
Bog Elfin (*Callophrys lanoraieensis)*	S1	-	-	• Found in black spruce (*Picea mariana*) bog habitats[7]. • Caterpillars rely exclusively on black spruce needles for feeding[7].	• Area searches for suitable breeding habitat were conducted in conjunction with ELC mapping (BO), with suitable species associations (black spruce).
Monarch (*Danaus plexippus)*	S2N, S4B	SC	END	• Utilizes a variety of open habitats including fields, meadows, weedy areas, marshes, and roadsides, where a variety of nectar-producing wildflowers can be found for feeding[7]. • Caterpillars rely on a variety of milkweed species, including common milkweed (*Asclepias syriaca*) and swamp milkweed (*A. incarnata*), among others[7].	• Area searches for suitable breeding habitat were conducted in conjunction with ELC mapping (RB, SH, BL, SB, ME, TH, SV, WO, MAM, MAS, or SWT) containing an abundance of milkweed (*Asclepias* spp.) or some milkweed with an abundance of other nectar-producing wildflowers. • Initial surveys were conducted for a subset of habitats during assessments in May and June of 2016. Preliminary information from surveys in December 2016 and January 2017 was also obtained (i.e. ELC codes that may be suitable). • An assessment for milkweeds and other nectar-producing wildflowers will be conducted within the remaining potential habitats prior to

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
					the first evaluation of significance surveys in 2017. • If there are sufficient milkweed and other nectar-producing wildflowers present in potential habitats, evaluation of significance surveys will be undertaken. • Migratory habitat for this species has been determined through the consideration of Migratory Butterfly Stopover Areas, which is not applicable as the Project is located >5km from Lake Ontario.
West Virginia White *(Pieris virginiensis)*	S3	SC	-	• Found in moist deciduous woodlands or mixed woods, with adults consuming nectar from toothworts (*Dentaria* spp.), spring beauty (*Claytonia* spp.), violets (*Viola* spp.) and other flowering plants[7]. • Caterpillars rely specifically on toothwort species (*Dentaria diphylla* and *D. laciniata*)[7].	• Area searches for suitable breeding habitat were conducted in conjunction with ELC mapping (FOD, FOM) with suitable species associations (toothworts (*Dentaria* spp.)). • Initial surveys were conducted for a subset of habitats during assessments in May and June of 2016. Preliminary information from surveys in December 2016 and January 2017 was also obtained (i.e. ELC codes that may be suitable). • An assessment for toothworts will be conducted within the remaining potential habitats prior to the first evaluation of significance surveys in 2017. • If there are toothworts present in potential habitats, evaluation of

Species of Conservation Concern	S-Rank (2016)[1]	SARO Status (2016)[2]	COSEWIC Status (2017)[3]	Criteria	Methods
					significance surveys will be undertaken.

Subscripts:
1. NHIC Species of Conservation Concern (2016)
2. MNRF Species at Risk in Ontario List (2016)
3. Government of Canada Species at Risk Public Registry (2017)

Superscripts:
1. Wiggins et al. (2006)
2. OMNR Significant Wildlife Habitat Technical Guide (2000)
3. Ministry of Natural Resources and Forestry (2016)
4. Heath et al. (2009)
5. Ontario Nature (2016)
6. Ernst and Lovich (2009)
7. Butterflies and Moths of North America (2014)
8 Reitsma et al. (2009)
9 Brigham et al. (2011)
10 Altman et al. (2012)
11 McCarty (1996)
12 White et al. (2002)
13 Evans et al. (2011)
14 eFloras (2008)

Provincial Rank (S-Rank)	**COSEWIC and SARO Status**
S1: Critically Imperiled	END/E: Endangered
S2: Imperiled	THR/T: Threatened
S3: Vulnerable	SC: Special Concern
S4: Apparently Secure	NAR: Not at Risk
SH: Historic	DD: Data Deficient

N: Rank during the non-breeding period
B: Rank during the breeding period

5.6.4 Animal Movement Corridors

Animal movement corridors are defined by the MNRF as *"distinct passageways or well defined natural features used by animals to move between habitats, which are required by the animals to complete their life cycles"* (MNRF 2015). Animal movement corridors are represented by a diversity of landscape features such as riparian areas, woodlands, ravines, ridges and fencerows (MNRF 2015). Aerial photography and site-specific field investigations were used to identify animal movement corridor features in and within 120m of the Project Location. More specifically, the presence of amphibian movement corridors was examined. Movement corridors for amphibians traveling from their terrestrial habitat to breeding habitat can be extremely important for local amphibian populations.

According to the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015), amphibian movement corridors, which are used between breeding and summer habitat, must be determined when wetland amphibian breeding habitat has been confirmed as SWH. NRSI has used the presence of any candidate wetland amphibian breeding habitats located in or within 120m of the Project Location, as outlined in Section 5.6.2 (Table 5), to identify potential amphibian movement corridors in or within 120m of the Project Location. In the event that significant wetland amphibian breeding habitat is present in or within 120m of the Project Location, further investigation of the presence of amphibian movement corridors will be completed. If Bullfrog is identified during evaluation of significance surveys in a candidate Amphibian Breeding Habitat (Woodland) containing permanent water bodies with abundant emergent vegetation, amphibian movement corridors will also be considered for these habitats. The habitat characteristics used to identify animal movement corridors in or within 120m of the Project Location are outlined in Table 8.

Table 8. Characteristics Used to Identify Candidate Animal Movement Corridors

Candidate Animal Movement Corridors	Criteria[1]	Methods
Amphibian Movement Corridors	• Movement corridors must be considered when Amphibian Breeding Habitat (Wetland) is confirmed as SWH. • Movement corridors are between breeding habitat and summer habitat. • Corridors should be at least 200m wide with gaps <20m and, if following riparian areas, with at least 15m of vegetation on both sides of waterway.	• Significant Amphibian Breeding Habitat (Wetland) to be examined for amphibian movement corridors. • If Bullfrog is identified during evaluation of significance surveys in a candidate Amphibian Breeding Habitat (Woodland) containing permanent water bodies with abundant emergent vegetation, amphibian movement corridors will also be considered for these habitats. • The width and presence of gaps along potential corridors were determined using GIS mapping.

[1] SWH Criteria Schedules for Ecoregion 6E (MNRF 2015)

6.0 Site Investigation Results

6.1 Woodlands

Site investigations conducted in or within 120m of the Project Location have identified a total of 55 woodlands. This is a change from the records review, as available basemapping initially indicated a total of 137 woodlands in or within 120m of the Project Location. Many of these woodlands were counted as individual woodlands during the records review; however, under the definition of a woodland in the NHA Guide (OMNR 2012), woodlands bisected by an opening of 20m or less from crown edges are considered to be contiguous woodlands. As such, site investigations have confirmed that some of these individually identified woodlands should be combined into larger woodlands based on the definition in the NHA Guide (OMNR 2012). The site investigation has also confirmed that some of the woodlands identified through the records review are hedgerows or fencerows, which do not meet the ELC definition of a forest. In addition, the site investigation has confirmed that some of the woodlands (primarily hedgerows) and some portions of woodlands identified during the records review process no longer exist.

The Project Location is within the boundary of 18 woodlands (WOD-005, WOD-009, WOD-014, WOD-019, WOD-020, WOD-021, WOD-026, WOD-027, WOD-028, WOD-029, WOD-031, WOD-038, WOD-044, WOD-046, WOD-047, WOD-048, WOD-053, WOD-054). These woodlands (except for WOD-026) will be overlapped by the Project Location that follows the municipal road right-of-way. Overlap with the woodlands will occur entirely within the road right-of-way and will be minimized to the extent reasonable. In cases where wetlands are also found in conjunction with woodlands within the road right-of-way, directional drilling may be implemented to install collection lines beneath the feature if they cannot be sited outside of it. One woodland (WOD-026) will be overlapped by the Project Location in the event that overhead collection lines are installed to cross the South Nation River; at this time it has not yet been determined whether overhead or underground (i.e. directionally drilled) collection lines will be installed.

For clarity, the mapping depicts 6 additional woodlands (WOD-007, WOD-041, WOD-043, WOD-045, WOD-049, WOD-052) being overlapped by the Project Location; however, all project components, including the construction disturbance area, will be located adjacent (i.e. >0.1m) to these woodlands. Woodlands in and within 120m of the Project Location range in size from 0.55ha to 190.10ha, and are characterized by a combination of deciduous, mixed, and coniferous forests and swamps, as well as occasional coniferous plantations. ELC mapping of these features can be seen on Maps 2-1 to 2-13, while detailed mapping of woodlands in and within 120m of the Project Location can be seen on Maps 3-1 to 3-12. Woodland size, composition, attributes, functions and distance to the Project Location are summarized in Table 9.

Table 9. Summary of Woodlands in the Project Area

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
WOD-001$_1$ Woodland	0.56	SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant green ash (*Fraxinus pennsylvanica*), and occasional white elm (*Ulmus americana*), Manitoba maple (*Acer negundo*), and white spruce (*Picea glauca*).	WT – >120 AR – 5 CL – 5 CA – 5 SI – >120	**3-1**	**Yes**
WOD-002$_3$ Woodland	2.99	SWCR1-1 <u>Inclusions</u>* RBTB1 WODM5-2	White Cedar Calcareous Rock/Bedrock Coniferous Swamp with abundant white cedar (*Thuja occidentalis*), and occasional white elm, green ash, and Manitoba maple.	WT – 10 (T2) AR – 3 CL – 3 CA – 3 SI – >120	**3-1**	**Yes**
WOD-003$_1$ Woodland	8.39	WODR1	Dry-Fresh Calcareous Bedrock Deciduous Woodland	WT – >120 AR – >120 CL – 75 CA – 75 SI – >120	**3-1** **3-2**	**Yes**
WOD-004$_2$ Woodland	22.88	FODM4-4 TAGM1 FODR1-1 TAGM1	Dry-Fresh Ironwood Deciduous Forest dominated by ironwood (*Ostrya virginiana*), with occasional white elm, white ash (*Fraxinus americana*), common buckthorn (*Rhamnus cathartica*), and American prickly-ash (*Zanthoxylum americanum*). Coniferous Plantation dominated by white spruce. Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest dominated by sugar maple (*Acer saccharum* ssp. *saccharum*), with occasional white elm. Coniferous Plantation dominated by white spruce, with	WT – >120 AR – >120 CL – 65 CA – 65 SI – >120	**3-1** **3-2**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			occasional white elm, and tall goldenrod (*Solidago altissima* var. *altissima*).			
		FOMM2-3	Dry-Fresh White Pine-Hardwood Mixed Forest occasional white pine (*Pinus strobus*), sugar maple, and white elm.			
WOD-005$_2$ Woodland	54.41	FODR1-1	Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest with abundant sugar maple, and ironwood, with occasional trembling aspen, white cedar, and hawthorn species (*Crataegus* species).	WT – 105 (T4) AR – 3 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-1** **3-2**	**Yes**
		FODM5-1	Dry-Fresh Sugar Maple Deciduous Forest with abundant sugar maple, and occasional white elm, Manitoba maple, staghorn sumac (*Rhus hirta*), common buckthorn, and eastern red cedar (*Juniperus virginiana*).			
		SWCM1-1	White Cedar Mineral Coniferous Swamp with abundant white cedar, and occasional white elm, trembling aspen, common buckthorn, grey dogwood (*Cornus foemina* ssp. *racemosa*), and red-osier dogwood (*Cornus stolonifera*).			
		FODM7-1	Fresh-Moist White Elm Deciduous Lowland Forest with abundant white elm, and occasional green ash, Manitoba maple, and white cedar.			
		FOD	Deciduous Forest			
		TAGM1	Coniferous Plantation			
		TAGM1	Coniferous Plantation dominated by jack pine (*Pinus banksiana*).			
		WODM5-2	Fresh-Moist Elm Deciduous Woodland			
		SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional white elm.			

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		FODM5-1 WOD Inclusions* FOCM4-1 FODM7 FODM11 TAGM1	Dry-Fresh Sugar Maple Deciduous Forest dominated by sugar maple, with occasional basswood (*Tilia americana*), white ash, choke cherry (*Prunus virginiana* ssp. *virginiana*), alternate-leaved dogwood (*Cornus alternifolia*), and ironwood. Deciduous Woodland			
WOD-006$_1$ Woodland	3.75	FODM5-4 FODM11	Dry-Fresh Sugar Maple-Ironwood Deciduous Forest with abundant sugar maple, and occasional white elm, basswood, and ironwood. Naturalized Deciduous Hedgerow	WT – >120 AR – >120 CL – >120 CA – 5 SI – >120	**3-1**	**Yes**
WOD-007$_2$ Woodland	77.95	TAGM1 SWDM2-2 SWDM4-5 WODR1 FOM FODR1-1	Coniferous Plantation dominated by white spruce. Green Ash Mineral Deciduous Swamp dominated by green ash, with occasional white elm, red maple (*Acer rubrum*), and white cedar. Poplar Mineral Deciduous Swamp dominated by trembling aspen, with occasional green ash, white elm, butternut hickory (*Carya cordiformis*), sugar maple, and basswood. Dry-Fresh Calcareous Bedrock Deciduous Woodland with abundant sugar maple, and occasional basswood, green ash, white elm, and trembling aspen. Mixed Forest Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow	WT – 107 (T4) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-1** **3-2**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Deciduous Forest with abundant ironwood, and sugar maple, and occasional white elm, and white ash.			
		WOD	Deciduous Woodland			
		WOMR1	Dry-Fresh Calcareous Bedrock Mixed Woodland with occasional sugar maple, white elm, green ash, white cedar, and trembling aspen.			
		SWCM1-1	White Cedar Mineral Coniferous Swamp dominated by white cedar.			
		SWM	Mixed Swamp			
		SWD	Deciduous Swamp			
		SWMM1	White Cedar-Hardwood Mineral Mixed Swamp			
		WODR1	Dry-Fresh Calcareous Bedrock Deciduous Woodland with abundant ironwood, and occasional basswood, sugar maple, bitternut hickory, and *Juglans* species.			
		FOC	Coniferous Forest			
		WOM	Mixed Woodland			
		SWM	Mixed Swamp			
		FOD	Deciduous Forest			
		FODM5-5	Dry-Fresh Sugar Maple-Hickory Deciduous Forest with abundant bitternut hickory, and occasional sugar maple, *Juglans* species, basswood, and ironwood.			
		TAGM1	Coniferous Plantation dominated by Norway spruce (*Picea abies*), with occasional white cedar, white pine, and			

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			common buckthorn.			
		FODR1	Dry-Fresh Sugar Maple-Hardwood Calcareous Forest with abundant basswood, and occasional sugar maple, white elm, bur oak (*Quercus macrocarpa*), and ironwood.			
WOD-008$_1$ Woodland	1.31	TAGM1	Coniferous Plantation dominated by Norway spruce, with occasional white cedar and white pine.	WT – >120 AR – >120 CL – 113 CA – 113 SI – >120	**3-1** **3-2**	**Yes**
		SWDM2-2	Green Ash Mineral Deciduous Swamp with occasional green ash and white elm.			
WOD-009$_2$ Woodland	29.97	SWDR1	Calcareous Rock/Bedrock Deciduous Swamp with abundant white elm and common buckthorn, and occasional green ash.	WT – 47 (T4) AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-1** **3-2**	**Yes**
		FODM7-1	Fresh-Moist White Elm Lowland Deciduous Forest with abundant white elm, and occasional green ash, white cedar, and Manitoba maple.			
		FODM11	Naturalized Deciduous Hedgerow with occasional white elm, trembling aspen, and Manitoba maple.			
		SWCM1-1	White Cedar Mineral Coniferous Swamp dominated by white cedar, with occasional trembling aspen and green ash.			
		FOMM7	Fresh-Moist White Cedar-Hardwood Mixed Forest			
		<u>Inclusions</u>* FOCM4-7 FODM7-7 SWCM1-1				

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWDM4-5				
WOD-010$_3$ Woodland	8.59	FODM5-8 Inclusion* TAGM1	Dry-Fresh Sugar Maple-White Ash Deciduous Forest dominated by sugar maple, with occasional white ash, white elm, American beech (*Fagus grandifolia*), and Scots pine (*Pinus sylvestris*).	WT – >120 AR – >120 CL – >120 CA – 31 SI – >120	**3-1**	**Yes**
WOD-011$_2$ Woodland	31.42	WODM5-2 FODM11 FODM7-2 TAGM1 FODM5-8 SWDM2-2 SWMM1-1	Fresh-Moist Elm Deciduous Woodland with abundant green ash, and occasional white elm, trembling aspen, and basswood. Naturalized Deciduous Hedgerow with abundant white ash, and occasional sugar maple, white elm, basswood, and *Juglans* species. Fresh-Moist Green Ash-Hardwood Lowland Deciduous Forest with abundant green ash, and occasional white elm, and trembling aspen. Coniferous Plantation dominated by white pine. Dry-Fresh Sugar Maple-White Ash Deciduous Forest with abundant sugar maple, and occasional trembling aspen, white ash, and basswood. Green Ash Mineral Deciduous Swamp with occasional green ash and trembling aspen. White Cedar-Hardwood Mineral Mixed Swamp with occasional white cedar, green ash, and trembling aspen.	WT – >120 AR – 79 CL – 67 CA – 67 SI – >120	**3-1** **3-2**	**Yes**
WOD-012$_1$ Woodland	71.84	TAGM1 SWMM3-2	Coniferous Plantation dominated by white spruce, with occasional white ash, white elm, and American beech. Poplar-Conifer Mineral Mixed Swamp with abundant trembling aspen, and occasional green ash, white cedar,	WT – >120 AR – >120 CL – >120 CA – 22 SI – >120	**3-3**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			white birch, and white elm.			
		SWDM3-1	Red Maple Mineral Deciduous Swamp with abundant red maple, and occasional white birch, and white elm.			
		SWD	Deciduous Swamp			
		SWC	Coniferous Swamp			
		FOD	Deciduous Forest			
		Inclusion* WOD				
WOD-013$_1$ Woodland	7.45	TAGM1	Coniferous Plantation dominated by white pine, with occasional white cedar, white ash, and white elm.	WT – >120 AR – >120 CL – 119 CA – 119 SI – >120	**3-3**	**Yes**
		TAGM1	Coniferous Plantation dominated by jack pine, with occasional white cedar, and white elm.			
		SWDM4-5	Poplar Mineral Deciduous Swamp with abundant trembling aspen, and occasional white cedar, green ash, white elm, and basswood.			
		TAGM1	Coniferous Plantation dominated by white spruce, with occasional green ash.			
		TAGM1	Coniferous Plantation			
WOD-014$_3$ Woodland	8.57	FODM5-8	Dry-Fresh Sugar Maple-White Ash Deciduous Forest with abundant sugar maple, and occasional white ash, basswood, and white elm.	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-3**	**Yes**
		TAGM2	Mixed Plantation dominated by white pine, with occasional white ash and white elm.			
		Inclusion* WODM5-2				

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
WOD-015$_2$	190.31	SWCM1-1	White Cedar Mineral Coniferous Swamp dominated by white cedar.	WT – 106 (T10) AR – 73 CL – 73 CA – 73 SI – >120	**3-3**	**Yes**
		SWDM2-2	Green Ash Mineral Deciduous Swamp with occasional sugar maple and green ash.			
		FOCM4-1	Fresh-Moist White Cedar Coniferous Forest dominated by white cedar.			
		SWMM1	White Cedar Mineral Mixed Swamp with occasional white cedar, sugar maple, and green ash.			
		SWDM4	Mineral Deciduous Swamp with occasional ironwood, green ash, and sugar maple.			
		SWD	Deciduous Swamp with occasional white elm, green ash, and trembling aspen.			
		FOD	Deciduous Forest			
		TAGM1	Coniferous Plantation dominated by white cedar.			
		FOC	Coniferous Forest			
		FODM6-5	Fresh-Moist Sugar Maple-Hardwood Deciduous Forest with occasional sugar maple, and bitternut hickory.			
		SWDM3-3	Swamp Maple Mineral Deciduous Swamp with occasional Freeman"s maple (*Acer x freemanii*), and green ash.			
		SWCM1	White Cedar Mineral Coniferous Swamp dominated by white cedar.			
		FOM	Mixed Forest			
		SWM	Mixed Swamp			

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWDM2-2 FODR1 TAGM1 WOMR1 Inclusions* SWDM4-2 SWDM3	Green Ash Mineral Deciduous Swamp dominated by green ash. Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest Coniferous Plantation Dry-Fresh Calcareous Bedrock Mixed Woodland			
WOD-016$_3$ Woodland	0.63	FOMM7	Fresh-Moist White Cedar Hardwood Mixed Forest with abundant white cedar, and occasional white elm, and green ash.	WT – 55 (T10) AR – 25 CL – 25 CA – 25 SI – 58	**3-3**	**Yes**
WOD-017$_1$ Woodland	1.49	SWDM4-5 SWDM2-2 Inclusion* SWCM1-1	Poplar Mineral Deciduous Swamp with abundant trembling aspen, and common buckthorn, and occasional white elm, green ash, and white birch. Green Ash Mineral Deciduous Swamp with occasional green ash, white elm, and black ash (*Fraxinus nigra*).	WT – 5 (T11) AR – 3 CL – 3 CA – 3 SI – >120	**3-3**	**Yes**
WOD-018$_3$ Woodland	1.59	TAGM1 Inclusion* SWDM2-2	Coniferous Plantation dominated by white spruce and white pine.	WT – >120 AR – >120 CL – >120 CA – 56 SI – 56	**3-4**	**Yes**
WOD-019$_1$ Woodland	4.31	FODM4-2	Dry-Fresh White Ash Hardwood Deciduous Forest with occasional white ash, white elm, shagbark hickory (*Carya ovata* var. *ovata*), and bitternut hickory.	WT – >120 AR – >120 CL – Overlapping[2]	**3-5**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
				CA – Overlapping[2] SI – >120		
WOD-020$_2$ Woodland	10.19	SWDM3-4 FODM FODM5-8	Manitoba Maple Mineral Deciduous Swamp dominated by Manitoba maple, with occasional green ash, and basswood. Mineral Deciduous Forest Dry-Fresh Sugar Maple-White Ash Deciduous Forest with abundant sugar maple, and occasional white ash, and basswood.	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-5**	**Yes**
WOD-021$_1$ Woodland	11.66	SWDM3-4	Manitoba Maple Mineral Deciduous Swamp dominated by Manitoba maple, with occasional green ash, basswood, and white elm.	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-5** **3-8**	**Yes**
WOD-022$_3$ Woodland	1.03	FODM4-5	Dry-Fresh Manitoba Maple Deciduous Forest dominated by Manitoba maple, with occasional sugar maple.	WT – >120 AR – >120 CL – 90 CA – 90 SI – >120	**3-5** **3-6**	**Yes**
WOD-023$_3$ Woodland	1.39	FODM5-8	Dry-Fresh Sugar Maple-White Ash Deciduous Forest with abundant white ash, and sugar maple, and occasional basswood, bur oak, white elm, and trembling aspen.	WT – >120 AR – >120 CL – >120 CA – 2 SI – 2	**3-5** **3-6**	**Yes**
WOD-024$_3$ Woodland	1.86	FODM5-5 <u>Inclusion</u>* TAGM1	Dry-Fresh Sugar Maple-Hickory Deciduous Forest with abundant black maple (*Acer saccharum* ssp. *nigrum*), and occasional bitternut hickory, white ash, basswood, and American beech.	WT – 118 (T32) AR – 80 CL – 26 CA – 26 SI – 71	**3-5** **3-6**	**Yes**
WOD-025$_1$ Woodland	0.55	FODM4-5	Dry-Fresh Manitoba Maple Deciduous Forest dominated by Manitoba maple.	WT – >120 AR – 93 CL – 71	**3-6**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
				CA – 71 SI – >120		
WOD-026$_1$ Woodland	1.42	FODM11	Naturalized Deciduous Hedgerow dominated by white ash, with occasional white elm.	WT – >120 AR – >120 CL – Overlapping CA – Overlapping SI – >120	**3-6**	**Yes**
WOD-027$_1$ Woodland	3.74	FODM4-2	Dry-Fresh White Ash Hardwood Deciduous Forest with occasional white ash, white elm, tall goldenrod, and wild carrot (*Daucus carota*).	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-6**	**Yes**
WOD-028$_1$ Woodland	4.13	SWDM2-2	Green Ash Mineral Deciduous Swamp with occasional green ash, white elm, trembling aspen, and Manitoba maple.	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-6** **3-7**	**Yes**
WOD-029$_3$ Woodland	4.83	SWDM2-2	Green Ash Mineral Deciduous Swamp dominated by green ash, with occasional trembling aspen, white elm, and Manitoba maple.	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI –>120	**3-6** **3-7**	**Yes**
WOD-030$_1$ Woodland	0.75	FODM5-8	Dry-Fresh Sugar Maple-White Ash Deciduous Forest with occasional sugar maple, and white ash.	WT – >120 AR – >120 CL – 63 CA – 63 SI – >120	**3-6** **3-7**	**Yes**
WOD-031$_2$ Woodland	26.99	TAGM1 FODR1-1 TAGM1	Coniferous Plantation dominated by jack pine, with occasional white elm, and Manitoba maple. Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest with abundant sugar maple, and occasional white ash, bitternut hickory, ironwood, and basswood. Coniferous Plantation dominated by white pine, with	WT – 17 (T27) AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-7**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			occasional white elm, sugar maple, and white ash.			
		SWDR1	Calcareous Rock/Bedrock Deciduous Swamp dominated by green ash, with occasional white elm, basswood, and sugar maple.			
		TAGM1	Coniferous Plantation dominated by white spruce.			
		Inclusion* SWDM2-2				
WOD-032$_3$ Woodland	1.56	FODM7-2	Fresh-Moist Green Ash-Hardwood Lowland Deciduous Forest dominated by green ash, with occasional white elm, black cherry (*Prunus serotina*), and Manitoba maple.	WT – 120 (T29) AR – 93 CL – 93 CA – 93 SI – >120	**3-7**	**Yes**
		SWDM3-4	Manitoba Maple Mineral Deciduous Swamp dominated by Manitoba maple, with occasional white elm.			
		Inclusion* FODM5-6				
WOD-033$_3$ Woodland	2.35	SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant red maple, green ash, and Manitoba maple, with occasional sugar maple, and white ash.	WT – >120 AR – 4 CL – 4 CA – 4 SI – >120	**3-7**	**Yes**
WOD-034$_1$ Woodland	0.94	FODM5-2	Dry-Fresh Sugar Maple-Beech Deciduous Forest with abundant sugar maple and American beech, and occasional white ash.	WT – >120 AR – 49 CL – 36 CA – 36 SI – >120	**3-7**	**Yes**
WOD-035$_2$ Woodland	57.16	SWDM2-2	Green Ash Mineral Deciduous Swamp with occasional green ash, bur oak, Freeman"s maple, and trembling aspen.	WT – >120 AR – >120 CL – 48 CA – 48 SI – >120	**3-7**	**Yes**
		FODM4-2	Dry-Fresh White Ash-Hardwood Deciduous Forest dominated by white ash, with occasional white elm, and basswood.			

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		FODM5-6 WODM4-2 SWC SWD SWM WOD FOM <u>Inclusion</u>* SWDR1	Dry-Fresh Sugar Maple-Basswood Deciduous Forest with abundant sugar maple, and occasional basswood, white ash, trembling aspen, ironwood, and white cedar. Dry-Fresh White Ash Deciduous Woodland with occasional white ash, *Juglans* species, and trembling aspen. Coniferous Swamp Deciduous Swamp Mixed Swamp Deciduous Woodland Mixed Forest			
WOD-036$_3$ Woodland	3.88	SWDM2-2	Green Ash Mineral Deciduous Swamp dominated by green ash, with occasional Manitoba maple, white elm, and trembling aspen.	WT – >120 AR – >120 CL – >120 CA – 86 SI – >120	**3-8** **3-9**	**Yes**
WOD-037$_1$ Woodland	4.32	TAGM1	Coniferous Plantation dominated by white pine.	WT – >120 AR – >120 CL – 87 CA – 87 SI – >120	**3-8** **3-9**	**Yes**
WOD-038$_1$ Woodland	38.52	TAGM1 FODM5-8	Coniferous Plantation dominated by white pine. Dry-Fresh Sugar Maple-White Ash Deciduous Forest with occasional white ash, sugar maple, and white elm.	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-8** **3-9**	**Yes**
WOD-039$_3$	2.37	SWMM1-1	White Cedar-Hardwood Mineral Mixed Swamp with	WT – >120	**3-9**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Woodland			occasional white cedar, white elm, and trembling aspen.	AR – >120 CL – 120 CA – 120 SI – >120		
WOD-040$_3$ Woodland	3.32	TAGM1	Coniferous Plantation dominated by white pine, with occasional common buckthorn.	WT – >120 AR – >120 CL – 21 CA – 21 SI – >120	**3-10**	**Yes**
WOD-041$_3$ Woodland	3.62	TAGM1 Inclusion* SWDM4-5	Coniferous Plantation dominated by white pine.	WT – 9 (T43) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-10**	**Yes**
WOD-042$_1$ Woodland	2.15	FODM5-6	Dry-Fresh Sugar Maple-Basswood Deciduous Forest with occasional sugar maple, basswood, white ash, bitternut hickory, and ironwood.	WT – >120 AR – 12 CL – 12 CA – 12 SI – >120	**3-10**	**Yes**
WOD-043$_2$ Woodland	32.29	SWDM4-5 SWMM1-1 FODM8-1 FOC SWD	Poplar Mineral Deciduous Swamp with abundant trembling aspen, and occasional green ash, white elm, white spruce, and bitternut hickory. White Cedar-Hardwood Mineral Mixed Swamp with abundant green ash, and occasional white cedar, white elm, and trembling aspen. Poplar Mineral Deciduous Forest with abundant trebling aspen, and common buckthorn. Coniferous Forest Deciduous Swamp	WT – 5 (T46) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-11**	**Yes**
WOD-044$_2$ Woodland	126.04	WODM5	Fresh-Moist Deciduous Woodland with occasional basswood, trembling aspen, and bur oak.	WT – 60 (T46) AR – 9 CL – Overlapping[2]	**3-11**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		WOD	Deciduous Woodland	CA – Overlapping[2] SI – >120		
		FODM2-3	Dry-Fresh Hickory Deciduous Forest with occasional bitternut hickory, trembling aspen, white ash, and *Juglans* species.			
		SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional white elm, trembling aspen, and basswood.			
		TAGM1	Coniferous Plantation with abundant white spruce, and white pine.			
		FOCM2-2	Dry-Fresh White Cedar Coniferous Forest dominated by white cedar, with occasional white ash and trembling aspen.			
		SWMM1-1	White Cedar-Hardwood Mineral Mixed Swamp with abundant white cedar, and green ash, and occasional white elm, trembling aspen, and balsam poplar (*Populus balsamifera* ssp. *balsamifera*).			
		SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional trembling aspen, white birch, white cedar, and white elm.			
		SWM	Mixed Swamp			
		SWC	Coniferous Swamp			
		SWD	Deciduous Swamp			
		SWCM1-1	White Cedar Mineral Coniferous Swamp dominated by white cedar, with occasional green ash, white elm, and trembling aspen.			

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWDM2-2 Inclusion* FODM4	Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional trembling aspen, and white elm.			
WOD-045$_3$ Woodland	0.90	SWDM3-4	Manitoba Maple Mineral Deciduous Swamp dominated by Manitoba maple, with occasional green ash and silky dogwood (*Cornus amomum* ssp. *obliqua*).	WT – 40 (T52) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-11**	**Yes**
WOD-046$_1$ Woodland	11.60	SWDM2-2	Green Ash Mineral Deciduous Swamp dominated by green ash, with occasional sugar maple, ironwood, and bur oak.	WT – >120 AR – 110 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-11**	**Yes**
WOD-047$_1$ Woodland	14.21	TAGM3 FODM5-8 SWD	Deciduous Plantation dominated by sugar maple (maple syrup production). Dry-Fresh Sugar Maple-White Ash Deciduous Forest dominated by sugar maple, with occasional white ash, American beech, and white elm. Deciduous Swamp	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-11**	**Yes**
WOD-048$_3$ Woodland	20.12	SWMM1-1 SWCM1-1 FOCM4-1 FOCM2-2	White Cedar-Hardwood Mineral Mixed Swamp dominated by white cedar, with occasional green ash. White Cedar Mineral Coniferous Swamp dominated by white cedar, with occasional white elm. Fresh-Moist White Cedar Coniferous Forest dominated by white cedar, with occasional trembling aspen, and Norway spruce. Dry-Fresh White Cedar Coniferous Forest dominated by white cedar, with occasional trembling aspen, and large-tooth aspen (*Populus grandidentata*).	WT – >120 AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-11** **3-12**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWMM1-1 SWDM3-1 SWDM2-2 FODM5-8 <u>Inclusion</u>* TAGM1	White Cedar-Hardwood Mineral Mixed Swamp with occasional white cedar, white elm, green ash, and sugar maple. Red Maple Mineral Deciduous Swamp with abundant red maple, and green ash, and occasional basswood. Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional white elm, Manitoba Maple, white cedar, and sugar maple. Dry-Fresh Sugar Maple-White Ash Deciduous Forest with abundant sugar maple, and occasional white ash, yellow birch (*Betula alleghaniensis*), and bitternut hickory.			
WOD-049$_2$ Woodland	14.87	SWDM4-5	Poplar Mineral Deciduous Swamp with occasional trembling aspen, Manitoba maple, eastern cottonwood (*Populus deltoides* ssp. *deltoides*), green ash, basswood, and red maple.	WT – 11 (T56) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-11** **3-12**	**Yes**
WOD-050$_3$ Woodland	1.79	SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional white elm, large-tooth aspen, trembling aspen, and basswood.	WT – >120 AR – 2 CL – 2 CA – 2 SI – >120	**3-12**	**Yes**
WOD-051$_2$ Woodland	36.08	SWDM4-2 FOCM4-1 SWDM4-5	White Elm Mineral Deciduous Swamp with abundant white elm, and occasional white cedar, Manitoba maple, common buckthorn and green ash. Fresh-Moist White Cedar Coniferous Forest dominated by white cedar. Poplar Mineral Deciduous Swamp dominated by trembling	WT – 18 (T50) AR – 3 CL – 3 CA – 3 SI – >120	**3-12**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			aspen, with occasional green ash, and red maple.			
		FOCM2-2	Dry-Fresh White Cedar Coniferous Forest dominated by white cedar, with occasional trembling aspen, and white birch.			
		SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional basswood, large-tooth aspen, and sugar maple.			
		SWM	Mixed Swamp			
WOD-052$_3$ Woodland	0.87	SWDM2-2	Green Ash Mineral Deciduous Swamp dominated by green ash, with occasional white elm, and Manitoba maple.	WT – >120 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-12**	**Yes**
WOD-053$_3$ Woodland	18.97	FOMM7	Fresh-Moist White Cedar-Hardwood Mixed Forest with occasional white cedar, green ash, *Juglans* species, and sugar maple.	WT – 58 (T48) AR – 12 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-12**	**Yes**
		SWDM3-1	Red Maple Mineral Deciduous Swamp dominated by red maple, with occasional green ash, white elm, and white cedar.			
		FOMM7-2	Fresh-Moist White Cedar-Hardwood Mixed Forest Type with occasional white cedar, sugar maple, yellow birch, red maple, and alternate-leaved dogwood.			
		SWDM2-2	Green Ash Mineral Deciduous Swamp with occasional green ash, white elm, white cedar, and red maple.			
WOD-054$_3$ Woodland	40.81	SWDM2-2	Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional balsam poplar, and white elm.	WT – 115 (T48) AR – 14 CL – Overlapping[2] CA – Overlapping[2] SI – >120	**3-12**	**Yes**
		FOMM7-2	Fresh-Moist White Cedar-Hardwood Mixed Forest with abundant white cedar, and occasional white ash, sugar maple, and white elm.			

Feature ID	Size (ha)	Composition	Attributes	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		TAGM1 SWDM2-2 TAGM1 TAGM1 SWC	Coniferous Plantation dominated by white pine. Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional Manitoba maple, black ash, trembling aspen, basswood, and white pine. Coniferous Plantation dominated by white spruce. Coniferous Plantation dominated by red pine (*Pinus resinosa*). Coniferous Swamp			
WOD-055$_3$ Woodland	16.27	FOMM5-2 FOCM2-2 SWDM4-5 SWDM2-2 <u>Inclusion</u>* SWDM3-1	Dry-Fresh Poplar Mixed Forest with abundant white cedar, and occasional trembling aspen, white spruce, and white birch. Dry-Fresh White Cedar Coniferous Forest dominated by white cedar, with occasional white spruce. Poplar Mineral Deciduous Swamp with abundant trembling aspen, and occasional white elm, green ash, and red maple. Green Ash Mineral Deciduous Swamp with abundant green ash, and occasional white elm, and red maple.	WT – 78 (T57) AR – 5 CL – 5 CA – 5 SI – >120	**3-12**	**Yes**

** ELC codes have not been mapped as they have been identified as inclusions (<0.5ha in size).*

Superscripts:
1: Mapping depicts this woodland being overlapped by the Project Location; however, all project components, including the construction disturbance area, will be located adjacent to the woodland (>0.1m), or collector lines may be installed beneath the woodland via directional drilling.
2: Woodland will be overlapped by the Project Location that follows the municipal road right-of-way. Overlap with the woodland will occur entirely within the road right-of-way and will be minimized as much as practicable.

Subscripts:
1: Entire woodland delineated from property line/ aerial photograph.
2: Woodland delineated via a combination of methods: on site and property line/aerial photograph.
3: Entire woodland delineated on site.

Legend
WT: Wind Turbine
AR: Access Road
CL: Collector Lines
CA: Construction Activity/Temporary Infrastructure/Laydown Area
SI: Supporting Infrastructure - Building/Substation/Meteorological Tower/Point of Interconnect

6.2 Wetlands

During the site investigation, a total of 19 wetlands were identified within the Project Area. This is a change from the records review, as available basemapping indicated up to 45 wetlands in or within 120m of the Project Location. These wetlands were counted as individual wetlands during the records review; however, wetlands identified as part of the site investigation were categorized as individual wetlands or grouped together in wetland complexes where appropriate, following OWES protocol (OMNR 2014). The Project Location does not overlap with the boundaries of any candidate significant wetland. For clarity, the mapping depicts 9 wetlands (WET-003, WET-004, WET-009, WET-011, WET-016, WET-017, WET-018, WET-019, WET-020) as being overlapped by the Project Location; however, all project components, including the construction disturbance area, will be located adjacent (i.e. >0.1m) to these wetlands. In some of these cases, directional drilling may be implemented to install collection lines beneath a wetland if they cannot be sited outside of the wetland. All wetlands were delineated during site-specific field visits, along with the aid of detailed aerial photography interpretation where site access was not available.

The 19 wetlands identified within the Project Area include both individual wetlands and wetland complexes, and range in size from 0.95ha to 117.07ha. These wetlands typically represent treed swamps in headwater areas, with a small number of riverine wetlands. The Project Area is generally represented by flat to slightly undulating land with loam and clay loam soils. Occasional low drumlins and bedrock hills/knobs are also located in the Project Area. In flat portions of the Project Area, a network of channelized municipal drains carry water from the treed swamps in headwater areas to the South Nation River or the Payne River. Wetlands in the Project Area are dominated by a variety of tree species, but primarily include green ash (*Fraxinus pennsylvanica*), white cedar (*Thuja occidentalis*), and trembling aspen (*Populus tremuloides*).

Vegetation mapping can be seen on Maps 2-1 to 2-13 and detailed mapping of wetlands and wetland complexes can be seen on Maps 3-1 to 3-12. Wetland size, composition, attributes, functions and distance to the Project Location are summarized in Table 10.

Table 10. Summary of Wetlands in the Project Area

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
WET-001$_1$ Wetland McConnell Drain Watershed	3.54	Individual Wetland SWDM2-2 Green Ash Mineral Deciduous Swamp SWT Swamp Thicket	<u>Wetland Types</u> 100% Swamp <u>Vegetation Communities</u> **One Form:** **hS1** deciduous trees (*Fraxinus pennsylvanica*) **tsS2** deciduous trees <u>Soils</u> 100% mineral (clay loam$^+$) <u>Site Type</u> 100% Palustrine	• Primary productivity • Flood attenuation • Short-term water quality improvement • Groundwater recharge	WT – >120 AR – 5 CL – 5 CA – 5 SI – >120	**3-1**	**Yes**
WET-002$_3$ Wetland Gervais Drain Headwater	2.99	Individual Wetland SWCR1-1 White Cedar Calcareous Rock/Bedrock Coniferous Swamp	<u>Wetland Types</u> 100% Swamp <u>Vegetation Communities</u> **One Form:** **cS1** coniferous trees (*Thuja occidentalis*) <u>Soils</u> 100% mineral (clay loam/fine sandy loam$^+$, bedrock) <u>Site Type</u> 100% Isolated	• Primary productivity • Flood attenuation • Groundwater recharge	WT – 10 (T2) AR – 3 CL – 3 CA – 3 SI – >120	**3-1**	**Yes**
WET-003$_2$ Wetland Paquette McMahon	33.47	Wetland Complex SWDM2-2	<u>Wetland Types</u> 98% Swamp 2% Marsh <u>Vegetation Communities</u>	• Primary productivity • Interspersion • Flood attenuation • Habitat connectivity	WT – 105 (T4) AR – 68 CL – >0.1[1] CA – >0.1[1] SI – >120	**3-1** **3-2**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Drain Watershed		Green Ash Mineral Deciduous Swamp SWD Deciduous Swamp SWCM1-1 White Cedar Mineral Coniferous Swamp Type MAMM1-3 Reed-Canary Grass Graminoid Mineral Meadow Marsh SWT Thicket Swamp SWMM1-1 White Cedar-Hardwood Mineral Mixed Swamp SWM Mixed Swamp	**One Form:** **hS1-A** deciduous trees (*Fraxinus pennsylvanica*) **hS1-B** deciduous trees **cS2** coniferous trees (*Thuja occidentalis*) **neM1** narrow-leaved emergents (*Phalaris arundinacea*) **tsS3** tall shrubs **Two Forms:** **hS4** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Fraxinus pennsylvanica*) **cS5** coniferous trees (*Thuja occidentalis*), tall shrubs (*Populus tremuloides*) **hS6** deciduous trees, coniferous trees (*Thuja occidentalis*) **Three Forms:** **hS7** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Rhamnus cathartica*), low shrubs (*Rhamnus cathartica*) Soils 100% mineral (silty clay loam, loam^{+}) Site Type	• Short-term water quality improvement • Groundwater recharge			

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			98% Palustrine 2% Isolated				
WET-004$_2$ Wetland Whissell Creek Watershed	14.08	Wetland Complex SWCM1-1 White Cedar Mineral Coniferous Swamp SWDR1 Calcareous Rock/Bedrock Deciduous Swamp	<u>Wetland Types</u> 100% Swamp <u>Vegetation Communities</u> **One Form:** **cS1** coniferous trees (*Thuja occidentalis*) **Three Forms:** **tsS2** tall shrubs (*Ulmus americana, Rhamnus cathartica*), herbaceous (*Trifolium pratense*), narrow-leaved emergents (*Poa pratensis*) <u>Soils</u> 100% mineral (silty clay, clay loam) <u>Site Type</u> 89% Palustrine 11% Isolated	• Primary productivity • Flood attenuation • Short-term water quality improvement • Groundwater recharge	WT – 47 (T4) AR – 34 CL – >0.1[1] CA – >0.1[1] SI – >120	**3-1** **3-2**	**Yes**
WET-005$_2$ Wetland Smirle McConnell Drain Watershed	9.36	Wetland Complex SWDM4-5 Poplar Mineral Deciduous Swamp SWMM1-1 White Cedar-Hardwood Mineral Mixed Swamp SWDM2-2 Green Ash Mineral Deciduous Swamp	<u>Wetland Types</u> 100% Swamp <u>Vegetation Communities</u> **Two Forms:** **hS1** deciduous trees (*Populus tremuloides*), tall shrubs (*Fraxinus pennsylvanica*) **cS2** coniferous trees (*Thuja occidentalis*), deciduous trees (*Populus tremuloides*) **hS3** deciduous trees (*Fraxinus*	• Primary productivity • Flood attenuation • Short-term water quality improvement • Groundwater recharge	WT – >120 AR – 79 CL – 67 CA – 67 SI – >120	**3-1** **3-2**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			pennsylvanica), narrow-leaved emergents Soils 100% mineral (silty loam, silty clay, loam^{+}) Site Type 100% Palustrine				
WET-006$_3$ Wetland Stephenson Drain Watershed	1.63	Individual Wetland SWDM4-5 Poplar Mineral Deciduous Swamp	Wetland Types 100% Swamp Vegetation Communities **Three Forms:** **hS1** deciduous trees (*Populus tremuloides*), tall shrubs (*Populus tremuloides*), dead deciduous trees (*Populus tremuloides*) Soils 100% mineral (loam^{+}) Site Type 100% Palustrine	• Primary productivity • Flood attenuation • Short-term water quality improvement • Groundwater recharge	WT – >120 AR – >120 CL – 119 CA – 119 SI – >120	**3-3**	**Yes**
WET-007$_2$ Genier Drain Watershed	22.34	Wetland Complex SWCM1-1 White Cedar Mineral Coniferous Swamp SWDM2-2 Green Ash Mineral Deciduous Swamp SWDM4	Wetland Types 100% Swamp Vegetation Communities **One Form:** **cS1** coniferous trees (*Thuja occidentalis*) **hS2-A** deciduous trees (*Fraxinus pennsylvanica*) **hS2-B** deciduous trees (*Ostrya*	• Primary productivity • Flood attenuation • Groundwater recharge	WT – 106 (T10) AR – 73 CL – 73 CA – 73 SI – >120	**3-3**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		Mineral Deciduous Swamp SWD Deciduous Swamp SWDM4-2 White Elm Mineral Deciduous Swamp SWMM1 White Cedar-Hardwood Mineral Mixed Swamp	*virginiana*) **hS2-C** deciduous trees **Two Forms:** **hS3** deciduous trees (*Ulmus americana*), low shrubs (*Rubus idaeus, Fraxinus pennsylvanica*) **Three Forms:** **cS4** coniferous trees (*Thuja occidentalis*), deciduous trees (*Acer saccharum* ssp. *saccharum*), narrow-leaved emergents <u>Soils</u> 100% mineral (clay loam) <u>Site Type</u> 100% Palustrine				
WET-008$_2$ Furney Drain Watershed	34.68	Wetland Complex SWDM3-3 Swamp Maple Mineral Deciduous Swamp SWTM3 Willow Mineral Deciduous Thicket Swamp SWCM1 White Cedar Mineral Coniferous	<u>Wetland Types</u> 100% Swamp <u>Vegetation Communities</u> **One Form:** **hS1** deciduous trees (*Acer* x *freemanii*) **tsS2** tall shrubs (*Salix* sp.) **cS3** coniferous trees (*Thuja occidentalis*) **Two Forms:** **hS4** deciduous trees, coniferous	• Primary productivity • Flood attenuation • Groundwater recharge	WT – 5 (T11) AR – 3 CL – 3 CA – 3 SI – >120	**3-3**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		Swamp SWM Mixed Swamp SWDM4-5 Poplar Mineral Deciduous Swamp SWDM2-2 Green Ash Mineral Deciduous Swamp	trees **Three Forms:** **hS5** deciduous trees (*Populus tremuloides*), low shrubs (*Rhamnus cathartica*), tall shrubs (*Rhamnus cathartica*) **Four Forms:** **hS6** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Alnus incana* ssp. *rugosa*), herbaceous (*Impatiens capensis, Solidago* sp.), narrow-leaved emergents (*Carex lacustris*) Soils 100% mineral (clay loam, loam^{+}) Site Type 95% Palustrine 5% Isolated				
WET-009$_2$ Unnamed Tributary Watershed	14.91	Wetland Complex SWDM3-4 Manitoba Maple Mineral Deciduous Swamp	Wetland Types 100% Swamp Vegetation Communities **Two Forms:** **hS1-A** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Acer negundo*) **hS1-B** deciduous trees (*Acer negundo*), tall shrubs (*Acer negundo*) Soils	• Primary productivity • Habitat connectivity • Short-term water quality improvement • Shoreline erosion control	WT – >120 AR – >120 CL – >0.1[1] CA – >0.1[1] SI – >120	**3-5** **3-8**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			100% mineral (alluvial bottomland, variable+) Site Type 100% Riverine				
WET-011$_2$ Smirl/Rutley Drains Watershed	4.83	Individual Wetland SWDM2-2 Green Ash Mineral Deciduous Swamp	Wetland Types 100% Swamp Vegetation Communities **Two Forms:** **hS1** deciduous trees (*Fraxinus pennsylvanica*), dead deciduous trees *(Fraxinus pennsylvanica*) Soils 100% mineral (loam+, clay loam+, old rail bed) Site Type 100% Palustrine	• Primary productivity • Short-term water quality improvement • Groundwater recharge	WT – >120 AR – >120 CL – >0.1[1] CA – >0.1[1] SI – >120	**3-6** **3-7**	**Yes**
WET-012$_1$ Payne River Watershed	0.95	Individual Wetland SWDR1 Calcareous Rock/Bedrock Deciduous Swamp	Wetland Types 100% Swamp Vegetation Communities **Three Forms:** **hS1** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Ulmus americana*), herbaceous (*Toxicodendron rydbergii*) Soils 100% mineral (loam) Site Type 100% Isolated	• Primary productivity • Flood attenuation • Groundwater recharge	WT – >120 AR – 116 CL – 116 CA – 116 SI – >120	**3-7**	**Yes**
WET-013$_2$	48.29	Wetland Complex	Wetland Types	• Primary productivity	WT – >120	**3-7**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Duff Creek Watershed		SWDM2-2 Green Ash Mineral Deciduous Swamp SWD Deciduous Swamp SWC Coniferous Swamp SWM Mixed Swamp	100% Swamp <u>Vegetation Communities</u> **One Form:** **hS1-A** deciduous trees (*Fraxinus pennsylvanica*) **hS1-B** deciduous trees **cS2** coniferous trees **Two Forms:** **hS3** deciduous trees (*Fraxinus pennsylvanica*), herbaceous (*Onoclea sensibilis*) **hS4** deciduous trees, coniferous trees <u>Soils</u> 100% mineral (sandy clay, sand^{+}, sandy loam^{+}) <u>Site Type</u> 100% Palustrine	• Interspersion • Habitat connectivity • Groundwater recharge	AR – 4 CL – 4 CA – 4 SI – >120		
WET-014$_3$ Unnamed Tributary Watershed	3.88	Individual Wetland SWDM2-2 Green Ash Mineral Deciduous Swamp	<u>Wetland Types</u> 100% Swamp <u>Vegetation Communities</u> **Two Forms:** **hS1** deciduous trees (*Fraxinus pennsylvanica*), narrow-leaved emergents (*Phalaris arundinacea*) <u>Soils</u> 100% mineral (silt loam)	• Primary productivity • Habitat connectivity • Short-term water quality improvement • Shoreline erosion control	WT – >120 AR – >120 CL – >120 CA – 86 SI – >120	**3-8** **3-9**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Site Type 100% Riverine				
WET-015$_3$ Duff Sanders Drain Watershed	2.37	Individual Wetland SWMM1-1 White Cedar-Hardwood Mineral Mixed Swamp	Wetland Types 100% Swamp Vegetation Communities **One Form:** **cS1** coniferous trees (*Thuja occidentalis*), deciduous trees (*Ulmus americana*) Soils 100% mineral (clay) Site Type 100% Isolated	• Primary productivity • Flood attenuation • Groundwater recharge	WT – >120 AR – >120 CL – 120 CA – 120 SI – >120	**3-9**	**Yes**
WET-016$_2$ Vanfoort Drain Watershed	21.65	Wetland Complex SWDM4-5 Poplar Mineral Deciduous Swamp SWD Deciduous Swamp SWMM1-1 White Cedar-Hardwood Mineral Mixed Swamp SWT Thicket Swamp	Wetland Types 100% Swamp Vegetation Communities **One Form:** **hS1-A** deciduous trees (*Populus tremuloides*) **hS1-B** deciduous trees **Two Forms:** **cS2** coniferous trees (*Thuja occidentalis*), deciduous trees (*Fraxinus pennsylvanica*) **tsS3** tall shrubs, narrow-leaved emergents Soils	• Primary productivity • Flood attenuation • Habitat connectivity • Groundwater recharge	WT – 5 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-11**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			100% mineral (sandy loam, loam+) Site Type 100% Palustrine				
WET-017$_2$ Foley Drain Watershed	117.07	Wetland Complex SWCM1-1 White Cedar Mineral Coniferous Swamp SWC Coniferous Swamp SWDM2-2 Green Ash Mineral Deciduous Swamp SWD Deciduous Swamp MAM Meadow Marsh SWDM3-4 Manitoba Maple Mineral Deciduous Swamp SWMM1-1 White Cedar-Hardwood Mineral Mixed Swamp SWM Mixed Swamp	Wetland Types 98% Swamp 2% Marsh Vegetation Communities **One Form:** **cS1-A** coniferous trees (*Thuja occidentalis*) **cS1-B** coniferous trees **hS2-A** deciduous trees (*Fraxinus pennsylvanica*) **hS2-B** deciduous trees **neM1** narrow-leaved emergents **Two Forms:** **hS3-A** deciduous trees (*Acer negundo*), narrow-leaved emergents **hS3-B** deciduous trees (*Fraxinus pennsylvanica*), narrow-leaved emergents **hS4** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Fraxinus pennsylvanica, Ulmus americana*)	• Primary productivity • Interspersion • Flood attenuation • Short-term water quality improvement • Shoreline erosion control • Groundwater recharge	WT – 40 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-11**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			hS5 deciduous trees (*Fraxinus americana*), coniferous trees (*Thuja occidentalis*) **cS6** coniferous trees, deciduous trees <u>Soils</u> 100% mineral (silty clay loam, clay loam, sandy loam^{+}) <u>Site Type</u> 97% Palustrine 2% Isolated 1% Riverine				
WET-018$_2$ Gilles Drain Watershed	18.79	Wetland Complex SWDM3-1 Red Maple Mineral Deciduous Swamp SWD Deciduous Swamp SWCM1-1 White Cedar Mineral Coniferous Swamp SWMM1-1 White Cedar-Hardwood Mineral Mixed Swamp	<u>Wetland Types</u> 100% Swamp <u>Vegetation Communities</u> **hS1-A** deciduous trees (*Acer rubrum*) **hS1-B** deciduous trees **cS2** coniferous trees (*Thuja occidentalis*) **Two Forms:** **hS3** deciduous trees (*Fraxinus pennsylvanica*), coniferous trees (*Thuja occidentalis*) **cS4** coniferous trees (*Thuja occidentalis*), deciduous trees (*Fraxinus pennsylvanica*)	• Primary productivity • Flood attenuation • Groundwater recharge	WT – >120 AR – >120 CL – >0.1[1] CA – >0.1[1] SI – >120	**3-11** **3-12**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Soils 100% mineral (sandy loam, sandy clay, clay loam^{+}) Site Type 100% Palustrine				
WET-019$_2$ Wetland Dunbar Campbell Adams Drain Watershed	50.52	Wetland Complex SWDM2-2 Green Ash Mineral Deciduous Swamp SWDM4-5 Poplar Mineral Deciduous Swamp SWM Mixed Swamp SWTM3-3 Slender Willow Mineral Deciduous Thicket Swamp SWDM4-2 White Elm Mineral Deciduous Swamp	Wetland Types 100% Swamp Vegetation Communities **One Form:** **hS1-A** deciduous trees (*Fraxinus pennsylvanica*) **hS1-B** deciduous trees (*Populus tremuloides*) **Two Forms:** **hS2** deciduous trees (*Fraxinus pennsylvanica*), low shrubs (*Rhamnus cathartica*) **hS3** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Salix* sp.) **hS4** deciduous trees (*Fraxinus pennsylvanica*), herbaceous (*Onoclea sensibilis*) **hS5** deciduous trees, coniferous trees **tsS6-A** tall shrubs (*Populus tremuloides*), herbaceous (*Fragaria virginiana*)	• Primary productivity • Interspersion • Habitat connectivity • Short-term water quality improvement • Shoreline erosion control • Groundwater recharge	WT – 11 (T56) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	**3-11** **3-12**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			tsS6-B tall shrubs (*Populus tremuloides*), herbaceous (*Asarum canadense*) **tsS7** tall shrubs (*Salix petiolaris*), moss (moss sp.) **Three Forms:** **hS8** deciduous trees (*Ulmus americana*), tall shrubs (*Rhamnus cathartica*), herbaceous (*Fragaria virginiana*) **hS9** deciduous trees (*Ulmus Americana*), tall shrubs (*Thuja occidentalis*), narrow-leaved emergents (*Carex* sp.) **Four Forms:** **hS10** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Ulmus Americana*), herbaceous (*Onoclea sensibilis*), narrow-leaved emergents (*Carex* spp.) <u>Soils</u> 100% mineral (clay loam, sandy clay loam, silty clay, silty sand) <u>Site Type</u> 66% Riverine 34% Palustrine				
WET-020$_3$ Wetland	41.50	Wetland Complex SWDM2-2	<u>Wetland Types</u> 100% Swamp	• Primary productivity • Interspersion • Habitat connectivity	WT – 58 (T48) AR – >0.1[1] CL – >0.1[1]	**3-12**	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Fetterly Drain Watershed		Green Ash Mineral Deciduous Swamp SWC Coniferous Swamp SWDM3-1 Red Maple Mineral Deciduous Swamp SWTM3 Willow Mineral Deciduous Thicket Swamp SWTM5 Mineral Deciduous Thicket Swamp SWDM4-5 Poplar Mineral Deciduous Swamp Type	<u>Vegetation Communities</u> **One Form:** **hS1** deciduous trees (*Fraxinus pennsylvanica*) **cS2** coniferous trees **Two Forms:** **hS3** deciduous trees (*Acer rubrum*), herbaceous (*Matteucia struthiopteris* var. *pensylvanica)* **hS4** deciduous trees (*Fraxinus pennsylvanica*), tall shrubs (*Fraxinus pennsylvanica*) **Three Forms:** **tsS5** tall shrubs (*Salix* sp.), herbaceous (*Solidago* sp.), moss (moss spp.) **lsS6** low shrubs (*Cornus stolonifera*, *Spiraea alba*), narrow-leaved emergents (*Phalaris arundinacea*), moss (moss spp.) **hS7** deciduous trees (*Populus tremuloides, Fraxinus pennsylvanica*), low shrubs (*Cornus stolonifera*), moss (moss sp.) **Four Forms:** **tsS8** tall shrubs (*Salix* sp., *Populus tremuloides*), herbaceous (*Onoclea sensibilis*), narrow-leaved emergents (*Phalaris arundinacea*),	• Short-term water quality improvement • Shoreline erosion control • Groundwater recharge	CA – >0.1[1] SI – >120		

Feature ID	Size (ha)	Composition	Attributes	Functions	Closest Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			moss (moss spp.) <u>Soils</u> 100% mineral (loam[+]) <u>Site Type</u> 78% Palustrine 17% Riverine 5% Isolated				

[+] *Matthews and Richards 1954, and Ontario Agricultural College, 1954: Soil Survey of Stormont County.*

Superscript:
1: Mapping depicts this wetland being overlapped by the Project Location; however, all project components, including the construction disturbance area, will be located adjacent to the wetland (>0.1m), or collector lines may be installed beneath the wetland via directional drilling.

Subscripts:
1: Entire wetland delineated from property line/ aerial photograph.
2: Wetland delineated via a combination of methods: on site and property line/aerial photograph.
3: Entire wetland delineated on site.

Legend
WT: Wind Turbine
AR: Access Road
CL: Collector Lines
CA: Construction Activity/Temporary Infrastructure/Laydown Area
SI: Supporting Infrastructure - Building/Substation/Meteorological Tower/Point of Interconnect

6.3 Wildlife Habitat

Wildlife habitat as outlined by the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015) was examined during the site investigation and is categorized into the following four groups: seasonal concentration areas, rare vegetation communities and specialized wildlife habitat, habitat for species of conservation concern and animal movement corridors. These categories are outlined below and all candidate SWH are summarized in Table 15 and mapped on Maps 4-1 through 6-12. Wildlife habitats that were determined to be generalized candidate SWH, according to Appendix D of the NHA Guide for Renewable Energy Projects (OMNR 2012), are included in Table 16 and have been mapped on Maps 7-1 to 7-12.

The presence of candidate or generalized habitats was identified when area searches conducted during the appropriate time of year confirmed the presence of suitable habitat features. Candidate or generalized habitats were assumed to be present when area searches were not conducted during the appropriate time of year or when site access was not granted, and therefore, the presence of the specific habitat characteristics could not be verified.

6.3.1 Seasonal Concentration Areas

The Project site investigation involved a thorough assessment of natural areas for seasonal concentration areas for wildlife habitat. Potential habitats for 11 types of seasonal concentration areas were examined during the site investigation phase of the Project. Seasonal concentration areas in and within 120m of the Project Location are described in further detail and assessed as to whether they will be carried forward to the evaluation of significance phase of this Project in Table 11 below. Candidate seasonal concentration areas are further described in Table 15 and locations are provided on Maps 4-1 to 4-12. Generalized candidate SWH within 120m of the Project Location can be found in Table 16 and locations are provided on Maps 7-1 to 7-12.

Table 11. Summary of Seasonal Concentration Areas for Wildlife Habitat Identified in the Project Area

Seasonal Concentration Areas	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
Waterfowl Stopover and Staging Areas (Terrestrial)	Several agricultural fields with waste grains (wheat, soybeans and corn) containing annual spring melt water flooding have been identified within the Project Area. In addition, two meadow (ME) communities with annual spring melt water flooding have been identified within the Project Area. As a result, a total of 29 candidate terrestrial waterfowl stopover and staging areas habitats have been identified within 120m of wind turbines or overlap with any project infrastructure (wind turbines, access roads, collector lines, and/or construction disturbance areas). Additional habitats have treated as generalized candidate SWH because they meet suitable habitat requirements but are not within 120m of a wind turbine and do not overlap with any project infrastructure.	**Yes** **(29 Habitats)**	**Yes**
Waterfowl Stopover and Staging Areas (Aquatic)	No suitable Shallow Marsh (MAS), Shallow Aquatic (SA), or Deciduous Swamp (SWD) Community Types containing suitable permanent open water with an abundant food supply for waterfowl were identified in the Project Area. As part of the Records Review, Environment Canada – Canadian Wildlife Service identified that the South Nation River represents a known staging area for large concentrations of snow goose (*Chen caerulescens*). The site investigation surveys identified that the South Nation River represents Open Aquatic (OA) habitat, which is not a candidate Ecosite for aquatic waterfowl stopover and staging areas listed in the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015). However, the Criteria Schedules identify Environment Canada as an information source for this habitat type. As a result, the South Nation River has been conservatively identified as candidate aquatic waterfowl stopover and staging habitat, and is proposed to be overlapped by project infrastructure (overhead or underground cabling only).	**Yes** **(1 Habitat)**	**No**

Seasonal Concentration Areas	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
Shorebird Migratory Stopover Area	No suitable Shoreline (BB), Sand Dune (SD) or Meadow Marsh (MAM) Community Types were identified in the Project Area.	**No**	**No**
Raptor Wintering Area	Hawks/Owls: Several areas containing a combination of Forest (FO) Community Types in addition to Meadow (ME), Thicket (TH), Savannah (SV), or Woodland (WO) Community Types with <60% cover, that are >20ha in size were identified within the Project Area. This includes 2 habitats that are overlapped by infrastructure (overhead cabling, underground cabling, construction activity, temporary infrastructure, and/or laydown areas), or located within 120m of wind turbines, or located within 50m of overhead cabling. Two additional areas containing a combination of upland and forest habitats of sufficient size were identified within the Project Area. These two additional areas (near T56 and T50) were not considered to represent suitable habitat for raptor wintering areas as they are largely dominated by intensive hay cropping (alfalfa and other legume-dominated hay) and/or intensive pasturing. Following the SWH Criteria Schedule for Ecoregion 6E (MNRF 2015), these sites are not considered suitable to provide candidate significant raptor wintering habitat. Additional habitats have treated as generalized candidate SWH because they meet suitable habitat requirements but are not within 120m or within 50m of an overhead line, and do not overlap with any project infrastructure. Bald Eagle: Two Forest (FO) areas are located adjacent to the South Nation River in the Project Area. However, the South Nation River has been confirmed to freeze during winter months, and therefore does not provide suitable wintering habitat for bald eagle. No other open water habitats suitable for bald eagle hunting that do not freeze in winter are located within the Project Area.	**Yes** **(2 Habitats)**	**Yes**
Bat Hibernacula	No mine shafts, underground foundations, Crevice (CCR), or Cave (CCA) Community Types were identified within the Project Area.	**No**	**No**

Seasonal Concentration Areas	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	Several areas exhibiting karst topographical features were identified in the Project Area. These areas are characterized by shallow soils (<15cm deep) over limestone bedrock which, in some areas, are found exposed at the surface. These represent limestone pavements with clints and grikes as a result of solution weathering. In each case where karst topography is found within the Project Area, surficial grikes (fissures in the limestone pavement) are roughly 10-20cm deep. Hibernating bats in Ontario require areas with stable microclimates including low temperatures (~-4 to +9°C) and generally high humidity (although the specific requirements of individual species varies); typically, bats are found hibernating with other bats in groups or clusters (Hitchcock 1949, 1965). The shallow nature of the grikes in the limestone pavement within the Project Area indicates that these grike fissures are not sufficient to provide access to underground features that would exhibit stable temperature and humidity to allow for bat hibernation, particularly in groups. No deep fissures, bedrock fractures, or caves that could provide this type of suitable environment for hibernating bats were observed. As a result, no candidate Bat Hibernacula are found within the Project Area.		
Bat Maternity Colonies	Several forests, consisting of Deciduous Forest (FOD), Mixed Forest (FOM), Mixed Swamp (SWM), and/or Deciduous Swamp (SWD) Community Types containing >25cm dbh wildlife trees have been identified within the Project Area. Where site access was obtained, NRSI biologists identified 2 woodlands containing ≥10 wildlife trees per hectare, measured at ≥25cm dbh, within 120m of a wind turbine or overlapping with the Project Location (overhead or underground cabling). Where site access could not be obtained, 1 additional woodland within 120m of a wind turbine has been assumed to contain ≥10 wildlife trees per hectare, measured at ≥25cm dbh. This woodland will be considered a candidate bat	**Yes** **(3 Habitats)**	**Yes**

Seasonal Concentration Areas	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	maternity colony habitat. Any suitable forested areas located greater than 120m from a wind turbine have been assumed to contain ≥10 wildlife trees per hectare, measured at ≥25cm dbh and will be considered generalized candidate SWH.		
Turtle Wintering Areas	One Open Water (OA) Community Type (the South Nation River) containing water that is deep enough not to freeze, and may have soft mud substrates, has been identified within the Project Area. As this community type is proposed to be overlapped by infrastructure (overhead cabling, underground cabling, and/or construction activity), it has been identified as a candidate turtle wintering area.	**Yes** **(1 Habitat)**	**No**
Reptile Hibernaculum	No Talus (TA), Crevice (CCR), Cave (CCA), or Alvar (RBOA1, RBSA1, RBTA1) Community Types were identified within the Project Area. However, a number of other communities containing shallow soils over bedrock were identified. Two areas were identified within 120m of wind turbines and/or access roads, or are overlapped by infrastructure (wind turbines, access roads, collector lines, and/ or construction disturbance areas), and contain cracks or fissures in bedrock that are located at the surface and may support reptile hibernation. These are surficial karst features, containing limestone pavement with clints and grikes (fissures in the limestone pavement). While observed grikes are roughly 10-20cm deep, occasional shrubs or small trees (typically <10cm dbh) can be found growing out of the grikes. As a result, these may allow access for snakes to access spaces underground that may not freeze. One additional Rock Barren (RB) community that is overlapped by project infrastructure (wind turbines, access roads, collector lines, and/or construction disturbance areas), was identified. The presence of crevices or fissures in the bedrock at the surface was not able to be fully determined during the site investigation, and as a result it has been assumed to contain suitable habitat.	**Yes** **(11 Habitats)**	**Yes**

Seasonal Concentration Areas	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	A number of old rock/debris piles were documented in the project area. Most of these features appear to be the result of agricultural field clearing, and visual assessments confirmed that these features do not extend below the frost line. However, 8 old rock/debris piles were identified to be large enough to prevent freezing within its centre, or may provide access to bedrock fissures in areas where bedrock is located near the surface. These features are located within 120m of a wind turbine and/or access road and have been considered candidate Reptile Hibernaculum habitats. Any suitable rock/debris pile features or communities that contain crevices or fissures in bedrock at the surface, or which may contain these features that are located greater than 120m from a wind turbine and/or access road have been considered Generalized Candidate SWH.		
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)	No Meadow (ME), Thicket (TH), Savannah (SV), Bluff (BL) or Cliff (CL) Community Types containing eroding banks, sandy hills, borrow pits, steep slopes, or sand piles were identified within the Project Area. A Thicket (TH) community was identified to contain a small cliff, approximately 3m high. The cliff face is semi-circular in shape, and is likely the result of a previous anthropogenic activity which excavated into the bedrock. This thicket community is located greater than 120m from a wind turbine, and as a result, it will be considered generalized candidate SWH.	**No**	**Yes**
Colonially – Nesting Bird Breeding Habitat (Tree/Shrubs)	Several Deciduous Swamp (SWD) Community Types have been identified within the Project Area. Where site access was obtained, NRSI biologists conducted area searches for nest bowls within these Community Types. Site investigations confirmed that no nest bowls were observed in these communities within the Project Area. Where site access could not be obtained, alternative site investigations were	**No**	**Yes**

Seasonal Concentration Areas	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	undertaken during the leaf-off period, and visibility within deciduous swamp communities was high. Four deciduous swamp community types to which access was not granted, and which are located within 120m of a wind turbine and/or access road were assessed from adjacent property lines. In each of these cases, the potential for heron nests was able to be well assessed. As a result, heron nests were determined to be absent from either the entire community (if narrow), or from the area that falls within at least 50m from the edge of the community (if large). As a result, these communities are not considered to be candidate habitat. Candidate colonial-nesting bird breeding habitats (tree/shrub) have been identified greater than 120m from wind turbines and/or access roads. Additional communities were considered potentially suitable because site access was not granted and the presence of nest bowls within 50m of the boundary of the communities could not be ruled out, due to the dense nature of the specific trees found within the communities, and/or the presence of visual obstructions. These communities have been identified greater than 120m from wind turbines and/or access roads and will be considered generalized candidate SWH.		
Colonially – Nesting Bird Breeding Habitat (Ground)	Gulls/Terns: No suitable rocky islands or peninsulas located within large lakes or rivers were identified within the Project Area. Brewer"s Blackbird: Several Meadow Marsh (MAM), Thicket (TH), and Savannah (SV) Community types are located in close proximity to a watercourse within the Project Area. A review of available background information obtained from the Records Review phase of the Project, including the OBBA (Cadman *et al.* 2007), revealed that Brewer"s Blackbird is not known to breed in this area of the province. As such, habitat for this species is not applicable to the Project Area.	**No**	**No**

** The presence of candidate or generalized habitats was identified when area searches conducted during the appropriate time of year confirmed the presence of suitable habitat features. Candidate or generalized habitats for this species were assumed to be present when area searches were not conducted during the appropriate time of year or when site access was not granted, and therefore, the presence of the specific habitat characteristics could not be verified.*

6.3.2 Rare Vegetation Communities and Specialized Wildlife Habitat

The Project site investigation involved a thorough assessment of natural areas for rare vegetation communities and specialized wildlife habitats. Potential habitat for 15 types of rare vegetation communities and specialized wildlife habitats were examined during the site investigation phase of the project. Rare vegetation communities and specialized wildlife habitat in and within 120m of the Project Location are described in further detail and assessed as to whether they will be carried forward to the evaluation of significance phase of this Project in Table 12 below. Candidate rare vegetation communities and specialized wildlife habitats are further described in Table 15 and locations are provided on Maps 5-1 to 5-12. Generalized candidate SWH within 120m of the Project Location can be found in Table 16 and mapped on Maps 7-1 to 7-12.

Table 12. Summary of Rare Vegetation Communities and Specialized Wildlife Habitat Identified In the Project Area

Rare Vegetation Communities and Specialized Wildlife Habitats	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
Rare Vegetation Communities			
Cliffs and Talus Slopes	No Cliff (CL) or Talus Slope (TA) Community Types outlined in Table 5 have been identified within the Project Area. One Thicket (TH) community was identified to contain a small cliff, approximately 3m high. The cliff face is semi-circular in shape, and is likely the remnant of an old quarry operation or other anthropogenic activity which excavated into the bedrock. As a result, it is not considered candidate SWH.	**No**	**No**
Sand Barren	None of the Sand Barren Community Types outlined in Table 5 have been identified within the Project Area.	**No**	**No**
Alvar	No specific Alvar community types, i.e. RBOA1 (Open Alvar Rock Barren Ecosite), RBSA1 (Alvar Shrub Rock Barren Ecosite), RBTA1 (Treed Alvar Rock Barren Ecosite) were identified within the Project Area. The following potential Alvar Community Types were identified within the Project Area, but alvar indicator species were not found within the community: MEGR1 (Dry-Fresh Calcareous Bedrock Graminoid Meadow Ecosite), MEFR1 (Dry-Fresh Calcareous Bedrock Forb Meadow Ecosite), FOCM2-2 (Dry-Fresh White Cedar Coniferous Forest Type). As a result, these habitats will not be considered candidate Alvar habitats. The following potential Alvar Community Types were identified within the Project Area, and the presence of alvar indicator species is unknown: MEMR1 (Dry-Fresh Calcareous Bedrock Mixed Meadow Ecosite), SVDR1 (Dry-Fresh Calcareous Bedrock Deciduous Savanna Ecosite), WODR1 (Dry-Fresh Calcareous Bedrock Deciduous Woodland Ecosite), FOCM2-2 (Dry-Fresh White Cedar Coniferous Forest Type). Of these Community Types, 2 habitats are found within 120m of an access road and/or overlap with project infrastructure (access roads, collector lines, and/or construction disturbance areas), and as a	**Yes** **(2 Habitats)**	**Yes**

Rare Vegetation Communities and Specialized Wildlife Habitats	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	result, these habitats will be considered candidate Alvar habitats. The remaining habitats are found greater than 120m from an access road and will be considered generalized candidate SWH.		
Old Growth Forest	Two woodlands consisting of natural forests at least 30ha in size, or with at least 10ha of interior habitat (assuming a 100m buffer from edges) have been identified within the Project Area (WOD-044 and WOD-051). Site access to WOD-044 was not granted. However, based on observations made from adjacent properties and the roadside (west and north edges of the woodland), these communities appear to be young to mid-aged, with few large trees indicative of an old growth community. As a result, WOD-044 is not considered to be candidate Old Growth Forest habitat. One community contained within WOD-051, a Dry-Fresh White Cedar Coniferous Forest (FOCM2-2), was identified to be a mature community through ELC. It is dominated by white cedar between 25-50cm dbh, with rarely occurring trees that are larger than 50cm dbh. The edges of this community, particularly on the north and west sides, contain younger white cedar and some canopy gaps, whereas the most mature component is found approximately 30-50m from the edge. This mature eco-element, as per the SWH Criteria for Ecoregion 6E (MNRF 2015) of the community contains no understory and very little groundcover. Vegetation species in this eco-element consist entirely of native understory forest species including a variety of spring ephemerals and ferns. Observations of logging practices were not made; cut stumps may or may not be present. Based on the mature age of this eco-element, the lack of non-native species that would be indicative of disturbance, and in order to refrain from coring trees to determine their exact age, this eco-element may represent old-growth forest. This community is located within 120m of an access road and is considered to be candidate Old Growth Forest habitat.	**Yes** **(1 Habitat)**	**No**
Savannah	One Deciduous Woodland (WOD) / Dry-Fresh Calcareous Bedrock Deciduous	**Yes**	**Yes**

Rare Vegetation Communities and Specialized Wildlife Habitats	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	Savanna Ecosite (SVDR1) habitat has been identified within the Project Area. As this community is proposed to be overlapped by infrastructure (underground cabling and/or construction activity), it has been identified as candidate savannah habitat. One Dry-Fresh Calcareous Bedrock Deciduous Savanna Ecosite (SVDR1) has been identified within the Project Area. As this community is located greater than 120m from an access road, it has been considered as generalized candidate SWH.	**(1 Habitat)**	
Tallgrass Prairie	Four Deciduous Thicket (THD), Meadow (ME), Forb Meadow (MEF), and/or Mixed Meadow (MEM) habitats have been identified within the Project Area. Of these habitats, 2 habitats are located within 120m of an access road and/or are proposed to be overlapped by project infrastructure (underground cabling and/or construction activity). As a result, these habitats will be considered candidate tallgrass prairie habitats. The remaining habitats are found greater than 120m from an access road and will be considered generalized candidate SWH.	**Yes** **(2 Habitats)**	**Yes**
Other Rare Vegetation Communities	One provincially rare vegetation community has been identified in the Project Area. This provincially rare (S3S4) vegetation community has been identified as a Dry-Fresh Hickory Deciduous Forest (FODM2-3), dominated by Bitternut Hickory. This community is located greater than 120m from an access road and as a result, it has been considered generalized candidate SWH.	**No**	**Yes**
Specialized Wildlife Habitats			
Waterfowl Nesting Area	No upland habitats adjacent to suitable wetland habitats containing permanent open water during the waterfowl nesting season were identified within the Project Area.	**No**	**No**
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Two Forested (FO) and/or Treed Swamp (SW) habitats are located immediately adjacent to suitable open water foraging habitat (South Nation River). These Forests and Treed Swamps are found within WOD-020 and WOD-026. These habitats were able to be fully assessed for the presence of bald eagle or osprey	**No**	**No**

Rare Vegetation Communities and Specialized Wildlife Habitats	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	nests, either through full access during the breeding season or through partial access and alternative site investigation during the leaf-off period. These site investigations confirmed that no osprey or bald eagle stick nests were identified within these habitats, and no bald eagle or osprey stick nests were identified elsewhere in the Project Area.		
Woodland Raptor Nesting Habitat	One woodland consisting of contiguous natural forests at least 30ha in size and with at least 10ha of interior habitat (assuming a 200m buffer from edges) has been identified within the Project Area (WOD-044). The presence of stick nests could not be confirmed throughout the woodland, as site access was denied to a large portion of the habitat. As this woodland is not overlapped by project infrastructure (overhead and/or underground cabling, which will be placed >0.1m from the woodland, or else directionally drilled beneath the feature if this is not possible), this woodland will be considered generalized candidate SWH.	**No**	**Yes**
Turtle Nesting Areas	No Mineral or Organic Shallow Marsh (MAS), Shallow Aquatic (SA), Open Bog (BOO), or Open Fen (FEO) Community Types have been identified within the Project Area.	**No**	**No**
Seeps and Springs	A number of forested areas within headwaters of streams are found within the Project Area. This includes forested areas in the vicinity of WET-003, WET-004, WET-005, WET-006, WET-007, WET-008, WET-013, and WET-016. A single seepage area or potential seep was identified in WET-008. As this area is not overlapped by project components, it will be considered generalized candidate SWH.	**No**	**Yes**
Amphibian Breeding Habitat (Woodland)	Where site access was obtained, 16 suitable Treed Swamp (SW) and Forest (FO) Community Types have been identified within 120m of access roads and/or are overlapped by project components (collector lines and/or construction disturbance areas). These habitats either contain vernal pools or were surveyed during winter when the presence of vernal pools could not be identified. Where site access could not be obtained to all or portions of suitable Treed Swamp (SW) and Forest (FO) Community Types, 8 candidate amphibian breeding habitats (woodland) have been assumed to be present within 120m of	**Yes** **(24 Habitats)**	**Yes**

Rare Vegetation Communities and Specialized Wildlife Habitats	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	access roads and/or are overlapped by project components (collector lines and/or construction disturbance areas). Any candidate woodland amphibian breeding habitats located greater than 120m from access roads have been considered generalized candidate SWH. Of the 24 candidate amphibian breeding habitats (woodland) identified, 3 of these habitats contain permanent open water with emergent vegetation. If Bullfrog is identified during evaluation of significance surveys in these habitats, applicable habitats will also be identified under the consideration of amphibian breeding habitat (wetland).		
Amphibian Breeding Habitat (Wetlands)	No Swamp (SW), Marsh (MA), Fen (FE), Bog (BO), Open Water (OA) or Shallow Aquatic (SA) Community Types that are greater than 500m^2 or 25m in diameter, and located more than 120m from woodlands, have been identified within the Project Area. Three candidate amphibian breeding habitats (woodland) containing permanent open water with emergent vegetation were identified as overlapping with project infrastructure (overhead and/or underground cabling) or within 120m of an access road. If Bullfrog is identified within these habitats during evaluation of significance surveys, applicable habitats will also be identified under the consideration of amphibian breeding habitat (wetland).	**No** **(Unless Bullfrog is identified during EOS studies of Amphibian Breeding Habitat (Woodland))**	**No**
Woodland Area-sensitive Bird Breeding Habitat	Two habitats consisting of Forest (FO) or Treed Swamp (SW) Community Types that are mature forest stands (>60 years old) or woodlots >30ha in size containing interior forest habitat (at least 200m from the forest edge) have been identified within the Project Area (WOD-044 and WOD-051). As neither of these habitats is overlapped by project infrastructure, these will be considered generalized candidate SWH.	**No**	**Yes**

** The presence of candidate or generalized habitats was identified when area searches conducted during the appropriate time of year confirmed the presence of suitable habitat features. Candidate or generalized habitats for this species were assumed to be present when area searches were not conducted during the appropriate time of year or when site access was not granted, and therefore, the presence of the specific habitat characteristics could not be verified.*

6.3.3 Habitat for Species of Conservation Concern

The site investigation for the Project involved a thorough assessment of natural areas for habitat for species of conservation concern. A total of 4 types of potential habitats for species of conservation concern were examined during the site investigation phase of the Project. Habitat for species of conservation concern in and within 120m of the Project Location are described in further detail and assessed as to whether they will be carried forward to the evaluation of significance phase of this Project in Table 13 below. Candidate habitats for species of conservation concern are further described in Table 15 and locations are provided on Maps 6-1 to 6-12. Generalized candidate SWH within 120m of the Project Location can be found in Table 16 and mapped on Map 7-1 to 7-12.

NRSI biologists have also reviewed the specific habitat considerations of several individual species of conservation concern that are known to occur in or within the vicinity of the Project. Individual species of conservation concern include all species that have been designated as a species of Special Concern according to the Species At Risk in Ontario (SARO) list, have been given a provincial S-Rank of S1-S3, or are listed by COSEWIC as Endangered or Threatened, but have not been designated as either Endangered or Threatened within Ontario.

Many special concern and S1-S3 species and communities were identified during the records review as potentially being present in or within 120m of the Project Location. Habitat searches for these species were conducted as part of the site investigation for the Project. Habitat for these species of conservation concern in or within 120m of the Project Location are described in further detail and assessed as to whether they will be carried forward to the evaluation of significance phase of this project in Table 14 below. Candidate habitats for species of conservation concern are further described in Table 15 and locations are provided on Maps 6-1 to 6-12. Generalized candidate SWH within 120m of the Project Location can be found in Table 16 and mapped on Maps 7-1 to 7-12.

Table 13. Summary of Habitats of Species of Conservation Concern Identified In the Project Area

Habitat for Species of Conservation Concern	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)	Generalized Candidate Significant Wildlife Habitat (Y/N)
Marsh Bird Breeding Habitat	Several Deciduous Swamp (SW), Meadow (ME), and Meadow Marsh (MAM) habitats have been identified within the Project Area. Where site access was obtained, NRSI biologists confirmed that none of these Community Types within the Project Area contain suitable shallow water and emergent aquatic vegetation. Where site access could not be obtained, alternative site investigation (including property line assessment and aerial photograph interpretation) confirmed that none of these Community Types within the Project Area contain suitable shallow water and emergent aquatic vegetation. Suitable potential habitat for green heron (*Butorides virescens*) is not present within the project area as sluggish streams, ponds and marshes are generally absent. Where ponds do occur within the Project Area, the site investigation confirmed that heron nests are absent from adjacent areas.	**No**	**No**
Open Country Bird Breeding Habitat	One candidate open country bird breeding habitat has been identified within 120m of a wind turbine. This habitat is >30ha, and contains a combination of natural and cultural fields and meadows that are not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 years.	**Yes** **(1 Habitat)**	**No**
Shrub/Early Successional Bird Breeding Habitat	No old field areas succeeding to shrub and thicket habitats >10ha that are not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 years have been identified within 120m of a wind turbine. Any candidate shrub/early successional bird breeding habitats located greater than 120m from a wind turbine have been considered generalized candidate SWH.	**No**	**Yes**
Special Concern and Rare Wildlife Species	All plant and animal species listed as Special Concern or provincially rare (S1-S3, SH), or listed as Endangered or Threatened by COSEWIC but not listed as Endangered or Threatened under the *Endangered Species Act*, 2007, element	**Yes** **(See Table 14)**	**Yes**

Habitat for Species of Conservation Concern	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)	Generalized Candidate Significant Wildlife Habitat (Y/N)
	occurrences within a 1km or 10km grid have been considered in detail, and are outlined in Table 14.		

Table 14. Summary of Species of Conservation Concern Identified In the Project Area

Habitat for Species of Conservation Concern	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
Short-eared Owl	Breeding habitat for this species is addressed under the consideration of Open Country Bird Breeding Habitat. One candidate open country bird breeding habitat has been identified within 120m of a wind turbine. Overwintering habitat for this species is addressed under the consideration of Raptor Wintering Areas. Two candidate Raptor Wintering Areas have been identified overlapping with infrastructure (overhead cabling, underground cabling, construction activity, temporary infrastructure, and/or laydown areas), or located within 120m of wind turbines, or located within 50m of overhead cabling. Suitable Raptor Wintering Areas located greater than 120m from a wind turbine or greater than 50m from overhead have been considered generalized candidate SWH.	**See Open Country Bird Breeding Habitat and Raptor Wintering Area**	
Canada Warbler	Breeding habitat for this species is addressed under the consideration of Woodland Area-sensitive Bird Breeding Habitats. No candidate Woodland Area-sensitive Bird Breeding Habitats are overlapped by project infrastructure. Suitable Woodland Area-sensitive Bird Breeding Habitats that are not overlapped by project infrastructure have been considered generalized candidate SWH.	**See Woodland Area-sensitive Bird Breeding Habitat**	
Black Tern	Breeding habitat for this species is addressed through the consideration of Marsh Bird Breeding Habitat. No Marsh Bird Breeding Habitats were identified within the Project Area.	**See Marsh Bird Breeding Habitat**	
Common Nighthawk	Area searches for suitable habitat were conducted in conjunction with ELC mapping (open ground in RB, SH, ME, TH, SV, WO, and FO that contains large clearings). Where site access was granted, 5 habitats consisting of Rock Barren (RB), Meadow (ME), Thicket (TH), Savannah (SV), Woodland (WO), and Forest (FO) with large clearings and open ground were identified within 120m of a wind turbine or overlap with project infrastructure (access roads, collector lines, and/or construction disturbance areas). Where site access was granted but surveys were conducted in winter, 4 habitats that contain shallow soils over bedrock were also assumed to contain appropriate open ground habitat. These habitats	**Yes** **(9 Habitats)**	**Yes**

Habitat for Species of Conservation Concern	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	are located within 120m of a wind turbine or overlap with project infrastructure (access roads, collector lines, and/or construction disturbance areas). Where site access was not granted, information gathered from alternative site investigation, including aerial photograph interpretation, identified open habitats and forests with large clearings. All suitable habitats where site access was not granted were identified greater than 120m from wind turbines (except where contiguous to habitats where access was granted), and as a result these will be considered as generalized candidate SWH.		
Olive-sided Flycatcher	No coniferous or mixed Woodlands (WOC, WOM), Forests (FOC, FOM), or Swamps (SWC, SWM) with openings, and located adjacent to or in close proximity to ponds, lakes or rivers were identified within the Project Area	**No**	**No**
Eastern Wood-Pewee	A number of open Woodlands (WO), Forests (FO), Treed Swamps (SWC, SWM, SWD) and Mixed or Deciduous Plantations (TAGM2, TAGM3) were identified within the Project Area. A total of 18 suitable habitats for breeding eastern wood-pewee were identified within 120m of a wind turbine or overlapping with project infrastructure (overhead or underground cabling). Any candidate habitats for breeding eastern wood-pewee that are found greater than 120m from a wind turbine have been considered as generalized candidate SWH.	**Yes** **(18 Habitats)**	**Yes**
Peregrine Falcon	No Cliffs (CL), Talus (TA), or tall buildings in urban centres were identified within the Project Area.	**No**	**No**
Bald Eagle	Breeding habitat for this species is addressed under the consideration of Bald Eagle and Osprey Nesting, Foraging and Perching Habitat. No Bald Eagle and Osprey Nesting, Foraging and Perching Habitats are located within the Project Area. Overwintering habitat for this species is addressed under the consideration of Raptor Wintering Areas. Two candidate Raptor Wintering Areas have been identified overlapping with infrastructure (overhead cabling, underground	**See Bald Eagle and Osprey Nesting, Foraging and Perching Habitat and Raptor Wintering Areas**	

Habitat for Species of Conservation Concern	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
	cabling, construction activity, temporary infrastructure, and/or laydown areas), or located within 120m of wind turbines, or located within 50m of overhead cabling. Suitable Raptor Wintering Areas located greater than 120m from a wind turbine or greater than 50m from overhead have been considered generalized candidate SWH.		
Wood Thrush	Several relatively undisturbed, moist, mid-aged to mature mixed or deciduous Forests (FOM, FOD) and Swamps (SWM, SWD) with deciduous sapling growth and some trees >12m in height were identified in the Project Area. A total of 5 suitable habitats for breeding wood thrush were identified within 120m of wind turbines. Any candidate habitats for breeding wood thrush that are found greater than 120m from wind turbines have been considered as generalized candidate SWH.	**Yes** **(5 Habitats)**	**Yes**
Wilson"s Phalarope	No Meadow Marsh (MAM) or Shallow Marsh (MAS) communities adjacent to Shallow Aquatic (SA) or Open Water (OA) habitats were identified within the Project Area.	**No**	**No**
Snapping Turtle	Habitat for this species is addressed under the consideration of Turtle Nesting Area and Turtle Wintering Area Habitat. No Turtle Nesting Areas were identified within the Project Area. One candidate Turtle Wintering Area Habitat has been identified within the Project Area, and is proposed to be overlapped by infrastructure (overhead cabling, underground cabling, and/or construction activity).	**See Turtle Nesting Area and Turtle Wintering Area**	
Northern Map Turtle	Habitat for this species is addressed under the consideration of Turtle Nesting Area and Turtle Wintering Area Habitat. No Turtle Nesting Areas were identified within the Project Area. One candidate Turtle Wintering Area Habitat has been identified within the Project Area, and is proposed to be overlapped by infrastructure (overhead cabling, underground cabling, and/or construction activity).	**See Turtle Nesting Area and Turtle Wintering Area**	

Habitat for Species of Conservation Concern	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
Western Chorus Frog (Great Lakes/St. Lawrence - Canadian Shield Population)	Habitat for this species is addressed under the consideration of Amphibian Breeding Habitat (Woodland) and Amphibian Breeding Habitat (Wetland). A total of 24 candidate Amphibian Breeding Habitats (Woodland) were identified within 120m of access roads and/or are overlapped by project infrastructure (collector lines and/or construction disturbance areas). Three of these habitats contain permanent open water with emergent vegetation. If Bullfrog is identified during evaluation of significance surveys in these habitats, applicable habitats will also be identified under the consideration of Amphibian Breeding Habitat (Wetland). Any candidate Amphibian Breeding Habitat (Woodland) located greater than 120m from access roads have been considered generalized candidate SWH.	**See Amphibian Breeding Habitat (Woodland) and Amphibian Breeding Habitat (Wetland)**	
Eastern Musk Turtle	No suitable Shallow Marsh (MAS), Shallow Aquatic (SA), or Open Water (OA) habitats were identified within the Project Area. In addition, no Swamp (SW), Fen (FE) or Bog (BO) habitats containing permanent watercourses or permanent ponds with downed woody debris, soft bottoms and deep water were identified within 120m of the Project Location. One suitable permanent Open Water (OA) habitat with downed woody debris, a soft bottom, and the potential for deep water pools that do not freeze in winter was identified within the Project Area. This area (the Payne River), which could be suitable habitat for eastern musk turtle, is located greater than 120m from an access road. As a result, it will be considered as generalized candidate SWH.	**No**	**Yes**
Eastern Ribbonsnake	Habitat for this species is addressed under the consideration of Reptile Hibernacula. Eleven candidate Reptile Hibernaculum habitats were identified within 120m of wind turbines and/or access roads, or are overlapped by infrastructure (wind turbines, access roads, collector lines, and/or construction disturbance areas). Any suitable rock/debris pile features or communities that contain crevices or fissures in bedrock at the surface, or which may contain these features that are located greater than 120m from a wind turbine and/or access road have been considered generalized candidate SWH.	**See Reptile Hibernacula**	
Atlantic Sedge	No Shrub Bogs (BOS) with clearings were identified within the Project Area.	**No**	**No**

Habitat for Species of Conservation Concern	Rationale	Individually Delineated Candidate Significant Wildlife Habitat (Y/N)*	Generalized Candidate Significant Wildlife Habitat (Y/N)*
Mühlenberg's Weissia	A total of 10 suitable open habitats were identified within 120m of access roads and/or are overlapped by project infrastructure (access roads, collector lines, and/or construction disturbance areas). Any candidate habitats that may be suitable for Mühlenberg's weissia that were identified greater than 120m from access roads have been considered generalized candidate SWH.	**Yes** **(10 Habitats)**	**Yes**
Bog Elfin	No Bogs (BO) or black spruce were identified within the Project Area	**No**	**No**
Monarch	A total of 6 suitable open habitats were identified within 120m of a wind turbine or are overlapped by project infrastructure (access roads, collector lines, and/or construction disturbance areas). This includes 2 habitats that were identified to have an abundance of milkweed species, or some milkweed species with an abundance of other nectar-producing wildflowers. It also includes 4 habitats where the abundance of milkweed and other nectar-producing wildflowers was unable to be determined as a result of the time of year in which site investigation surveys were undertaken; these have been assumed to contain suitable habitat until surveys during the appropriate time of year can be completed. Any candidate habitats that may be suitable for monarch that were identified greater than 120m from a wind turbine have been considered generalized candidate SWH.	**Yes** **(6 Habitats)**	**Yes**
West Virginia White	No suitable Mixed or Deciduous Forests (FOM, FOD) containing toothwort were identified within 120m of project components that may have an operational impact. Any candidate Mixed or Deciduous Forests (FOM, FOD) containing toothwort or which may contain toothwort that were identified greater than 120m from a wind turbine have been considered generalized candidate SWH.	**No**	**Yes**

** The presence of candidate or generalized habitats was identified when area searches conducted during the appropriate time of year confirmed the presence of suitable habitat features. Candidate or generalized habitats for this species were assumed to be present when area searches were not conducted during the appropriate time of year or when site access was not granted, and therefore, the presence of the specific habitat characteristics could not be verified.*

6.3.4 Animal Movement Corridors

The records review process revealed no potential animal movement corridors within the Project Area. The detailed site investigation confirmed the presence of several linear features, including treed fencerows and naturalized drains, in and within 120m of the Project Location, which have the potential to act as animal movement corridors. These features were examined during the site investigation and compared with the other appropriate wildlife habitats that may suggest the presence of animal movement corridors. Specifically, NRSI biologists used the presence of any candidate wetland amphibian breeding habitats located in or within 120m of the Project Location, as outlined in Table 5, to identify amphibian movement corridors as per the criteria outlined in the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015). Since no candidate significant wetland amphibian breeding habitats were identified, no associated candidate animal movement corridors are being considered as part of this site investigation. If Bullfrog is identified during evaluation of significance surveys in any of the 3 candidate amphibian breeding habitats (woodland) containing permanent water bodies with abundant emergent vegetation, amphibian movement corridors will also be considered for applicable habitats as part of the evaluation of significance.

6.3.5 Summary of Wildlife Habitat

Based on the comprehensive site investigation conducted by NRSI biologists, a total of 126 individually delineated candidate SWH have been identified in or within 120m of the Project Location. In addition, several generalized candidate significant wildlife habitats have been identified within 120m of the Project Location, as per Appendix D of the NHA Guide for Renewable Energy Projects (OMNR 2012). Generalized candidate significant wildlife habitats have been treated as significant, and will be carried forward to the Evaluation of Significance Report and the Environmental Impact Study (EIS) Report. A summary of the 126 individually delineated candidate SWH that will be carried forward to the evaluation of significance phase of this Project is provided in Table 15. This table includes the size, composition, attributes, functions, distances to Project Locations, and map references of each habitat. A summary of the generalized candidate SWH that are found within 120m of the Project Location is provided in Table 16.

Table 15. Summary of Individually Identified Candidate Significant Wildlife Habitats in the Project Area

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Seasonal Concentration Areas								
WST-001$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	42.84	OAGM1	Annual Row Crop Communities (soybeans)	May provide foraging and resting habitat for migrating waterfowl.	Annual spring melt water and suitable agricultural field with waste grains present	WT – >120 AR – >120 CL – >120 CA – Overlapping SI – >120	4-1 4-3	**Yes**
WST-002$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	77.61	OAGM1	Annual Row Crop Communities (corn)			WT – 76 (T09) AR – 61 CL – 61 CA – 61 SI – >120	4-2 4-4	**Yes**
WST-004$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	20.09	OAGM1	Annual Row Crop Communities (soybeans)			WT – Overlapping (T06) AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-1 4-3	**Yes**
WST-005$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	136.57	OAGM1	Annual Row Crop Communities (corn, soybeans)			WT – 18 (T12) AR – 3 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-3	**Yes**
WST-006$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	30.31	OAGM1	Annual Row Crop Communities (corn, soybeans) with rotational hay			WT – 16 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	4-3 4-4	**Yes**
WST-007$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	3.12	OAGM2	Perennial Cover Crop			WT – >120 AR – >120 CL – >120 CA – Overlapping SI – >120	4-3 4-4	**Yes**
WST-010$_1$ Waterfowl Stopover	14.38	OAGM1	Annual Row Crop			WT – >120 AR – >120	4-3 4-4	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
and Staging Area (Terrestrial)			Communities (corn, soybeans, wheat)			CL – Overlapping[2] CA – Overlapping[2] SI – >120		
WST-011$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	22.93	OAGM1	Annual Row Crop Communities (corn, soybeans) with rotational hay			WT – 80 (T9) AR – >0.1[1] CL – >0.1[1] CA – 66 SI – >120	4-2 4-4	**Yes**
WST-012$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	21.97	OAGM1	Annual Row Crop Communities (corn)			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-4	**Yes**
WST-013$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	18.83	OAGM1	Annual Row Crop Communities (corn)			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-4	**Yes**
WST-015$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	44.90	OAGM2	Perennial Cover Crop			WT – >120 (T16) AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-5 4-6	**Yes**
WST-016$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	8.32	OAGM2	Perennial Cover Crop			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-5 4-6	**Yes**
WST-017$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	25.07	OAGM1	Annual Row Crop Communities (soybeans)			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-5 4-6	**Yes**
WST-018$_1$ Waterfowl Stopover	22.23	OAGM1	Annual Row Crop			WT – 31 (T27) AR – 6	4-7	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
and Staging Area (Terrestrial)			Communities (corn, soybeans)			CL – 6 CA – 6 SI – >120		
WST-020$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	30.37	OAGM1	Annual Row Crop Communities (wheat)			WT – >120 AR – 13 CL – Overlapping[2] CA – Overlapping SI – >120	4-8 4-9	**Yes**
WST-021$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	31.50	OAGM1	Annual Row Crop Communities (corn, wheat) with rotational hay			WT – Overlapping (T35) AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-6 4-9	**Yes**
WST-023$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	17.85	OAGM1	Annual Row Crop Communities (corn)			WT – Overlapping (T41) AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-9	**Yes**
WST-024$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	51.64	OAGM1	Annual Row Crop Communities			WT – >120 AR – 12 CL – Overlapping CA – Overlapping SI – >120	4-9	**Yes**
WST-026$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	79.75	OAGM1	Annual Row Crop Communities (corn), with some pasture			WT – 15 (T29) AR – >0.1 CL – >0.1 CA – >0.1 SI – >120	4-7	**Yes**
WST-027$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	49.70	OAGM1	Annual Row Crop Communities (corn), with some pasture			WT – 53 (T52) AR – 37 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-11	**Yes**
WST-028$_1$	8.99	OAGM2	Perennial Cover			WT – >120	4-4	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Waterfowl Stopover and Staging Area (Terrestrial)			Crop			AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120		
WST-029$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	34.35	OAGM1	Annual Row Crop Communities			WT – 45 (T16) AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-5	**Yes**
WST-030$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	10.69	OAGM1	Annual Row Crop Communities			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-5	**Yes**
WST-031$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	198.18	OAGM1	Annual Row Crop Communities			WT – Overlapping (T38) AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-5 4-7 4-9 4-10	**Yes**
WST-032$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	16.82	OAGM2	Perennial Cover Crop			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-6 4-9	**Yes**
WST-033$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	40.51	OAGM1	Annual Row Crop Communities			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-7	**Yes**
WST-034$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	21.93	OAGM1	Annual Row Crop Communities			WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-7	**Yes**
WST-035$_1$	21.92	OAGM1	Annual Row			WT – >120	4-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Waterfowl Stopover and Staging Area (Terrestrial)			Crop Communities			AR – 18 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-4	
WST-036$_1$ Waterfowl Stopover and Staging Area (Terrestrial)	19.11	OAGM1	Annual Row Crop Communities			WT –23 (T11) AR – 94 CL – 62 CA – 62 SI – >120	4-3	**Yes**
WSA-001$_2$ Waterfowl Stopover and Staging Area (Aquatic)	246.78	OA	Open Aquatic (South Nation River)	May provide foraging and resting habitat for migrating waterfowl.	Identified by Environment Canada to have the potential to provide staging habitat for significant concentrations of migrating snow goose. Permanent open watercourse used by waterfowl during migration.	WT – >120 AR – >120 CL – Overlapping[3] CA – Overlapping[3] SI – >120	4-4 4-5 4-6	**Yes**
RWA-001$_2$ Raptor Wintering Area	89.91	Upland Habitat: OAGM2 MEM MEMM3 MEMM4 MEMR1 MEGR1 RBTB1-4 THD THDM2-1 WODM5 Forest Habitat:	Large contiguous upland habitat adjacent to forested habitats.	May provide roosting, foraging, and resting habitats for wintering hawks and owls.	>15ha of upland habitat adjacent to forest habitat, 89.91ha total	WT – 24 (T04) AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-1 4-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		FODM3-1 FODM7-1						
RWA-002[2] Raptor Wintering Area	40.60	Upland Habitat: MEFR1 MEGR1 Forest Habitat: FODR1-1	Large contiguous upland habitat adjacent to forested habitats.		>15ha of upland habitat adjacent to forest habitat, 40.60ha total	WT – 27 (T27) AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-7	**Yes**
BMA-001[3] Bat Maternity Colony	1.91	FODM5-5	Dry-Fresh Sugar Maple-Hickory Deciduous Forest	May provide roosting habitat and shelter for raising young.	Suitable number of snags/cavity trees (≥10snags/ha) to provide candidate habitat	WT – 117 (T32) AR – 80 CL – 26 CA – 26 SI – 61	4-5 4-6 4-8 4-9	**Yes**
BMA-002[1] Bat Maternity Colony	34.40	SWDM2-2 SWD SWM	Green Ash Mineral Deciduous Swamp Deciduous Swamp Mixed Swamp		Suitable number of snags/cavity trees (≥10snags/ha) to provide candidate habitat have been assumed	WT – 60 (T48) AR – 9 CL – 9 CA – 9 SI – >120	4-11	**Yes**
BMA-003[3] Bat Maternity Colony	18.93	FOMM7-2 SWDM2-2 SWDM3-1	Fresh-Moist White Cedar-Hardwood Mixed Forest Green Ash Mineral Deciduous Swamp Red Maple Mineral Deciduous		Suitable number of snags/cavity trees (≥10snags/ha) to provide candidate habitat	WT – 58 (T48) AR – 14 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-12	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Swamp					
TWA-001$_2$ Turtle Wintering Area	55.55	OA	Open Water (South Nation River)	May provide overwintering habitat for turtles.	Permanent water body deep enough to not freeze with potentially soft mud substrates.	WT – >120 AR – >120 CL – Overlapping[3] CA – Overlapping[3] SI – >120	4-4 4-5 4-6	**Yes**
SNH-001$_3$ Reptile Hibernacula	2.99	Karst feature within SWCR1-1	White Cedar Calcareous Rock/Bedrock Coniferous Swamp Type	May provide overwintering habitat for snakes.	Karst feature may allow access for snakes below the frost line.	WT – 9 (T2) AR – 3 CL – 3 CA – 3 SI – >120	4-1	**Yes**
SNH-002$_3$ Reptile Hibernacula	1.16	Rock pile within CVI_2	Disposal and Recycle		Rock pile may provide protection from frost.	WT – Overlapping (T4) AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-1 4-2	**Yes**
SNH-003$_3$ Reptile Hibernacula	0.89	Rock pile within MEGR1	Dry - Fresh Calcareous Bedrock Graminoid Meadow Ecosite			WT – 24 (T4) AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-1 4-2	**Yes**
SNH-005$_3$ Reptile Hibernacula	6.90	RBOB1-2 with shallow soils	Dry – Fresh Sugar Maple Deciduous Forest Type		Meadow with shallow soils and potential for rock crevices may provide protection from frost.	WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-1 4-2	**Yes**
SNH-006$_1$ Reptile Hibernacula	13.72	Rock and soil berm within FODM5-1	Dry - Fresh Calcareous Bedrock Mixed Meadow Ecosite		Rock pile may provide protection from frost.	WT – >120 AR – 2 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-2	**Yes**
SNH-007$_3$ Reptile Hibernacula	4.5	MEMR1 with rock crevices	Calcareous Open Rock Barren Meadow		Meadow with shallow soils and potential for rock	WT – >120 AR – Overlapping CL – Overlapping	4-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Type		crevices may provide protection from frost.	CA – Overlapping SI – >120		
SNH-008$_3$ Reptile Hibernacula	0.67	Rock pile within TAGM1	Coniferous Plantation		Rock pile may provide protection from frost.	WT – 17 (T27) AR – 3 CL – 3 CA – 3 SI – >120	4-7	**Yes**
SNH-009$_3$ Reptile Hibernacula	1.03	Rock pile and cliff with crevices within THDM2	Dry - Fresh Deciduous Shrub Thicket Ecosite		Rock pile and cliff with crevices may provide protection from frost.	WT – >120 AR – 23 CL – Overlapping[2] CA – Overlapping[2] SI – >120	4-9 4-12	**Yes**
SNH-010$_3$ Reptile Hibernacula	0.65	Rock pile within MEGM3-5	Smooth Brome Graminoid Meadow Type		Rock pile may provide protection from frost.	WT – 90 (T48) AR – 39 CL – 39 CA – 39 SI – >120	4-12	**Yes**
SNH-011$_3$ Reptile Hibernacula	7.42	Rock pile within OAGM1/edge of SWDM4-5	Annual Row Crop			WT – 12 (T56) AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	4-12	**Yes**
SNH-012$_3$ Reptile Hibernacula	7.58	Rock pile within OAGM4	Open Pasture			WT – 107 (T57) AR – 91 CL – 91 CA – 91 SI – >120	4-12	**Yes**
Rare Vegetation Communities and Specialized Wildlife Habitats								
ALV-001$_3$ Alvar	4.50	MEMR1	Dry - Fresh Calcareous Bedrock Mixed Meadow Ecosite	May provide genetic, species, and ecosystem diversity, as well as habitat for species of	Candidate meadow community consisting of shallow soils over limestone bedrock.	WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	5-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
ALV-002$_1$ Alvar	2.70	FOCM2-2	Dry – Fresh White Cedar Coniferous Forest Type	conservation concern.	Candidate coniferous forest community consisting of shallow soils over limestone bedrock.	WT – >120 AR – >0.1[1] CL – Overlapping[1] CA – Overlapping[1] SI – >120	5-12	**Yes**
OGF-001$_3$ Old Growth Forest	2.31	FOCM2-2	Dry – Fresh White Cedar Coniferous Forest Type	May provide genetic, species, and ecosystem diversity, as well as habitat for species of conservation concern.	Mature, undisturbed forest stand with some old growth characteristics, including closed canopy, large dbh trees, moist growing conditions, and absence of non-native species. May also provide habitat for species of conservation concern.	WT – 80 (T28) AR – 70 CL – 70 CA – 70 SI – >120	5-12	**Yes**
SAV-001$_2$ Savannah	50.49	SVDR1 WOD	Dry – Fresh Calcareous Bedrock Deciduous Savanna Ecosite Deciduous Woodland	May provide genetic, species, and ecosystem diversity, as well as habitat for species of conservation concern.	Candidate deciduous savannah community	WT – >120 AR – >120 CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-11	**Yes**
TGP-001$_3$ Tallgrass Prairie	1.35	MEF	Forb Meadow	May provide genetic, species, and ecosystem	Candidate meadow community	WT – >120 AR – 44 CL – Overlapping CA – Overlapping	5-9	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
				diversity, as well as habitat for species of conservation concern.		SI – >120		
TGP-002$_1$ Tallgrass Prairie	3.89	MEM	Mixed Meadow		Candidate meadow community	WT – >120 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	5-12	**Yes**
AWO-001$_1$ Amphibian Breeding Habitat (Woodland)	26.32	SWCM1-1 FODM7-1 FOMM7	White Cedar Mineral Coniferous Swamp Type Fresh – Moist White Elm Lowland Deciduous Forest Type Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite	May be used for egg laying, breeding and feeding habitat.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal flooding and/or vernal pools.	WT – >120 AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-1 5-2	**Yes**
AWO-002$_2$ Amphibian Breeding Habitat (Woodland)	11.92	SWMM1-1 FODM5-8 SWDM2-2	White Cedar – Hardwood Mineral Mixed Swamp Type Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type Green Ash Mineral Deciduous			WT – >120 AR – 79 CL – 67 CA – 67 SI – >120	5-1 5-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Swamp Type					
AWO-003$_3$ Amphibian Breeding Habitat (Woodland)	1.20	FODM7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type			WT – >120 AR – 106 CL – 106 CA – 106 SI – >120	5-1 5-2 5-3 5-4	**Yes**
AWO-004$_1$ Amphibian Breeding Habitat (Woodland)	15.12	FODM5-1	Dry – Fresh Sugar Maple Deciduous Forest Type			WT – >120 AR – 3 CL – >0.1[1] CA – >0.1[1] SI – >120	5-2	**Yes**
AWO-005$_3$ Amphibian Breeding Habitat (Woodland)	19.44	SWCM1-1 SWDM4-2 SWDM2-2 FOCM4-1 SWMM1	White Cedar Mineral Coniferous Swamp White Elm Mineral Deciduous Swamp Green Ash Mineral Deciduous Swamp Fresh-Moist White Cedar Coniferous Forest White Cedar Mineral Mixed Swamp			WT – 106 (T10) AR – 73 CL – 73 CA – 73 SI – >120	5-3	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWDM4	Mineral Deciduous Swamp					
AWO-006$_3$ Amphibian Breeding Habitat (Woodland)	1.39	FODM5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type			WT – >120 AR – 2 CL – >120 CA – 2 SI – 2	5-5 5-6 5-8 5-9	**Yes**
AWO-007$_3$ Amphibian Breeding Habitat (Woodland)	16.25	FODR1-1	Dry - Fresh Sugar Maple - Hardwood Calcareous Shallow Deciduous Forest Type			WT – 28 (T27) AR – 13 CL – 13 CA – 13 SI – >120	5-7	**Yes**
AWO-008$_3$ Amphibian Breeding Habitat (Woodland)	2.35	SWDM2-2	Green Ash Mineral Deciduous Swamp Type			WT – >120 AR – 4 CL – 4 CA – 4 SI – >120	5-7	**Yes**
AWO-009$_1$ Amphibian Breeding Habitat (Woodland)	0.94	FODM5-2	Dry – Fresh Sugar Maple – Beech Deciduous Forest Type			WT – >120 AR – 49 CL – 36 CA – 36 SI – >120	5-7	**Yes**
AWO-010$_1$ Amphibian Breeding Habitat (Woodland)	2.15	FODM5-6	Dry – Fresh Sugar Maple – Basswood Deciduous Forest Type			WT – >120 AR – 12 CL – 12 CA – 12 SI – >120	5-10	**Yes**
AWO-011$_2$ Amphibian Breeding Habitat (Woodland)	27.57	SWDM4-5 SWMM1-1	Poplar Mineral Deciduous Swamp White Cedar-			WT – 5 (T46) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	5-11	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Hardwood Mineral Mixed Swamp					
		FODM8-1	Poplar Mineral Deciduous Forest					
		FOC	Coniferous Forest					
		SWD	Deciduous Swamp					
AWO-012$_1$ Amphibian Breeding Habitat (Woodland)	112.65	SWDM2-2	Green Ash Mineral Deciduous Swamp			WT – 60 (T46) AR – 9 CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-11	**Yes**
		FOCM2-2	Dry-Fresh White Cedar Coniferous Forest					
		SWMM1-1	White Cedar-Hardwood Mineral Mixed Swamp					
		SWM	Mixed Swamp					
		SWC	Coniferous Swamp					
		SWD	Deciduous Swamp					
		SWCM1-1	White Cedar					

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Mineral Coniferous Swamp					
AWO-013$_3$ Amphibian Breeding Habitat (Woodland)	0.90	SWDM3-4	Manitoba Maple Mineral Deciduous Swamp	May be used for egg laying, breeding and feeding habitat. May also be used by Bullfrog for egg laying, breeding and feeding.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal flooding and/or vernal pools. Contains permanent open water with emergent vegetation	WT – 40 (T52) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	5-11	**Yes**
AWO-014$_1$ Amphibian Breeding Habitat (Woodland)	11.60	SWDM2-2	Green Ash Mineral Deciduous Swamp Type	May be used for egg laying, breeding and feeding habitat.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal flooding and/or vernal pools.	WT – >120 AR – 110 CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-11	**Yes**
AWO-015$_2$ Amphibian Breeding Habitat (Woodland)	12.96	SWDM1-1 SWDM3-1 FODM5-8	Swamp White Oak Mineral Deciduous Swamp Type Red Maple Mineral Deciduous Swamp Type Dry – Fresh	May be used for egg laying, breeding and feeding habitat.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal flooding and/or vernal pools.	WT – >120 AR – 118 CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-11 5-12	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWMM1-1 FOCM4-1	Sugar Maple – White Ash Deciduous Forest Type White Cedar – Hardwood Mineral Mixed Swamp Type Fresh – Moist White Cedar Coniferous Forest Type					
AWO-016$_1$ Amphibian Breeding Habitat (Woodland)	7.15	SWMM1-1 SWCM1-1 FOCM2-2 SWDM2-2	White Cedar – Hardwood Mineral Mixed Swamp Type White Cedar Mineral Coniferous Swamp Type Dry – Fresh White Cedar Coniferous Forest Type Green Ash Mineral Deciduous Swamp Type			WT – >120 AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-11 5-12	**Yes**
AWO-017$_2$ Amphibian Breeding Habitat (Woodland)	14.87	SWDM4-5	Poplar Mineral Deciduous Swamp			WT – 11 (T56) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1]	5-11 5-12	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
						SI – >120		
AWO-018$_2$ Amphibian Breeding Habitat (Woodland)	18.97	FOMM7 SWDM3-1 FODM7-2 SWDM2-2	Fresh-Moist White Cedar-Hardwood Mixed Forest Red Maple Mineral Deciduous Swamp Fresh-Moist Green Ash-Hardwood Lowland Deciduous Forest Green Ash Mineral Deciduous Swamp	May be used for egg laying, breeding and feeding habitat. May also be used by Bullfrog for egg laying, breeding and feeding.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal flooding and/or vernal pools. Contains permanent open water with emergent vegetation	WT – 58 (T48) AR – 12 CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-12	**Yes**
AWO-019$_3$ Amphibian Breeding Habitat (Woodland)	0.87	SWDM2-2	Green Ash Mineral Deciduous Swamp	May be used for egg laying, breeding and feeding habitat.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal flooding and/or vernal pools.	WT – >120 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	5-12	**Yes**
AWO-020$_2$ Amphibian Breeding Habitat (Woodland)	36.08	FOCM2-2 SWDM2-2	Dry-Fresh White Cedar Coniferous Forest Green Ash	May be used for egg laying, breeding and feeding habitat.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal	WT – 18 (T50) AR – 3 CL – 3 CA – 3 SI – >120	5-12	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			Mineral Deciduous Swamp	May also be used by Bullfrog for egg laying, breeding and feeding.	flooding and/or vernal pools. Contains permanent open water with emergent vegetation			
		SWDM4-2	White Elm Mineral Deciduous Swamp Type					
		SWDM4-5	Poplar Mineral Deciduous Swamp Type					
		SWM	Mixed Swamp					
		FOCM4-1	Fresh – Moist White Cedar Coniferous Forest Type					
AWO-021$_3$ Amphibian Breeding Habitat (Woodland)	7.00	SWDM2-2	Green Ash Mineral Deciduous Swamp	May be used for egg laying, breeding and feeding habitat.	Candidate deciduous or mixed forest or swamp habitat with the presence of seasonal flooding and/or vernal pools.	WT – 115 AR – 71 CL – 71 CA – 71 SI – >120	5-9 5-12	**Yes**
		SWDM4-2	White Elm Mineral Deciduous Swamp Type					
		SWC	Coniferous Swamp					
AWO-022$_3$ Amphibian Breeding Habitat (Woodland)	11.60	SWDM2-2	Green Ash Mineral Deciduous Swamp			WT – >120 AR – 14 CL – Overlapping[2] CA – Overlapping[2] SI – >120	5-12	**Yes**
		FOMM7-2	Fresh – Moist					

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
			White Cedar – Hardwood Mixed Forest Type					
AWO-023$_3$ Amphibian Breeding Habitat (Woodland)	17.17	FOCM2-2 FOMM5-2 SWDM4-5 SWDM2-2	Dry – Fresh White Cedar Coniferous Forest Type Dry – Fresh Poplar Mixed Forest Type Poplar Mineral Deciduous Swamp Type Green Ash Mineral Deciduous Swamp			WT – 78 (T57) AR – 5 CL – 5 CA – 5 SI – >120	5-12	**Yes**
AWO-024$_3$ Amphibian Breeding Habitat (Woodland)	1.79	SWDM2-2	Green Ash Mineral Deciduous Swamp			WT – >120 AR – 2 CL – 2 CA – 2 SI – >120	5-12	**Yes**
Habitats for Species of Conservation Concern								
OCB-001$_2$ Open Country Bird Breeding Habitat	30.16	MEGR1 OAGM2	Dry-Fresh Calcareous Bedrock Graminoid Meadow Perennial Cover Crops (established hay)			WT – 24 (T04) AR – 1 CL – 1 CA – 1 SI – >120	6-1 6-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		MEM MEMM3 MEMM4	Mixed Meadow Dry-Fresh Mixed Meadow Fresh-Moist Mixed Meadow					
Special Concern and Rare Wildlife Species								
CONI-001$_3$ Common Nighthawk Habitat	0.90	MEGR1	Dry - Fresh Calcareous Bedrock Graminoid Meadow Ecosite	May be used for breeding, nesting or foraging habitat.	Candidate meadow, thicket, rock barren or forest habitat.	WT – 24 (T4) AR – 1 CL – 1 CA – 1 SI – >120	6-1 6-2	**Yes**
CONI-002$_2$ Common Nighthawk Habitat	42.52	FODM7-1 FODM11 WODM5-2 MEM MEMM3	Fresh – Moist White Elm Lowland Deciduous Forest Type Naturalized Deciduous Hedgerow Ecosite Fresh - Moist Elm Deciduous Woodland Type Mixed Meadow Dry - Fresh Mixed Meadow Ecosite			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-1 6-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		MEMM4 MEMR1 THD THDM2-1 RBTB1-4	Fresh - Moist Mixed Meadow Ecosite Dry - Fresh Calcareous Bedrock Mixed Meadow Ecosite Deciduous Thicket Sumac Deciduous Shrub Thicket Type Jack Pine Circumneutral Treed Rock Barren Type					
CONI-003$_3$ Common Nighthawk Habitat	6.92	RBOB1-2	Calcareous Open Rock Barren Meadow Type			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-1 6-2	**Yes**
CONI-004$_3$ Common Nighthawk Habitat	10.19	MEMM3	Dry - Fresh Mixed Meadow Ecosite			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-5 6-6	**Yes**
CONI-005$_3$ Common Nighthawk Habitat	28.65	MEFR1	Dry - Fresh Calcareous Bedrock Forb Meadow Ecosite			WT – 17 (T27) AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	6-7	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		MEGR1	Dry - Fresh Calcareous Bedrock Graminoid Meadow Ecosite					
CONI-006$_3$ Common Nighthawk Habitat	2.47	MEMR1	Dry - Fresh Calcareous Bedrock Mixed Meadow Ecosite			WT – >120 AR – 24 CL – Overlapping CA – Overlapping SI – >120	6-9 6-12	**Yes**
CONI-007$_3$ Common Nighthawk Habitat	0.65	MEGM3-5	Smooth Brome Graminoid Meadow Type			WT – 90 (T48) AR – 39 CL – 39 CA – 39 SI – >120	6-12	**Yes**
CONI-008$_3$ Common Nighthawk Habitat	4.54	MEGM4-1	Open Graminoid Meadow Type			WT – 5 (T50) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-12	**Yes**
CONI-009$_3$ Common Nighthawk Habitat	1.95	THDM2-8	Raspberry Deciduous Shrub Thicket Type			WT – 32 (T57) AR – 5 CL – 5 CA – 5 SI – >120	6-12	**Yes**
EAWP-001$_3$ Eastern Wood-Pewee Habitat	2.99	SWCR1-1	White Cedar Calcareous Rock/Bedrock Coniferous Swamp	May be used for breeding, nesting or foraging habitat.	Candidate forest and/or swamp habitat.	WT – 10 (T2) AR – 3 CL – 3 CA – 3 SI – >120	6-1	**Yes**
EAWP-002$_3$ Eastern Wood-Pewee Habitat	0.52	SWDM2-2	Green Ash Mineral Deciduous Swamp			WT – 105 (T4) AR – 68 CL – 68 CA – 68 SI – >120	6-1 6-2	**Yes**
EAWP-003$_3$	1.48	SWDR1	Calcareous			WT – 47 (T4)	6-1	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Eastern Wood-Pewee Habitat			Rock/Bedrock Deciduous Swamp			AR – 33 CL – 33 CA – 33 SI – >120	6-2	
EAWP-004$_3$ Eastern Wood-Pewee Habitat	19.44	SWCM1-1 SWDM4-2 SWDM2-2 FOCM4-1 SWMM1 SWDM4	White Cedar Mineral Coniferous Swamp White Elm Mineral Deciduous Swamp Green Ash Mineral Deciduous Swamp Fresh-Moist White Cedar Coniferous Forest White Cedar Mineral Mixed Swamp Mineral Deciduous Swamp			WT – 106 (T10) AR – 73 CL – 73 CA – 73 SI – >120	6-4	**Yes**
EAWP-005$_3$ Eastern Wood-Pewee Habitat	0.63	FOMM7	Fresh-Moist White Cedar Hardwood Mixed Forest			WT – 55 (T10) AR – 25 CL – 25 CA – 25 SI – 58	6-4	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
EAWP-006$_3$ Eastern Wood-Pewee Habitat	1.49	SWDM4-5 SWCM1-1 SWDM2-2	Poplar Mineral Deciduous Swamp White Cedar Mineral Coniferous Swamp Green Ash Mineral Deciduous Swamp			WT – 5 (T11) AR – 3 CL – 3 CA – 3 SI – >120	6-4	**Yes**
EAWP-007$_3$ Eastern Wood-Pewee Habitat	1.42	FODM11	Naturalized Deciduous Hedgerow			WT – >120 AR – >120 CL – >0.1[1] CA – >0.1[1] SI – >120	6-5 6-6	**Yes**
EAWP-008$_3$ Eastern Wood-Pewee Habitat	1.86	FODM5-5	Dry-Fresh Sugar Maple-Hickory Deciduous Forest			WT – 118 (T32) AR – 80 CL – 26 CA – 26 SI –71	6-5 6-6 6-8 6-9	**Yes**
EAWP-009$_3$ Eastern Wood-Pewee Habitat	15.64	FODR1-1 SWDR1	Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest Calcareous Rock/Bedrock Deciduous Swamp Green Ash			WT – 28 (T27) AR – 13 CL – 13 CA – 13 SI – >120	6-7	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWDM2-2	Mineral Deciduous Swamp					
EAWP-010$_3$ Eastern Wood-Pewee Habitat	1.56	FODM7-2 SWDM3-4 FODM5-6	Fresh-Moist Green Ash-Hardwood Lowland Deciduous Forest Manitoba Maple Mineral Deciduous Swamp Dry-Fresh Sugar Maple-Basswood Deciduous Forest			WT – 120 (T29) AR – 93 CL – 93 CA – 93 SI – >120	6-7	**Yes**
EAWP-011$_3$ Eastern Wood-Pewee Habitat	0.90	SWDM3-4	Manitoba Maple Mineral Deciduous Swamp			WT – 40 (T52) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-11	**Yes**
EAWP-012$_1$ Eastern Wood-Pewee Habitat	108.57	SWDM2-2 FOCM2-2	Green Ash Mineral Deciduous Swamp Dry-Fresh White Cedar Coniferous Forest			WT – 60 (T46) AR – 9 CL – Overlapping[2] CA – Overlapping[2] SI – >120	6-11	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWMM1-1 SWM SWC SWD SWCM1-1	White Cedar-Hardwood Mineral Mixed Swamp Mixed Swamp Coniferous Swamp Deciduous Swamp White Cedar Mineral Coniferous Swamp					
EAWP-013$_2$ Eastern Wood-Pewee Habitat	25.65	SWDM4-5 SWMM1-1 FODM8-1 FOC SWD	Poplar Mineral Deciduous Swamp White Cedar-Hardwood Mineral Mixed Swamp Poplar Mineral Deciduous Forest Coniferous Forest Deciduous Swamp			WT – 5 (T46) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-11	**Yes**
EAWP-014$_3$ Eastern Wood-	7.00	SWDM2-2	Green Ash Mineral			WT – 115 (T48) AR – 71	6-12	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Pewee Habitat		FOMM7-2 SWDM2-2 SWC	Deciduous Swamp Fresh-Moist White Cedar-Hardwood Mixed Forest Green Ash Mineral Deciduous Swamp Coniferous Swamp			CL – 71 CA – 71 SI – >120		
EAWP-015$_2$ Eastern Wood-Pewee Habitat	18.98	FOMM7 SWDM3-1 FODM7-2 SWDM2-2	Fresh-Moist White Cedar-Hardwood Mixed Forest Red Maple Mineral Deciduous Swamp Fresh-Moist Green Ash-Hardwood Lowland Deciduous Forest Green Ash Mineral Deciduous Swamp			WT – 58 (T48) AR – 12 CL – Overlapping[2] CA – Overlapping[2] SI – >120	6-12	**Yes**
EAWP-016$_3$	5.81	FOMM5-2	Dry-Fresh Poplar			WT – 78 (T57)	6-12	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
Eastern Wood-Pewee Habitat		FOCM2-2	Mixed Forest Dry-Fresh White Cedar Coniferous Forest			AR – 5 CL – 5 CA – 5 SI – >120		
EAWP-017$_2$ Eastern Wood-Pewee Habitat	14.87	SWDM4-5	Poplar Mineral Deciduous Swamp			WT – 11 (T56) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-11 6-12	**Yes**
EAWP-018$_2$ Eastern Wood-Pewee Habitat	19.50	FOCM2-2 SWDM2-2 SWM	Dry-Fresh White Cedar Coniferous Forest Green Ash Mineral Deciduous Swamp Mixed Swamp			WT – 18 (T50) AR – 7 CL – 7 CA – 7 SI – >120	6-12	**Yes**
WOTH-001$_3$ Wood Thrush Habitat	1.86	FODM5-5	Dry-Fresh Sugar Maple-Hickory Deciduous Forest	May be used for breeding, nesting or foraging habitat.	Candidate moist, mature deciduous or mixed forest or swamp habitat.	WT – 118 (T32) AR – 80 CL – 26 CA – 26 SI – 71	6-5 6-6 6-8 6-9	**Yes**
WOTH-002$_3$ Wood Thrush Habitat	15.64	FODR1-1 SWDR1	Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest Calcareous Rock/Bedrock			WT – 28 (T27) AR – 13 CL – 13 CA – 13 SI – >120	6-7	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWDM2-2	Deciduous Swamp Green Ash Mineral Deciduous Swamp					
WOTH-003$_1$ Wood Thrush Habitat	34.40	SWDM2-2 SWD SWM	Green Ash Mineral Deciduous Swamp Deciduous Swamp Mixed Swamp			WT – 60 (T46) AR – 9 CL – 9 CA – 9 SI – >120	6-11	**Yes**
WOTH-004$_3$ Wood Thrush Habitat	7.25	SWMM1-1	White Cedar – Hardwood Mineral Mixed Swamp Type			WT – 5 (T46) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-11	**Yes**
WOTH-005$_2$ Wood Thrush Habitat	14.54	FOMM7 SWDM3-1 FODM7-2	Fresh-Moist White Cedar-Hardwood Mixed Forest Red Maple Mineral Deciduous Swamp Fresh-Moist Green Ash-Hardwood Lowland			WT – 58 (T48) AR – 15 CL – 15 CA – 15 SI – >120	6-12	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		SWDM2-2 SWD FOD	Deciduous Forest Green Ash Mineral Deciduous Swamp Deciduous Swamp Deciduous Forest					
MUWE-001$_3$ Mühlenberg's Weissia Habitat	0.90	MEGR1	Dry-Fresh Calcareous Bedrock Graminoid Meadow Ecosite	Provides suitable moisture regime, light levels, and soil properties that promote optimal growth and fecundity of this species.	Candidate open meadow or rock barren habitat.	WT – 24 (T4) AR – 1 CL – 1 CA – 1 SI – >120	6-1 6-2	**Yes**
MUWE-002$_3$ Mühlenberg's Weissia Habitat	4.50	MEMR1	Dry-Fresh Calcareous Bedrock Mixed Meadow Ecosite			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-2	**Yes**
MUWE-003$_3$ Mühlenberg's Weissia Habitat	6.92	RBOB1-2	Calcareous Open Rock Barren Meadow Type			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-1 6-2	**Yes**
MUWE-004$_3$ Mühlenberg's Weissia Habitat	0.56	MEGM3-5	Smooth Brome Graminoid Meadow Type			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-6	**Yes**
MUWE-005$_3$ Mühlenberg's Weissia Habitat	10.19	MEMM3	Dry-Fresh Mixed Meadow Ecosite			WT – >120 AR – Overlapping CL – Overlapping	6-5 6-6	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
						CA – Overlapping SI – >120		
MUWE-006$_1$ Mühlenberg's Weissia Habitat	0.72	MEGM3	Dry-Fresh Graminoid Meadow Ecosite			WT – >120 AR – 99 CL – 99 CA – 99 SI – >120	6-10	**Yes**
MUWE-007$_3$ Mühlenberg's Weissia Habitat	0.31	MEMM4	Fresh-Moist Mixed Meadow Ecosite			WT – >120 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-11	**Yes**
MUWE-008$_3$ Mühlenberg's Weissia Habitat	0.65	MEGM3-5	Smooth Brome Graminoid Meadow Type			WT – 90 (T48) AR – 39 CL – 39 CA – 39 SI – >120	6-12	**Yes**
MUWE-009$_3$ Mühlenberg's Weissia Habitat	4.54	MEGM4-1	Open Graminoid Meadow Type			WT – 5 (T50) AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-12	**Yes**
MUWE-010$_1$ Mühlenberg's Weissia Habitat	3.89	MEM	Mixed Meadow			WT – >120 AR – >0.1[1] CL – >0.1[1] CA – >0.1[1] SI – >120	6-12	**Yes**
MONA-001$_3$ Monarch Habitat	0.90	MEGR1	Dry - Fresh Calcareous Bedrock Graminoid Meadow Ecosite	May be used for egg laying, breeding, and feeding habitat.	Candidate meadow, thicket rock barren or woodland habitat which contains or may contain an abundance of milkweed, or some milkweed with an	WT – 24 (T4) AR – 1 CL – 1 CA – 1 SI – >120	6-1 6-2	**Yes**
MONA-002$_2$ Monarch Habitat	38.60	WODM5-2	Fresh - Moist Elm Deciduous Woodland Type			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping	6-1 6-2	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
		MEM MEMM3 MEMM4 MEMR1 THD THDM2-1 RBTB1-4	Mixed Meadow Dry - Fresh Mixed Meadow Ecosite Fresh - Moist Mixed Meadow Ecosite Dry - Fresh Calcareous Bedrock Mixed Meadow Ecosite Deciduous Thicket Sumac Deciduous Shrub Thicket Type Jack Pine Circumneutral Treed Rock Barren Type		abundance of other nectar-producing wildflowers.	SI – >120		
MONA-003$_3$ Monarch Habitat	6.92	RBOB1-2	Calcareous Open Rock Barren Meadow Type			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-1 6-2	**Yes**
MONA-004$_3$ Monarch Habitat	10.19	MEMM3	Dry - Fresh Mixed Meadow Ecosite			WT – >120 AR – Overlapping CL – Overlapping CA – Overlapping SI – >120	6-5 6-6	**Yes**

Feature ID	Size (ha)	Composition	Attributes	Functions	Criteria Rationale	Distance to Project Location (m)	Map(s)	EOS Required (Y/N)
MONA-005$_3$ Monarch Habitat	28.65	MEFR1 MEGR1	Dry - Fresh Calcareous Bedrock Forb Meadow Ecosite Dry - Fresh Calcareous Bedrock Graminoid Meadow Ecosite			WT – 17 (T27) AR – >0.1[1] CL – Overlapping[2] CA – Overlapping[2] SI – >120	6-7	**Yes**
MONA-006$_3$ Monarch Habitat	2.46	MEMR1	Dry - Fresh Calcareous Bedrock Mixed Meadow Ecosite			WT – >120 AR – 24 CL – Overlapping CA – Overlapping SI – >120	6-9 6-12	**Yes**

** ELC codes have not been mapped as they have been identified as inclusions (<0.5ha in size).*

Superscripts:
1: Mapping depicts this candidate SWH being overlapped by the Project Location; however, all project components, including the construction disturbance area, will be located adjacent to the candidate SWH (>0.1m) , or collection lines may be installed beneath the habitat via directional drilling.
2: This candidate SWH will be overlapped by the Project Location that follows the municipal road right-of-way. Overlap with the candidate SWH will occur entirely within the road right-of-way and will be minimized as much as practicable.
3: This candidate SWH will be overlapped by the collection line, which will consist of overhead lines spanning the habitat or underground lines, which will avoid overlap with the habitat by the use of directional drilling. Any associated impact will be minimized, to the extent practicable.

Subscripts:
1: Entire feature delineated from property line/ aerial photograph.
2: Feature delineated via a combination of methods: on site and property line/aerial photograph.
3: Entire feature delineated on site.

Legend
WT: Wind Turbine
AR: Access Road
CL: Collector Lines
CA: Construction Activity/Temporary Infrastructure/Laydown Area
SI: Supporting Infrastructure - Building/Substation/Meteorological Tower/Point of Interconnect

Table 16. Summary of Generalized Candidate Significant Wildlife Habitat Identified in the Project Area

Wildlife Habitat	Habitat Present Within the Project Area	Criteria Rationale
Seasonal Concentration Areas		
Raptor Wintering Area	Yes	Areas containing a combination of Forest (FO) Community Types in addition to Meadow (ME), Thicket (TH), Savannah (SV), or Woodland (WO) Community Types with <60% cover, that are >20ha in size are located >120m from wind turbines and >50m from overhead lines. These habitats have been considered generalized candidate SWH.
Bat Maternity Colonies	Yes	Deciduous Forest (FOD) and Deciduous Treed Swamp (SWD) Community Types are located >120m from wind turbines and have been considered generalized candidate SWH.
Reptile Hibernaculum	Yes	Features that may provide access for snakes below the frost line are located >120m from wind turbines and access roads have been considered generalized candidate SWH.
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)	Yes	A Thicket (TH) community is located >120m from wind turbines and has been considered generalized candidate SWH.
Colonially – Nesting Bird Breeding Habitat (Tree/Shrubs)	Yes	Deciduous Swamp (SWD) Community Types are located >120m from wind turbines and access roads and have been considered generalized candidate SWH.
Rare Vegetation Communities and Specialized Wildlife Habitats		
Alvar	Yes	Potential Alvar Community Types are located >120m from access roads and have been considered generalized candidate SWH.
Savannah	Yes	A potential Savannah Community Type is located >120m from access roads and has been considered generalized candidate SWH.
Tallgrass Prairie	Yes	Potential Tallgrass Prairie Community Types are located >120m from access roads and have been considered generalized candidate SWH.
Other Rare Vegetation Community Types	Yes	A provincially rare vegetation community is located >120m from access roads and has been considered generalized candidate SWH.
Woodland Raptor Nesting Habitat	Yes	A woodland consisting of contiguous natural forest at least 30ha in size, or with at least 10ha of interior habitat (assuming a 200m buffer from edges) has been identified, which is not overlapped by the Project Location. Suitable habitats that have no development within the habitat have been considered generalized candidate SWH.
Seeps and Springs	Yes	A single seepage area or potential seep was identified, which is not overlapped by project components.

Wildlife Habitat	Habitat Present Within the Project Area	Criteria Rationale
		Suitable habitats that have no development within the habitat have been considered generalized candidate SWH.
Amphibian Breeding Habitat (Woodland)	Yes	Swamp (SWD) and Forest (FO) Community Types are located >120m from access roads and have been considered generalized candidate SWH.
Woodland Area-sensitive Bird Breeding Habitat	Yes	Forest (FO) or Treed Swamp (SW) Community Types that are mature forest stands (>60 years old) or woodlots >30ha in size containing interior forest habitat (at least 200m from the forest edge) have been identified, which are not overlapped by project components. Suitable habitats that have no development within the habitat have been considered generalized candidate SWH.
Habitats for Species of Conservation Concern		
Shrub/Early Successional Bird Breeding Habitat	Yes	Oldfield areas succeeding to shrub and thicket habitats >10ha that are not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 are located >120m from wind turbines and have been considered generalized candidate SWH.
Special Concern and Rare Wildlife Species		
Short-eared Owl	Yes	Breeding habitat for this species is addressed under the consideration of Open Country Bird Breeding Habitat. No candidate Open Country Bird Breeding habitats located greater than 120m from a wind turbine were identified. Overwintering habitat for this species is addressed under the consideration of Raptor Wintering Areas. Suitable Raptor Wintering Areas located greater than 120m from a wind turbine or greater than 50m from overhead have been considered generalized candidate SWH.
Canada Warbler	Yes	Breeding habitat for this species is addressed under the consideration of Woodland Area-sensitive Bird Breeding Habitats. No candidate Woodland Area-sensitive Bird Breeding Habitats are overlapped by project infrastructure. Suitable Woodland Area-sensitive Bird Breeding Habitats that are not overlapped by project infrastructure have been considered generalized candidate SWH.
Common Nighthawk	Yes	Open areas in Rock Barren (RB), Shoreline (SH), Meadow (ME), Thicket (TH), Savanna (SV), Woodland (WO), and Forest (FO) that contain large clearings are located >120m from wind turbines and have been considered generalized candidate SWH.

Wildlife Habitat	Habitat Present Within the Project Area	Criteria Rationale
Eastern Wood-Pewee	Yes	Forest (FO), Deciduous Treed Swamp (SWD), Plantation and Mixed or Deciduous Plantation (TAGM2, TAGM3) Community Types are located >120m from wind turbines and have been considered generalized candidate SWH.
Bald Eagle	Yes	Breeding habitat for this species is addressed under the consideration of Bald Eagle and Osprey Nesting, Foraging and Perching Habitat. No Bald Eagle and Osprey Nesting, Foraging and Perching Habitats are located within the Project Area. Overwintering habitat for this species is addressed under the consideration of Raptor Wintering Areas. Suitable Raptor Wintering Areas located greater than 120m from a wind turbine or greater than 50m from overhead have been considered generalized candidate SWH.
Wood Thrush	Yes	Deciduous Forest (FOD) and Deciduous Treed Swamp (SWD) Community are located >120m from wind turbines and have been considered generalized candidate SWH.
Western Chorus Frog (Great Lakes/St. Lawrence - Canadian Shield Population)	Yes	Habitat for this species is addressed under the consideration of Amphibian Breeding Habitat (Woodland) and Amphibian Breeding Habitat (Wetland). No Amphibian Breeding Habitats (Wetland) were identified within the Project Area. Candidate Amphibian Breeding Habitats (Woodland) located greater than 120m from access roads have been considered generalized candidate SWH.
Eastern Musk Turtle	Yes	A suitable permanent Open Water (OA) habitat with downed woody debris, soft water, and the potential for deep water pools that do not freeze in winter was identified within the Project Area. This area (the Payne River), which could be suitable habitat for eastern musk turtle, is located >120m from access roads and has been considered generalized candidate SWH.
Eastern Ribbonsnake	Yes	Habitat for this species is addressed under the consideration of Reptile Hibernacula. Any suitable rock/debris pile features or communities that contain crevices or fissures in bedrock at the surface, or which may contain these features that are located greater than 120m from a wind turbine and/or access road have been considered generalized candidate SWH.
Mühlenberg's Weissia	Yes	Suitable open habitats are located >120m from access roads and have been considered generalized candidate SWH.

Wildlife Habitat	Habitat Present Within the Project Area	Criteria Rationale
Monarch	Yes	Suitable open habitats are located >120m from wind turbines and have been considered generalized candidate SWH.
West Virginia White	Yes	Mixed or Deciduous Forests (FOM, FOD) containing toothwort or which may contain toothwort are located >120m from wind turbines and have been considered generalized candidate SWH.

7.0 Summary of Site Investigation

In accordance with the REA Regulation, NRSI biologists have completed a comprehensive site investigation of the Project Area. The results of the investigation have been discussed in the preceding sections, and are summarized in Table 17. This summary includes woodlands, wetlands, and SWH, which will be carried forward to the evaluation of significance phase of this project, as noted in the table.

Table 18 outlines differences to the summary of the Records Review report, while Table 19 outlines differences to candidate SWH identified in the Records Review report.

Table 17. Summary of Natural Features and Candidate Wildlife Habitat Site Investigation for the Project

Feature ID	Feature In Project Location (Y/N)	Feature Within 120m of Project Location (Y/N)	Individually Delineated Feature Within 120m of the Project Location (Y/N)*	Evaluation of Significance Required (Y/N)
Woodlands				
WOD-001	No	Yes	Yes	**Yes**
WOD-002	No	Yes	Yes	**Yes**
WOD-003	No	Yes	Yes	**Yes**
WOD-004	No	Yes	Yes	**Yes**
WOD-005	Yes	Yes	Yes	**Yes**
WOD-006	No	Yes	Yes	**Yes**
WOD-007	No	Yes	Yes	**Yes**
WOD-008	No	Yes	Yes	**Yes**
WOD-009	Yes	Yes	Yes	**Yes**
WOD-010	No	Yes	Yes	**Yes**
WOD-011	No	Yes	Yes	**Yes**
WOD-012	No	Yes	Yes	**Yes**
WOD-013	No	Yes	Yes	**Yes**
WOD-014	Yes	Yes	Yes	**Yes**
WOD-015	No	Yes	Yes	**Yes**
WOD-016	No	Yes	Yes	**Yes**
WOD-017	No	Yes	Yes	**Yes**
WOD-018	No	Yes	Yes	**Yes**
WOD-019	Yes	Yes	Yes	**Yes**
WOD-020	Yes	Yes	Yes	**Yes**
WOD-021	Yes	Yes	Yes	**Yes**
WOD-022	No	Yes	Yes	**Yes**
WOD-023	No	Yes	Yes	**Yes**
WOD-024	No	Yes	Yes	**Yes**

Feature ID	Feature In Project Location (Y/N)	Feature Within 120m of Project Location (Y/N)	Individually Delineated Feature Within 120m of the Project Location (Y/N)*	Evaluation of Significance Required (Y/N)
WOD-025	No	Yes	Yes	**Yes**
WOD-026	Yes	Yes	Yes	**Yes**
WOD-027	Yes	Yes	Yes	**Yes**
WOD-028	Yes	Yes	Yes	**Yes**
WOD-029	Yes	Yes	Yes	**Yes**
WOD-030	No	Yes	Yes	**Yes**
WOD-031	Yes	Yes	Yes	**Yes**
WOD-032	No	Yes	Yes	**Yes**
WOD-033	No	Yes	Yes	**Yes**
WOD-034	No	Yes	Yes	**Yes**
WOD-035	No	Yes	Yes	**Yes**
WOD-036	No	Yes	Yes	**Yes**
WOD-037	No	Yes	Yes	**Yes**
WOD-038	Yes	Yes	Yes	**Yes**
WOD-039	No	Yes	Yes	**Yes**
WOD-040	No	Yes	Yes	**Yes**
WOD-041	No	Yes	Yes	**Yes**
WOD-042	No	Yes	Yes	**Yes**
WOD-043	No	Yes	Yes	**Yes**
WOD-044	Yes	Yes	Yes	**Yes**
WOD-045	No	Yes	Yes	**Yes**
WOD-046	Yes	Yes	Yes	**Yes**
WOD-047	Yes	Yes	Yes	**Yes**
WOD-048	Yes	Yes	Yes	**Yes**
WOD-049	No	Yes	Yes	**Yes**
WOD-050	No	Yes	Yes	**Yes**
WOD-051	No	Yes	Yes	**Yes**
WOD-052	No	Yes	Yes	**Yes**
WOD-053	Yes	Yes	Yes	**Yes**
WOD-054	Yes	Yes	Yes	**Yes**
WOD-055	No	Yes	Yes	**Yes**
Wetlands				
WET-001	No	Yes	Yes	**Yes**
WET-002	No	Yes	Yes	**Yes**
WET-003	No	Yes	Yes	**Yes**
WET-004	No	Yes	Yes	**Yes**
WET-005	No	Yes	Yes	**Yes**
WET-006	No	Yes	Yes	**Yes**
WET-007	No	Yes	Yes	**Yes**
WET-008	No	Yes	Yes	**Yes**
WET-009	No	Yes	Yes	**Yes**
WET-011	No	Yes	Yes	**Yes**
WET-012	No	Yes	Yes	**Yes**

Feature ID	Feature In Project Location (Y/N)	Feature Within 120m of Project Location (Y/N)	Individually Delineated Feature Within 120m of the Project Location (Y/N)*	Evaluation of Significance Required (Y/N)
WET-013	No	Yes	Yes	**Yes**
WET-014	No	Yes	Yes	**Yes**
WET-015	No	Yes	Yes	**Yes**
WET-016	No	Yes	Yes	**Yes**
WET-017	No	Yes	Yes	**Yes**
WET-018	No	Yes	Yes	**Yes**
WET-019	No	Yes	Yes	**Yes**
WET-020	No	Yes	Yes	**Yes**
Candidate Significant Wildlife Habitats				
WST-001	Yes	Yes	Yes	**Yes**
WST-002	No	Yes	Yes	**Yes**
WST-004	Yes	Yes	Yes	**Yes**
WST-005	Yes	Yes	Yes	**Yes**
WST-006	No	Yes	Yes	**Yes**
WST-007	Yes	Yes	Yes	**Yes**
WST-010	Yes	Yes	Yes	**Yes**
WST-011	No	Yes	Yes	**Yes**
WST-012	Yes	Yes	Yes	**Yes**
WST-013	Yes	Yes	Yes	**Yes**
WST-015	Yes	Yes	Yes	**Yes**
WST-016	Yes	Yes	Yes	**Yes**
WST-017	Yes	Yes	Yes	**Yes**
WST-018	No	Yes	Yes	**Yes**
WST-020	Yes	Yes	Yes	**Yes**
WST-021	Yes	Yes	Yes	**Yes**
WST-023	Yes	Yes	Yes	**Yes**
WST-024	Yes	Yes	Yes	**Yes**
WST-026	No	Yes	Yes	**Yes**
WST-027	Yes	Yes	Yes	**Yes**
WST-028	Yes	Yes	Yes	**Yes**
WST-029	Yes	Yes	Yes	**Yes**
WST-030	Yes	Yes	Yes	**Yes**
WST-031	Yes	Yes	Yes	**Yes**
WST-032	Yes	Yes	Yes	**Yes**
WST-033	Yes	Yes	Yes	**Yes**
WST-034	Yes	Yes	Yes	**Yes**
WST-035	Yes	Yes	Yes	**Yes**
WST-036	No	Yes	Yes	**Yes**
WSA-001	Yes	Yes	Yes	**Yes**
RWA-001	Yes	Yes	Yes	**Yes**
RWA-002	Yes	Yes	Yes	**Yes**
BMA-001	No	Yes	Yes	**Yes**
BMA-002	No	Yes	Yes	**Yes**

Feature ID	Feature In Project Location (Y/N)	Feature Within 120m of Project Location (Y/N)	Individually Delineated Feature Within 120m of the Project Location (Y/N)*	Evaluation of Significance Required (Y/N)
BMA-003	Yes	Yes	Yes	**Yes**
TWA-001	Yes	Yes	Yes	**Yes**
SNH-001	No	Yes	Yes	**Yes**
SNH-002	Yes	Yes	Yes	**Yes**
SNH-003	Yes	Yes	Yes	**Yes**
SNH-005	Yes	Yes	Yes	**Yes**
SNH-006	Yes	Yes	Yes	**Yes**
SNH-007	Yes	Yes	Yes	**Yes**
SNH-008	No	Yes	Yes	**Yes**
SNH-009	Yes	Yes	Yes	**Yes**
SNH-010	No	Yes	Yes	**Yes**
SNH-011	Yes	Yes	Yes	**Yes**
SNH-012	No	Yes	Yes	**Yes**
ALV-001	Yes	Yes	Yes	**Yes**
ALV-002	Yes	Yes	Yes	**Yes**
OGF-001	No	Yes	Yes	**Yes**
SAV-001	Yes	Yes	Yes	**Yes**
TGP-001	Yes	Yes	Yes	**Yes**
TGP-002	No	Yes	Yes	**Yes**
AWO-001	Yes	Yes	Yes	**Yes**
AWO-002	No	Yes	Yes	**Yes**
AWO-003	No	Yes	Yes	**Yes**
AWO-004	No	Yes	Yes	**Yes**
AWO-005	No	Yes	Yes	**Yes**
AWO-006	No	Yes	Yes	**Yes**
AWO-007	No	Yes	Yes	**Yes**
AWO-008	No	Yes	Yes	**Yes**
AWO-009	No	Yes	Yes	**Yes**
AWO-010	No	Yes	Yes	**Yes**
AWO-011	No	Yes	Yes	**Yes**
AWO-012	Yes	Yes	Yes	**Yes**
AWO-013	No	Yes	Yes	**Yes**
AWO-014	Yes	Yes	Yes	**Yes**
AWO-015	Yes	Yes	Yes	**Yes**
AWO-016	Yes	Yes	Yes	**Yes**
AWO-017	No	Yes	Yes	**Yes**
AWO-018	Yes	Yes	Yes	**Yes**
AWO-019	No	Yes	Yes	**Yes**
AWO-020	No	Yes	Yes	**Yes**
AWO-021	No	Yes	Yes	**Yes**
AWO-022	Yes	Yes	Yes	**Yes**
AWO-023	No	Yes	Yes	**Yes**
AWO-024	No	Yes	Yes	**Yes**

Feature ID	Feature In Project Location (Y/N)	Feature Within 120m of Project Location (Y/N)	Individually Delineated Feature Within 120m of the Project Location (Y/N)*	Evaluation of Significance Required (Y/N)
OCB-001	No	Yes	Yes	**Yes**
CONI-001	No	Yes	Yes	**Yes**
CONI-002	Yes	Yes	Yes	**Yes**
CONI-003	Yes	Yes	Yes	**Yes**
CONI-004	Yes	Yes	Yes	**Yes**
CONI-005	Yes	Yes	Yes	**Yes**
CONI-006	Yes	Yes	Yes	**Yes**
CONI-007	No	Yes	Yes	**Yes**
CONI-008	No	Yes	Yes	**Yes**
CONI-009	No	Yes	Yes	**Yes**
EAWP-001	No	Yes	Yes	**Yes**
EAWP-002	No	Yes	Yes	**Yes**
EAWP-003	No	Yes	Yes	**Yes**
EAWP-004	No	Yes	Yes	**Yes**
EAWP-005	No	Yes	Yes	**Yes**
EAWP-006	No	Yes	Yes	**Yes**
EAWP-007	No	Yes	Yes	**Yes**
EAWP-008	No	Yes	Yes	**Yes**
EAWP-009	No	Yes	Yes	**Yes**
EAWP-010	No	Yes	Yes	**Yes**
EAWP-011	No	Yes	Yes	**Yes**
EAWP-012	Yes	Yes	Yes	**Yes**
EAWP-013	No	Yes	Yes	**Yes**
EAWP-014	No	Yes	Yes	**Yes**
EAWP-015	Yes	Yes	Yes	**Yes**
EAWP-016	No	Yes	Yes	**Yes**
EAWP-017	No	Yes	Yes	**Yes**
EAWP-018	No	Yes	Yes	**Yes**
WOTH-001	No	Yes	Yes	**Yes**
WOTH-002	No	Yes	Yes	**Yes**
WOTH-003	No	Yes	Yes	**Yes**
WOTH-004	No	Yes	Yes	**Yes**
WOTH-005	No	Yes	Yes	**Yes**
MUWE-001	No	Yes	Yes	**Yes**
MUWE-002	Yes	Yes	Yes	**Yes**
MUWE-003	Yes	Yes	Yes	**Yes**
MUWE-004	Yes	Yes	Yes	**Yes**
MUWE-005	Yes	Yes	Yes	**Yes**
MUWE-006	No	Yes	Yes	**Yes**
MUWE-007	No	Yes	Yes	**Yes**
MUWE-008	No	Yes	Yes	**Yes**
MUWE-009	No	Yes	Yes	**Yes**
MUWE-010	No	Yes	Yes	**Yes**

Feature ID	Feature In Project Location (Y/N)	Feature Within 120m of Project Location (Y/N)	Individually Delineated Feature Within 120m of the Project Location (Y/N)*	Evaluation of Significance Required (Y/N)
MONA-001	No	Yes	Yes	**Yes**
MONA-002	Yes	Yes	Yes	**Yes**
MONA-003	Yes	Yes	Yes	**Yes**
MONA-004	Yes	Yes	Yes	**Yes**
MONA-005	Yes	Yes	Yes	**Yes**
MONA-006	Yes	Yes	Yes	**Yes**
Generalized Candidate Significant Wildlife Habitats				
Waterfowl Stopover and Staging Areas (Terrestrial)	No	Yes	No	**Treated as Significant**
Raptor Wintering Area	No	Yes	No	
Bat Maternity Colonies	No	Yes	No	
Reptile Hibernaculum	No	Yes	No	
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)	No	Yes	No	
Colonially – Nesting Bird Breeding Habitat (Tree/Shrubs)	No	Yes	No	
Alvar	No	Yes	No	
Savannah	No	Yes	No	
Tallgrass Prairie	No	Yes	No	
Other Rare Vegetation Community Types	No	Yes	No	
Woodland Raptor Nesting Habitat	No	Yes	No	
Seeps and Springs	No	Yes	No	
Amphibian Breeding Habitat (Woodland)	No	Yes	No	
Woodland Area-sensitive Bird Breeding Habitat	No	Yes	No	
Shrub/Early Successional Bird Breeding Habitat	No	Yes	No	
Common Nighthawk	No	Yes	No	
Eastern Wood-Pewee	No	Yes	No	
Wood Thrush	No	Yes	No	
Eastern Musk Turtle	No	Yes	No	
Mühlenberg's Weissia	No	Yes	No	
Monarch	No	Yes	No	
West Virginia White	No	Yes	No	

**As per Appendix D of the NHA Guide for Renewable Energy Projects (OMNR 2012).*

Table 18. Summary of Corrections to the Records Review for the Project

Criteria	Result	Corrections Based on Site Investigation
1. In or within 120m of a Provincial Park or Conservation Reserve	The Project is not located in or within 120m of a Provincial Park or Conservation Reserve.	**No changes.**
2. In a Natural Feature	The results of this records review indicate the Project Location (i.e. disturbance area, collection lines, access roads, etc.) overlaps with natural features. A total of 63 woodlands have the potential to overlap with the Project Location. Species associations and distances of these habitats to the Project Location will be confirmed during the site investigation phase of this NHA. A total of 12 wetlands have the potential to overlap with the project location. Species associations and distances of these habitats to the Project Location will be confirmed during the site investigation phase of this NHA. No PSWs overlap with the project location. The intention of the proposed Project Location is to avoid overlap with natural features, including woodlands and wetlands, wherever practicable.	**The results of the site investigation have confirmed that the Project Location overlaps with 18 woodlands. Seventeen (17) of these woodlands will be overlapped by the Project Location that follows the municipal road right-of-way. Overlap with the woodlands will occur entirely within the road right-of-way and will be minimized to the extent reasonable. The remaining one (1) woodland will only be overlapped by the Project Location if overhead collection lines are installed to cross the South Nation River.** **The Project Location does not overlap with the boundaries of any candidate significant wetland.** **The Project Location also overlaps with 62 candidate significant wildlife habitats. These features will be carried forward to the Evaluation of Significance.**
3. Within 50m of a Provincially Significant ANSI-Earth Science (ES)	No Provincially Significant ANSI-ES is located within 50m of the Project Location.	**No changes.**
4. Within 120m of a Natural Feature		
Provincially Significant ANSI-Life Science (LS)	No Provincially Significant ANSI-LS is located within the Project Area.	**No changes.**
Coastal Wetland	No coastal wetlands are located within the Project Area.	**No changes.**
Northern Wetland	No northern wetlands are located within the Project Area.	**No changes.**

Criteria	Result	Corrections Based on Site Investigation
Southern Wetland	There are 45 unevaluated wetlands within the Project Area. All of the potential wetland habitats within the Project Area will be further examined during the site investigation phase of this NHA.	**The site investigation confirmed 19 wetlands are located within 120m of the Project Location.**
Wildlife Habitat	A total of 137 woodlands and 45 unevaluated wetlands are located within the Project Area and could provide several types of Significant Wildlife Habitat (SWH). Other natural features such as naturalized drainage ditches and hedgerows have been identified within the Project Area and could also provide SWH, and will be assessed in more detail during the site investigation phase of the NHA. All of these wildlife habitats will be examined during the site investigation phase to confirm presence of candidate significant wildlife habitat.	**The site investigation confirmed a total of 126 candidate significant wildlife habitats in and within 120m of the Project Location. These wildlife habitats include seasonal concentration areas (47), rare vegetation communities and specialized wildlife habitats (30), and habitats for species of conservation concern (49) within the Project Area.**
Woodland	A total of 137 woodlands are located within the Project Area. Basemapping indicates these habitats range in size from 0.06 to 133.39ha. These woodlands are expected to be dominated by a variety of deciduous, mixed, and coniferous forests of various ages.	**The site investigation confirmed 55 woodlands in and within 120m of the Project Location.** **Woodlands range in size from 0.55ha to 190.10ha.**

Table 19. Summary of Corrections to the Wildlife Habitats Records Review for the Project

Wildlife Habitat	Present Within the Project Area	Present Within Project Location	Carried Forward to Site Investigation (Y/N)	Status Based on Site Investigation
Seasonal Concentration Areas				
Waterfowl Stopover and Staging Areas (Terrestrial)	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Waterfowl Stopover and Staging Areas (Aquatic)	Unknown	Unknown	Yes	**Carried forward as candidate SWH**
Shorebird Migratory Stopover Area	Unknown	Unknown	Yes	**Not carried forward**
Raptor Wintering Area	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Bat Hibernacula	Unknown	Unknown	Yes	**Not carried forward**
Bat Maternity Colonies	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Turtle Wintering Areas	Unknown	Unknown	Yes	**Carried forward as candidate SWH**
Reptile Hibernaculum	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)	Unknown	Unknown	Yes	**Carried forward as generalized candidate SWH**
Colonially – Nesting Bird Breeding Habitat (Tree/Shrubs)	Unknown	Unknown	Yes	**Carried forward as generalized candidate SWH**
Colonially – Nesting Bird Breeding Habitat (Ground)	Unknown	Unknown	Yes	**Not carried forward**
Migratory Butterfly Stopover Areas	N/A	N/A	No	N/A
Landbird Migratory Stopover Areas	N/A	N/A	No	N/A
Deer Winter Congregation Areas	No	No	No	N/A
Rare Vegetation Communities				
Cliffs and Talus Slopes	Unknown	Unknown	Yes	**Not carried forward**
Sand Barrens	Unknown	Unknown	Yes	**Not carried forward**
Alvar	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Old Growth Forest	Unknown	Unknown	Yes	**Carried forward as candidate SWH**

Wildlife Habitat	Present Within the Project Area	Present Within Project Location	Carried Forward to Site Investigation (Y/N)	Status Based on Site Investigation
Savannah	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Tallgrass Prairie	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Other Rare Vegetation Communities	Unknown	Unknown	Yes	**Carried forward as generalized candidate SWH**
Specialized Wildlife Habitats				
Waterfowl Nesting Area	Unknown	Unknown	Yes	**Not carried forward**
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Unknown	Unknown	Yes	**Not carried forward**
Woodland Raptor Nesting Habitat	Unknown	Unknown	Yes	**Carried forward as generalized candidate SWH**
Turtle Nesting Areas	Unknown	Unknown	Yes	**Not carried forward**
Seeps and Springs	Unknown	Unknown	Yes	**Carried forward as generalized candidate SWH**
Amphibian Breeding Habitat (Woodland)	Unknown	Unknown	Yes	**Carried forward as candidate and generalized candidate SWH**
Amphibian Breeding Habitat (Wetlands)	Unknown	Unknown	Yes	**Carried forward in the event that Bullfrog is identified in Amphibian Breeding Habitats (Woodland) containing permanent open water with emergent vegetation during evaluation of significance surveys**
Woodland Area-Sensitive Bird Breeding Habitat	Unknown	Unknown	Yes	**Carried forward as generalized candidate SWH**
Habitat for Species of Conservation Concern				
Marsh Bird Breeding Habitat	Unknown	Unknown	Yes	**Not carried forward**
Open Country Bird Breeding Habitat	Unknown	Unknown	Yes	**Carried forward as candidate SWH**
Shrub/Early Successional Bird Breeding Habitat	Unknown	Unknown	Yes	**Carried forward as generalized candidate SWH**

Wildlife Habitat	Present Within the Project Area	Present Within Project Location	Carried Forward to Site Investigation (Y/N)	Status Based on Site Investigation
Terrestrial Crayfish	No	No	No	N/A
Special Concern and Rare Wildlife Species	Possible	Possible	Yes	**Carried forward as candidate and generalized candidate SWH**
Animal Movement Corridors				
Amphibian Movement Corridors	Unknown	Unknown	Yes	**Carried forward in the event that Bullfrog is identified in Amphibian Breeding Habitats (Woodland) containing permanent open water with emergent vegetation during evaluation of significance surveys**
Deer Movement Corridors	N/A	N/A	No	N/A

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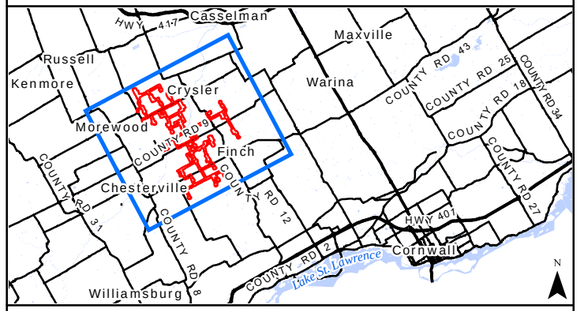
Map 1
Key Map

Map 1

Nation Rise Wind Farm

Key Map



Legend

- Map Extent
- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Intermittent Watercourse (LIO)
- Open Water (LIO)
- Wooded Area (LIO)
- Municipal Boundary

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Temporary Access Road for Construction
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road
- Proposed Substation

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:68,000**

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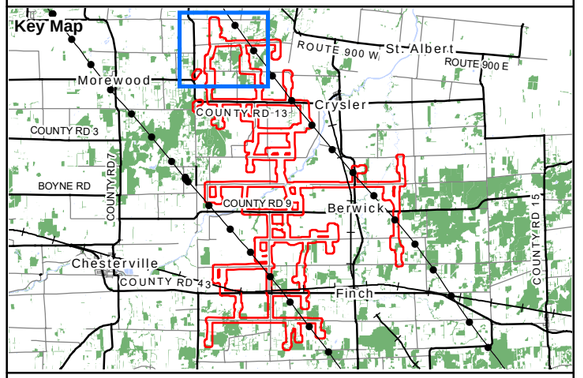
Maps 2-1 to 2-13
Vegetation Communities

Map 2 - 1

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Temporary Access Road for Construction
- Proposed Meteorological Tower Footprint and Access Road

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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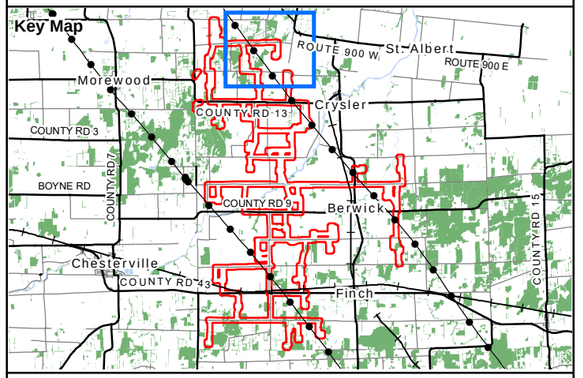
Map 2 - 2

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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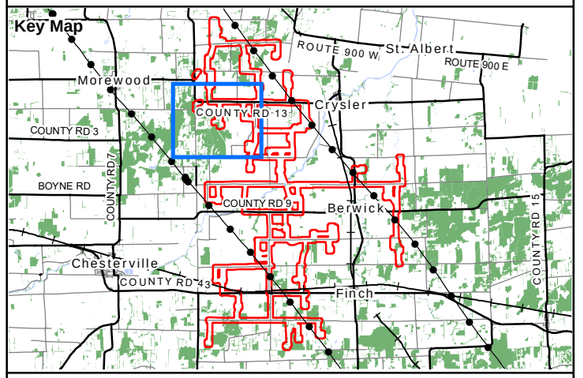
Map 2 - 3

Nation Rise Wind Farm

Vegetation Communities



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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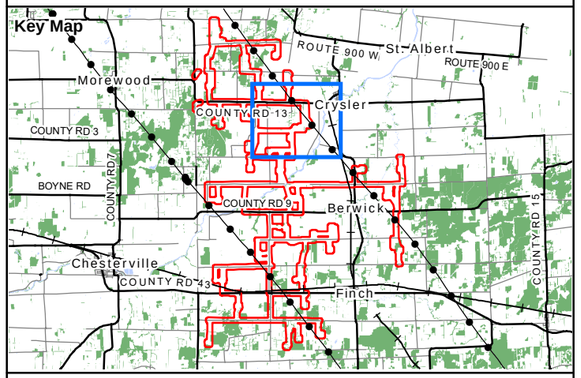
Map 2 - 4

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road
- Proposed Substation

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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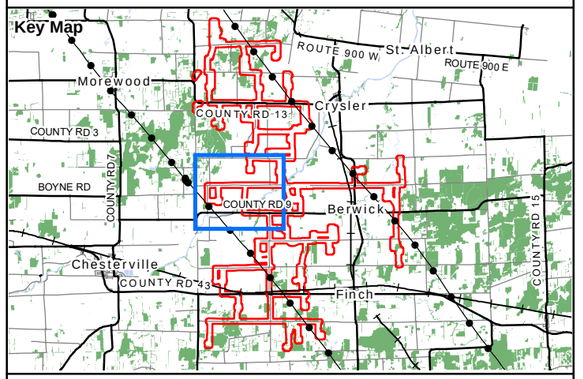
Map 2 - 5

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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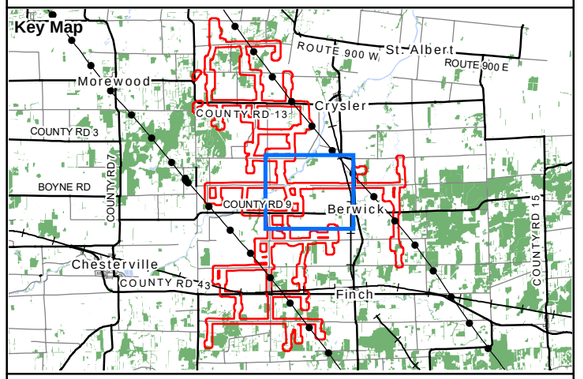
Map 2 - 6

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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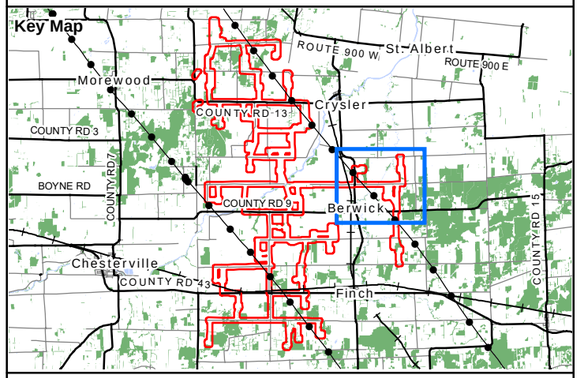
Map 2 - 7

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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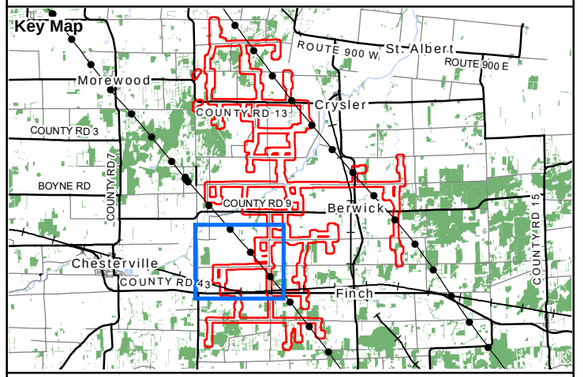
Map 2 - 8

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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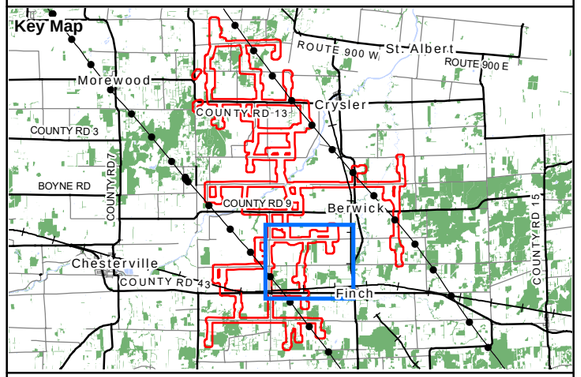
Map 2 - 9

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

**See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.*

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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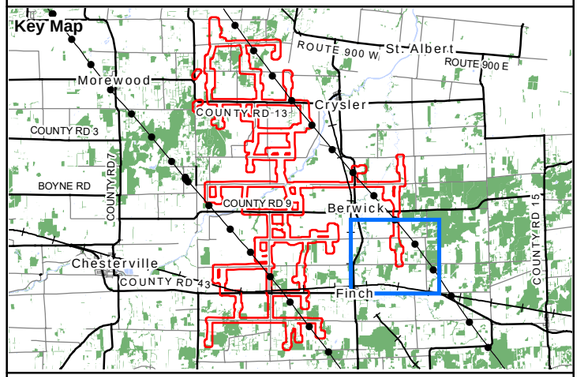
Map 2 - 10

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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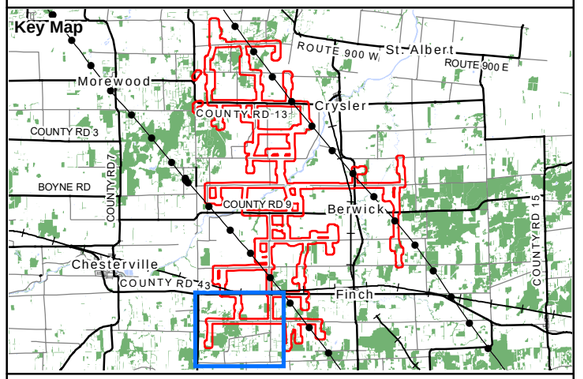
Map 2 - 11

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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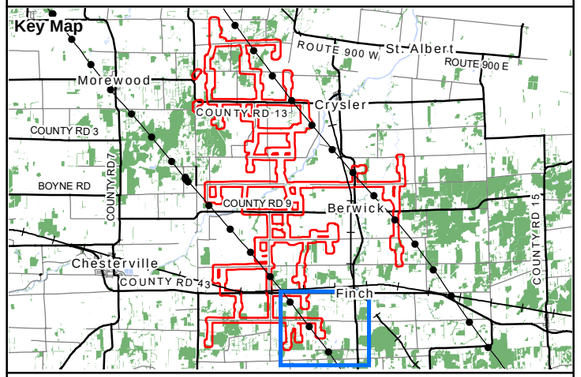
Map 2 - 12

Nation Rise Wind Farm

Vegetation Communities



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Ecological Land Classification (ELC)*

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

See Map 2 - 13 for Ecological Land Classification (ELC) descriptions.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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Nation Rise Wind Farm

Vegetation Communities

Project: 1756 | Date: May 3, 2017

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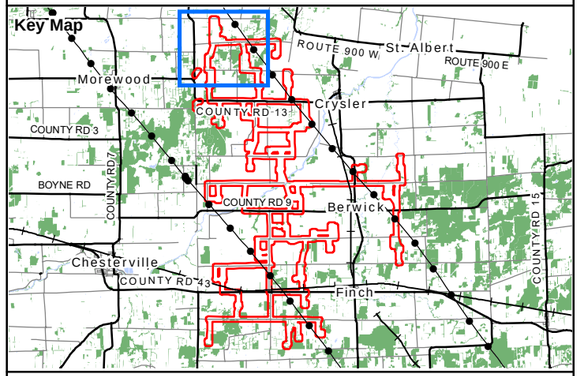
(CGL) Green Lands
(CU) Cultural
(CVC_4) Extraction (pits, quarries, oil and gas)
(CVI_1) Transportation (highways, roads, railways, parking, airports)
(CVI_2) Disposal and Recycle
(CVR_4) Rural Property
(FOC) Coniferous Forest
(FOCM2-2) Dry-Fresh White Cedar Coniferous Forest Type
(FOCM4-1) Fresh-Moist White Cedar Coniferous Forest Type
(FOD) Deciduous Forest
(FODM11) Naturalized Deciduous Hedge-row Ecosite
(FODM2-3) Dry-Fresh Hickory Deciduous Forest Type
(FODM3-1) Dry-Fresh Poplar Deciduous Forest Type
(FODM4-2) Dry-Fresh White Ash-Hardwood Deciduous Forest Type
(FODM4-4) Dry-Fresh Ironwood Deciduous Forest Type
(FODM4-5) Dry-Fresh Manitoba Maple Deciduous Forest Type
(FODM5-1) Dry-Fresh Sugar Maple Deciduous Forest Type
(FODM5-2) Dry-Fresh Sugar Maple-Beech Deciduous Forest Type
(FODM5-4) Dry - Fresh Sugar Maple - Ironwood Deciduous Forest Type
(FODM5-5) Dry-Fresh Sugar Maple-Hickory Deciduous Forest Type
(FODM5-6) Dry-Fresh Sugar Maple-Basswood Deciduous Forest Type
(FODM5-8) Dry-Fresh Sugar Maple-White Ash Deciduous Forest Type
(FODM6-5) Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type
(FODM7) Fresh-Moist Lowland Deciduous Forest Ecosite
(FODM7-1) Fresh-Moist White Elm Lowland Deciduous Forest Type
(FODM7-2) Fresh-Moist Green Ash-Hardwood Lowland Deciduous Forest Type
(FODM8-1) Fresh-Moist Poplar Deciduous Forest Type
(FODR1) Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest Ecosite
(FODR1-1) Dry-Fresh Sugar Maple-Hardwood Calcareous Shallow Deciduous Forest Type
(FOM) Mixed Forest
(FOMM2-3) Dry-Fresh White Pine-Hardwood Mixed Forest Type
(FOMM5-2) Dry-Fresh Poplar Mixed Forest Type
(FOMM7) Fresh-Moist White Cedar-Hardwood Mixed Forest Ecosite
(FOMM7-2) Fresh-Moist White Cedar-Hardwood Mixed Forest Type
(MAM) Meadow Marsh
(MAMM1-10) Horsetail Graminoid Mineral Meadow Marsh Type
(MAMM1-2) Cattail Graminoid Mineral Meadow Marsh Type
(MAMM1-3) Reed-canary Grass Graminoid Mineral Meadow Marsh Type
(ME) Meadow
(MEF) Forb Meadow
(MEFM1-1) Goldenrod Forb Meadow Type
(MEFM4) Fresh-Moist Forb Meadow Ecosite
(MEFR1) Dry-Fresh Calcareous Bedrock Forb Meadow Ecosite
(MEG) Graminoid Meadow
(MEGM3) Dry-Fresh Graminoid Meadow Ecosite
(MEGM3-5) Smooth Brome Graminoid Meadow Type
(MEGM4) Fresh-Moist Graminoid Meadow Ecosite
(MEGM4-1) Open Graminoid Meadow Type
(MEGR1) Dry-Fresh Calcareous Bedrock Graminoid Meadow Ecosite
(MEM) Mixed Meadow
(MEMM3) Dry-Fresh Mixed Meadow Ecosite
(MEMM4) Fresh-Moist Mixed Meadow Ecosite
(MEMR1) Dry-Fresh Calcareous Bedrock Mixed Meadow Ecosite
(OA) Open Water
(OAGM1) Annual Row Crops
(OAGM2) Perennial Cover Crops
(OAGM4) Open Pasture
(RBOB1-2) Calcareous Open Rock Barren Meadow Type
(RBTB1-4) Jack Pine Circumneutral Treed Rock Barren Type
(SVC) Coniferous Savanna
(SVD) Deciduous Savanna
(SVDM4) Fresh-Moist Deciduous Savanna Ecosite
(SVDR1) Dry-Fresh Calcareous Bedrock Deciduous Savanna Ecosite
(SWC) Coniferous Swamp
(SWCM1) White Cedar Mineral Coniferous Swamp Ecosite
(SWCM1-1) White Cedar Mineral Coniferous Swamp Type
(SWCR1-1) White Cedar Calcareous Rock/Bedrock Coniferous Swamp Type
(SWD) Deciduous Swamp
(SWDM2-2) Green Ash Mineral Deciduous Swamp Type
(SWDM3-1) Red Maple Mineral Deciduous Swamp Type
(SWDM3-3) Swamp Maple Mineral Deciduous Swamp Type
(SWDM3-4) Manitoba Maple Mineral Deciduous Swamp Type
(SWDM4) Mineral Deciduous Swamp Ecosite
(SWDM4-2) White Elm Mineral Deciduous Swamp Type
(SWDM4-5) Poplar Mineral Deciduous Swamp Type
(SWDR1) Calcareous Rock/Bedrock Deciduous Swamp
(SWM) Mixed Swamp
(SWMM1) White Cedar Mineral Mixed Swamp Ecosite
(SWMM1-1) White Cedar-Hardwood Mineral Mixed Swamp Type
(SWMM3-2) Poplar-Conifer Mineral Mixed Swamp Type
(SWT) Thicket Swamp
(SWTM3) Willow Mineral Deciduous Thicket Swamp Ecosite
(SWTM3-3) Slender Willow Mineral Deciduous Thicket Swamp Type
(SWTM5) Mineral Deciduous Thicket Swamp Ecosite
(TAGM1) Coniferous Plantation
(TAGM2) Mixed Plantation
(TAGM3) Deciduous Plantation
(TAGM4) Treed Pasture
(TAGM5) Fencerow
(THD) Deciduous Thicket
(THDM2) Dry-Fresh Deciduous Shrub Thicket Ecosite
(THDM2-1) Sumach Deciduous Shrub Thicket Type
(THDM2-11) Hawthorn Deciduous Shrub Thicket Type
(THDM2-6) Buckthorn Deciduous Shrub Thicket Type
(THDM2-8) Raspberry Deciduous Shrub Thicket Type
(THDM3) Dry-Fresh Deciduous Hedgerow Thicket Ecosite
(THDM4) Dry-Fresh Deciduous Regeneration Thicket Ecosite
(THDM5) Fresh-Moist Deciduous Thicket Ecosite
(THDR1) Dry-Fresh Calcareous Bedrock Deciduous Thicket Ecosite
(WOD) Deciduous Woodland
(WODM4-2) White Ash Deciduous Woodland Type
(WODM4-3) Sugar Maple Deciduous Woodland Type
(WODM5) Fresh-Moist Deciduous Woodland Ecosite
(WODM5-2) Fresh-Moist Elm Deciduous Woodland Type
(WODR1) Dry-Fresh Calcareous Bedrock Deciduous Woodland Ecosite
(WOM) Mixed Woodland
(WOMR1) Dry-Fresh Calcareous Bedrock Mixed Woodland Ecosite

Maps 3-1 to 3-12
Woodlands and Wetlands

Map 3 - 1

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Temporary Access Road for Construction
- Proposed Meteorological Tower Footprint and Access Road

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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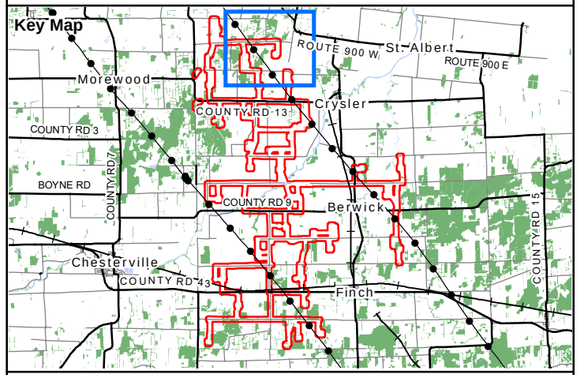
Map 3 - 2

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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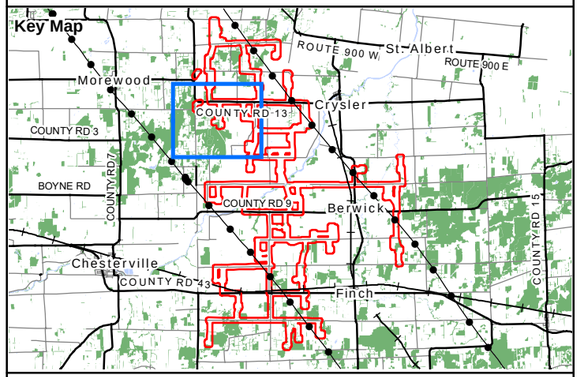
Map 3 - 3

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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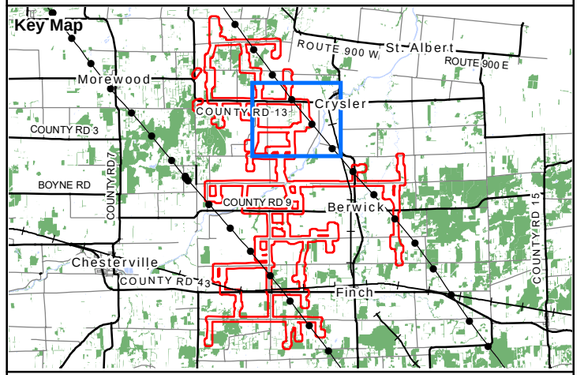
Map 3 - 4

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road
- Proposed Substation

Natural Features

- Woodland (WOD)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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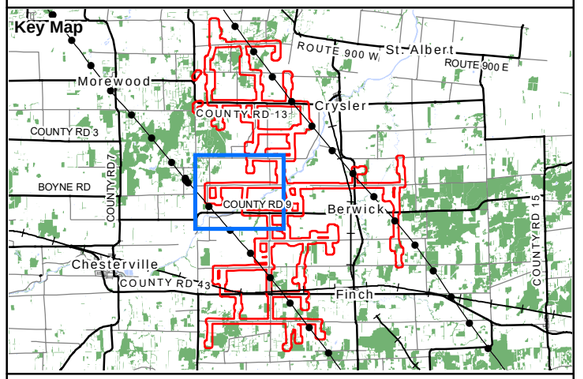
Map 3 - 5

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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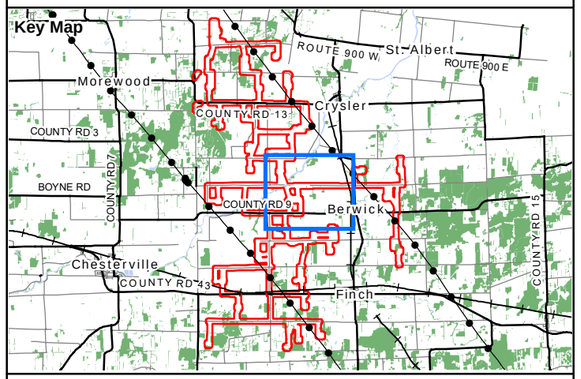
Map 3 - 6

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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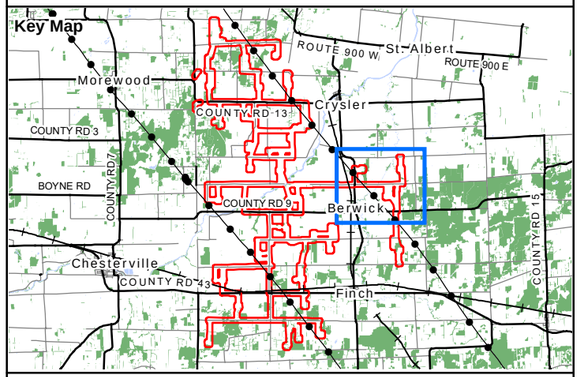
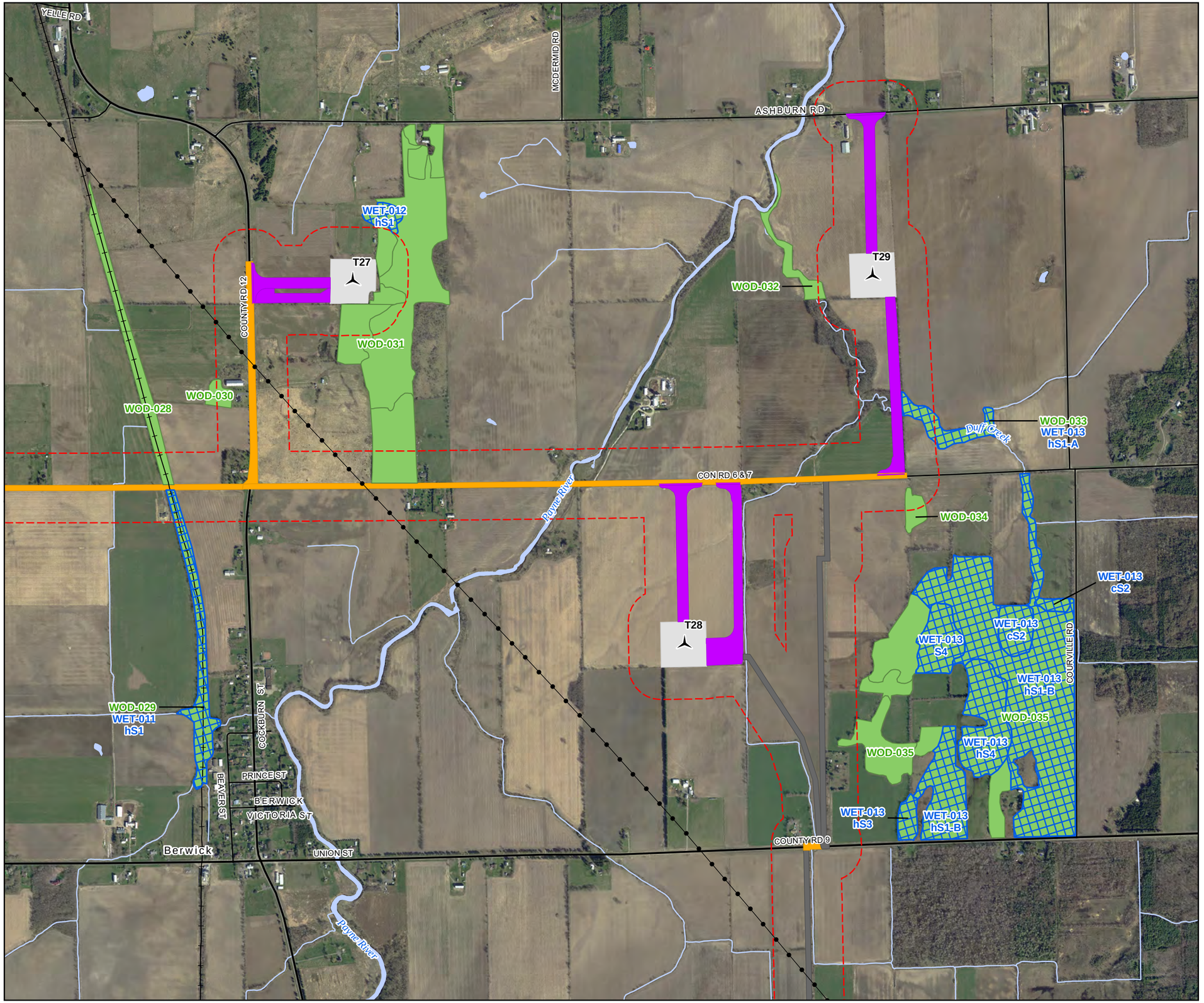
Map 3 - 7

Nation Rise Wind Farm

Woodlands and Wetlands





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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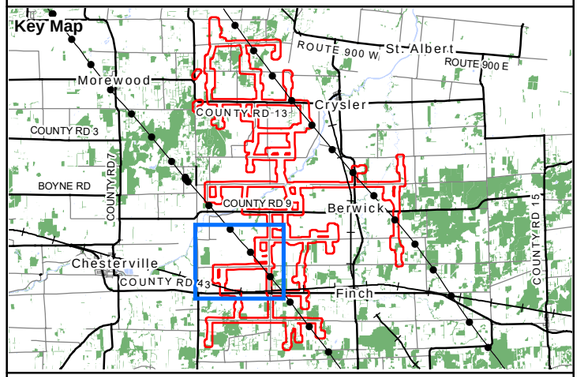
Map 3 - 8

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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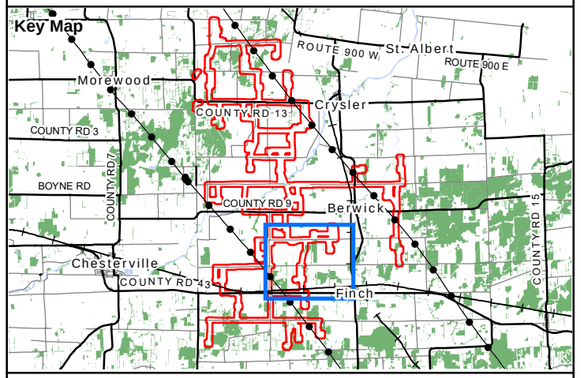
Map 3 - 9

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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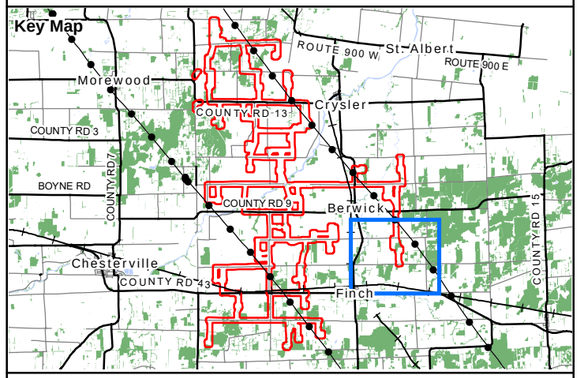
Map 3 - 10

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Natural Features

- Woodland (WOD)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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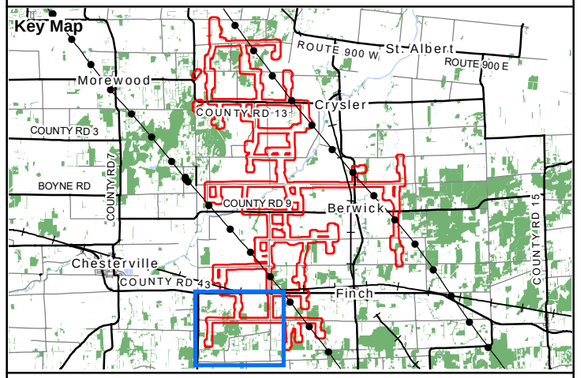
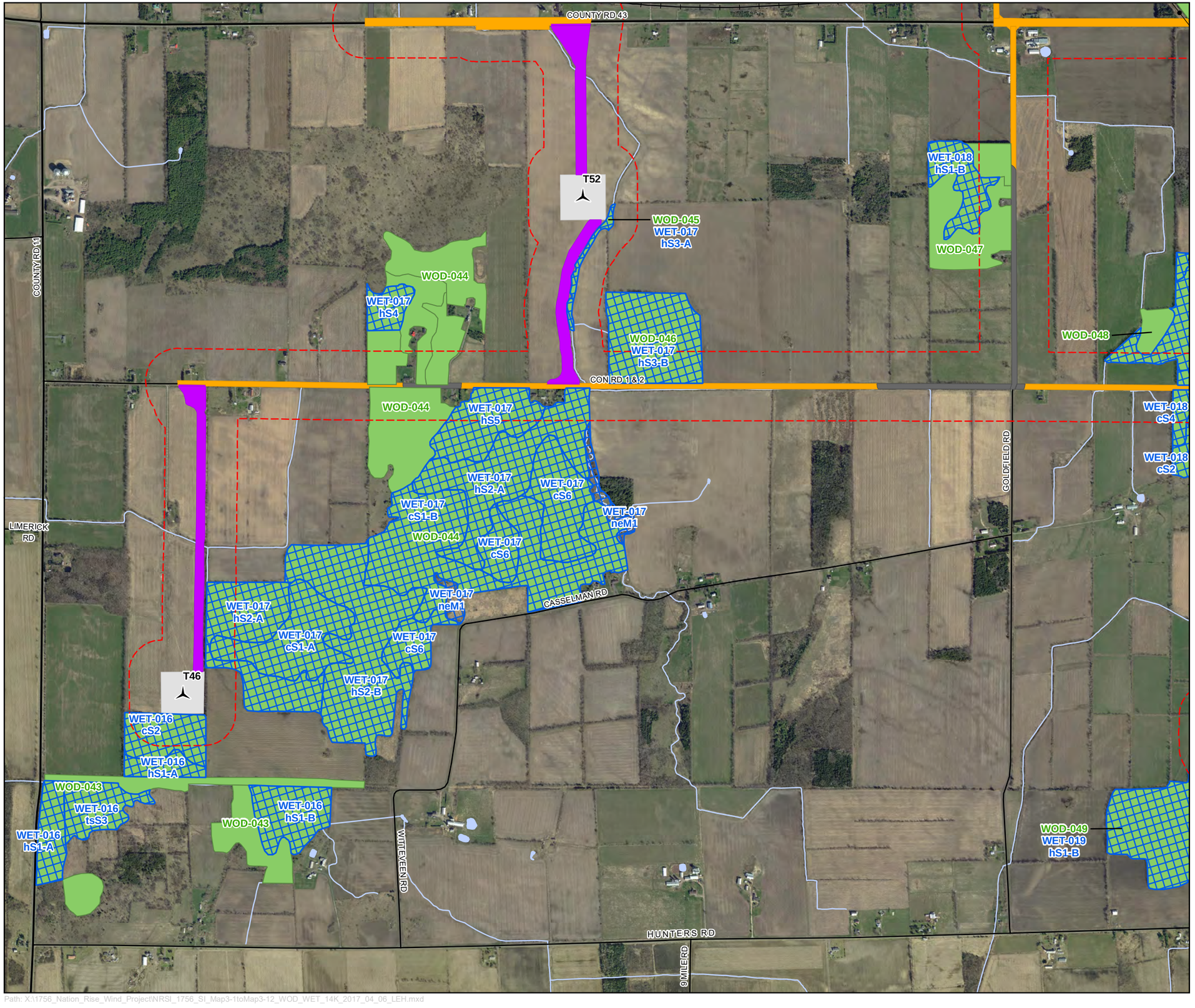
Map 3 - 11

Nation Rise Wind Farm

Woodlands and Wetlands





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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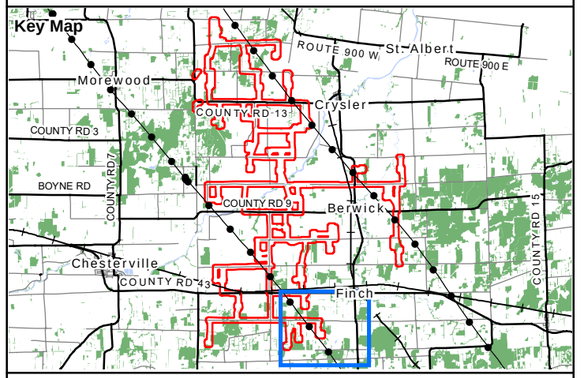
Map 3 - 12

Nation Rise Wind Farm

Woodlands and Wetlands



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Natural Features

- Woodland (WOD)
- Wetland (WET)

The distances from the project location to woodlands and wetlands are outlined within the body of the report in Tables 9 and 10.

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Project: 1756 Date: April 6, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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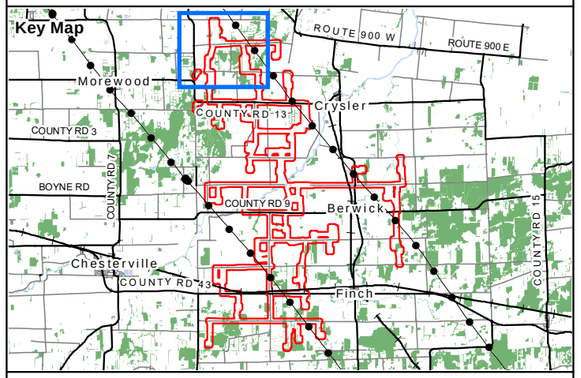
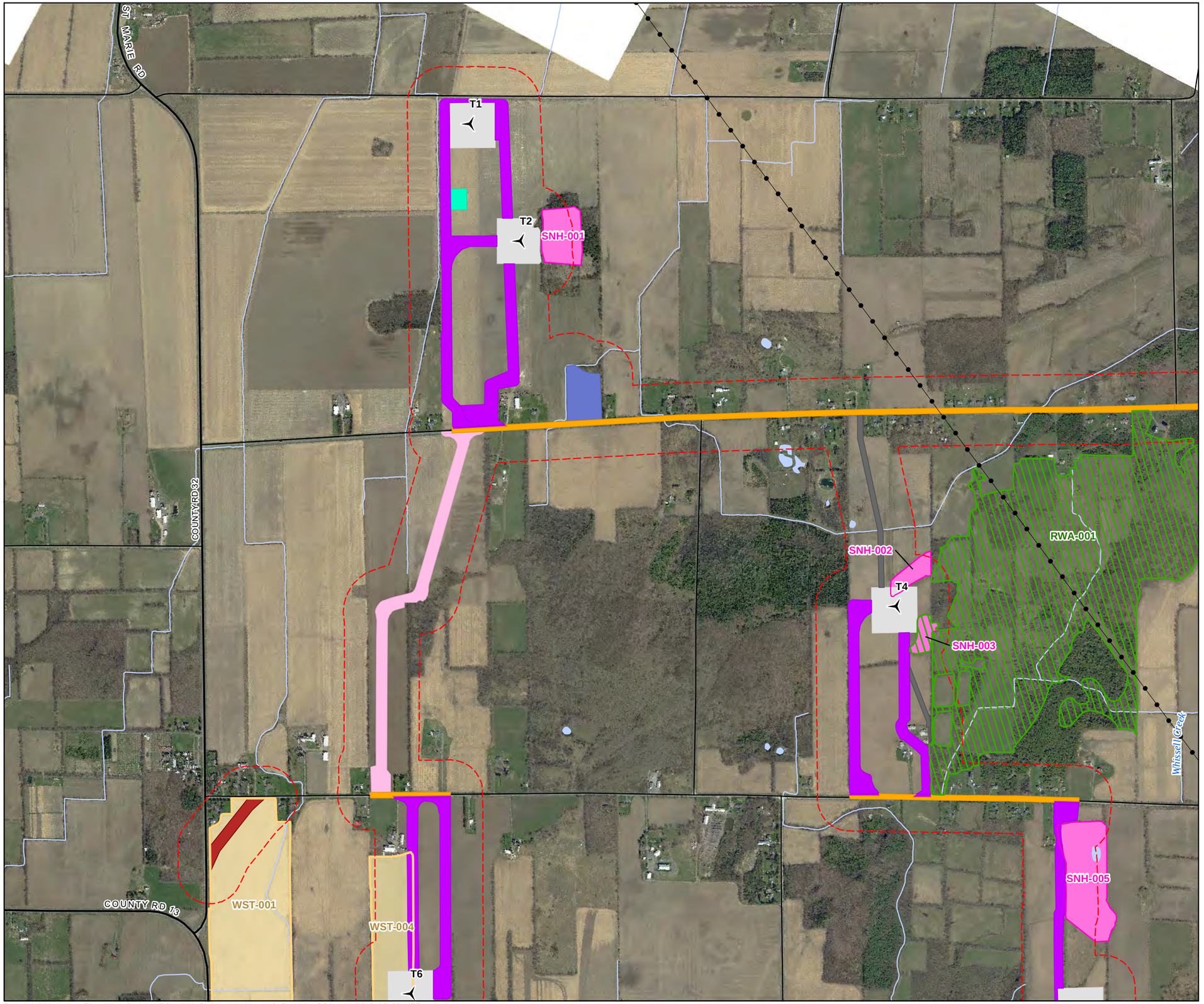
Maps 4-1 to 4-12
Candidate Seasonal Concentration Areas

Map 4 - 1

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Primary Road
- Secondary Road
- Snake Hibernaculum (SNH)
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Temporary Access Road for Construction
- Proposed Meteorological Tower Footprint and Access Road

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Raptor Wintering Area (RWA)
- Snake Hibernaculum (SNH)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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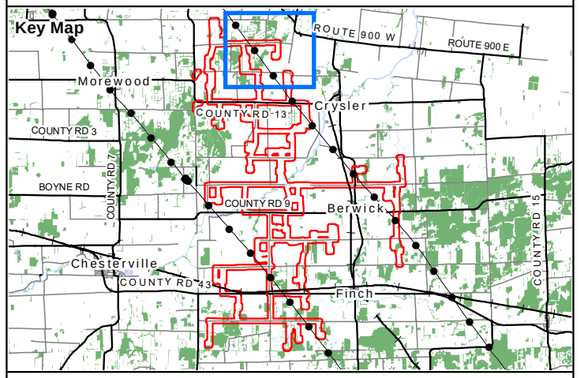
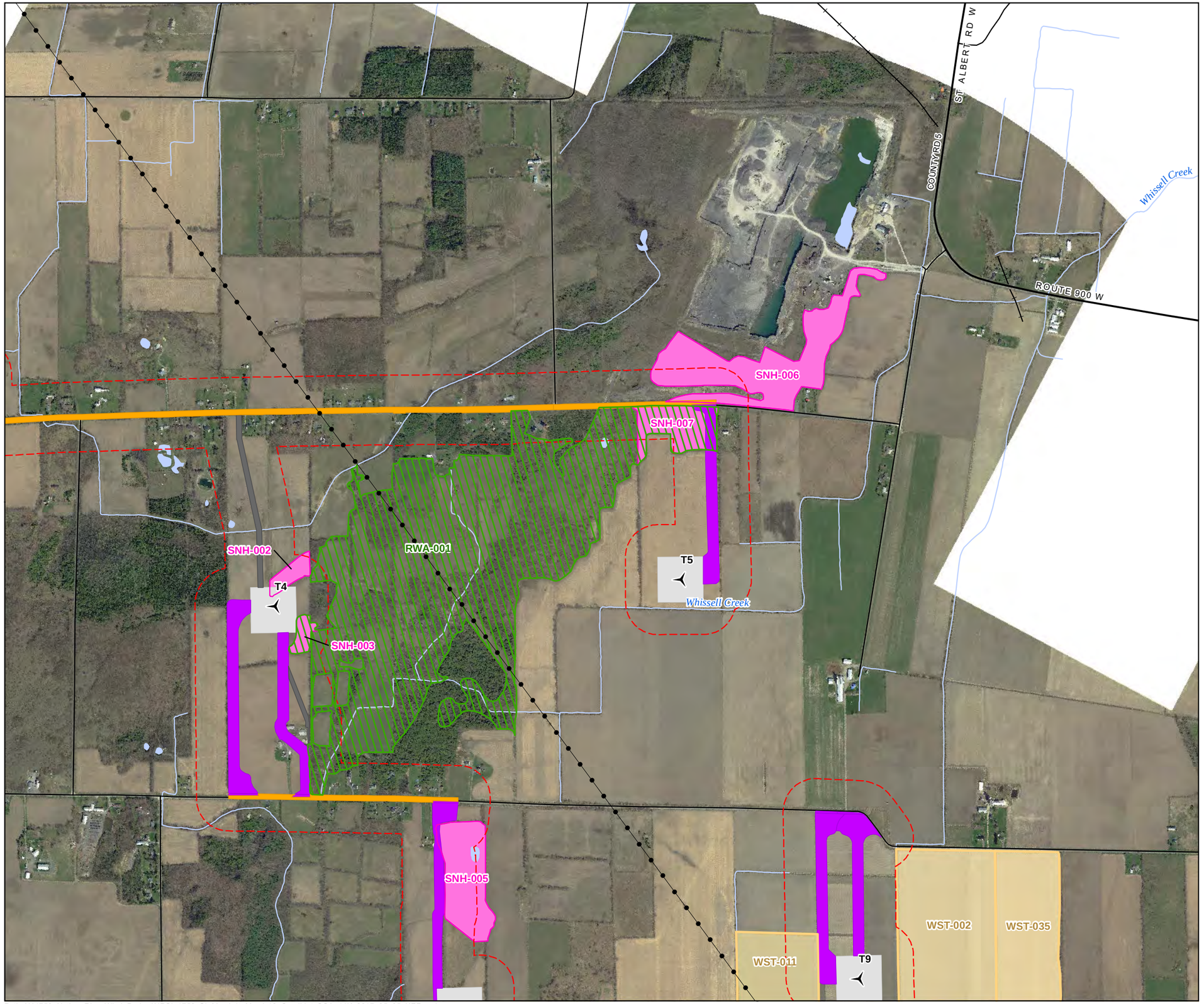
Map 4 - 2

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Snake Hibernaculum (SNH)
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Raptor Wintering Area (RWA)
- Snake Hibernaculum (SNH)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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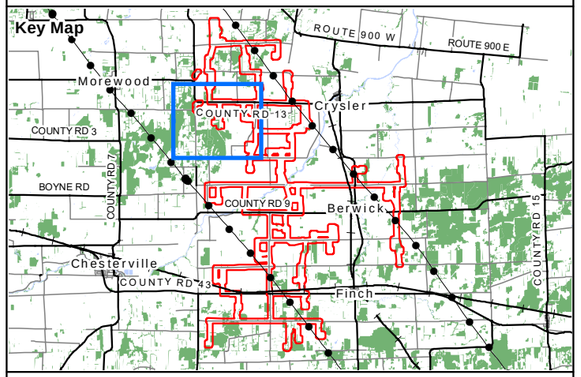
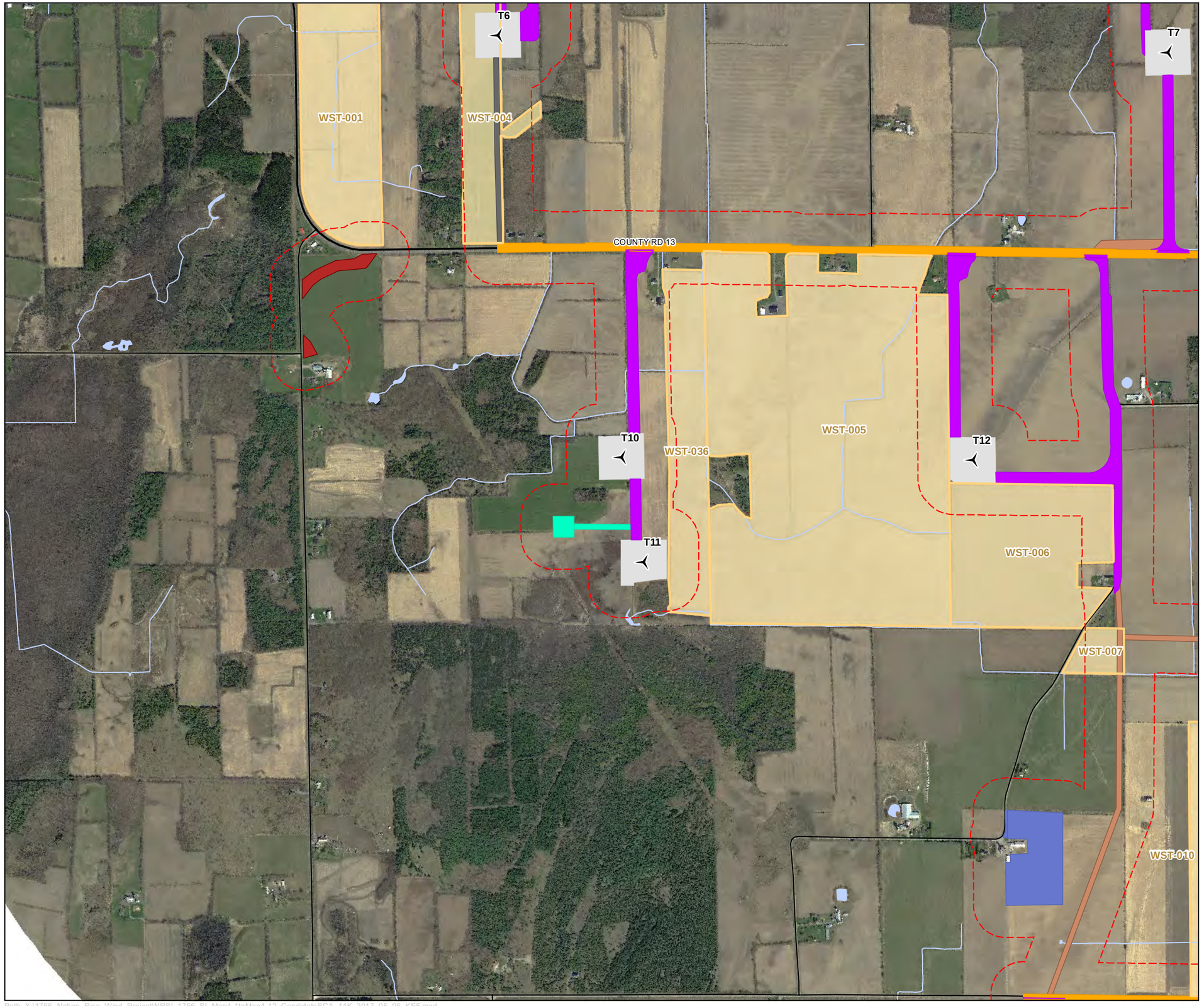
Map 4 - 3

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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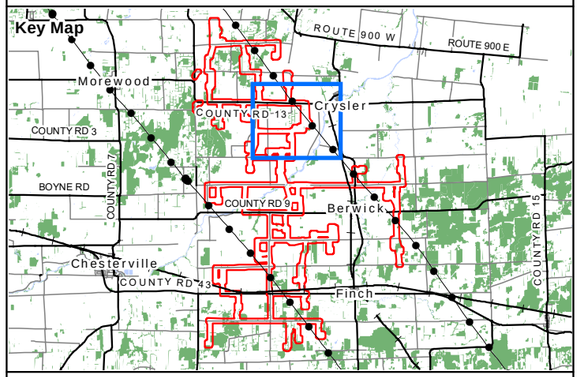
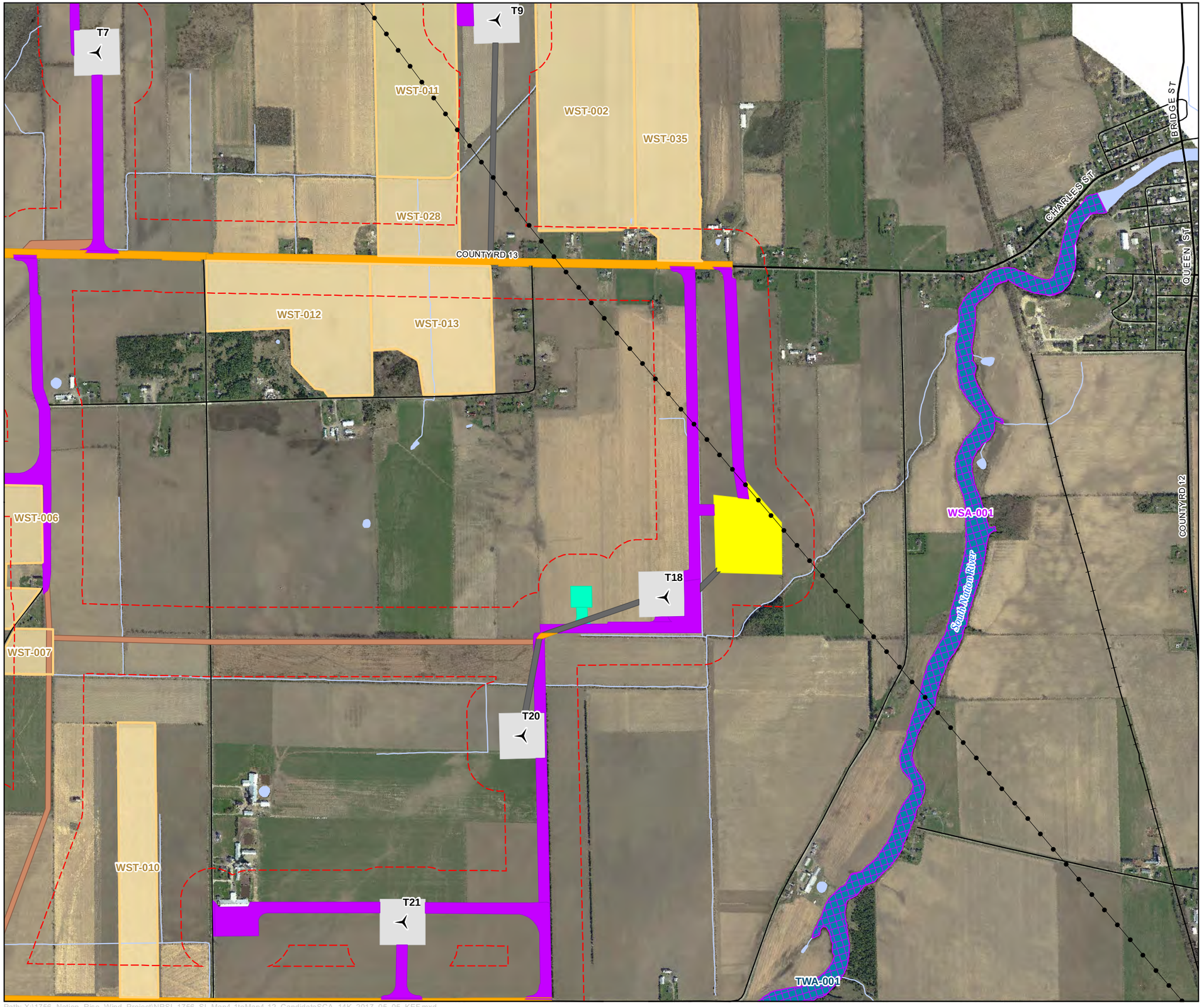
Map 4 - 4

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Turtle Wintering Area (TWA)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road
- Proposed Substation

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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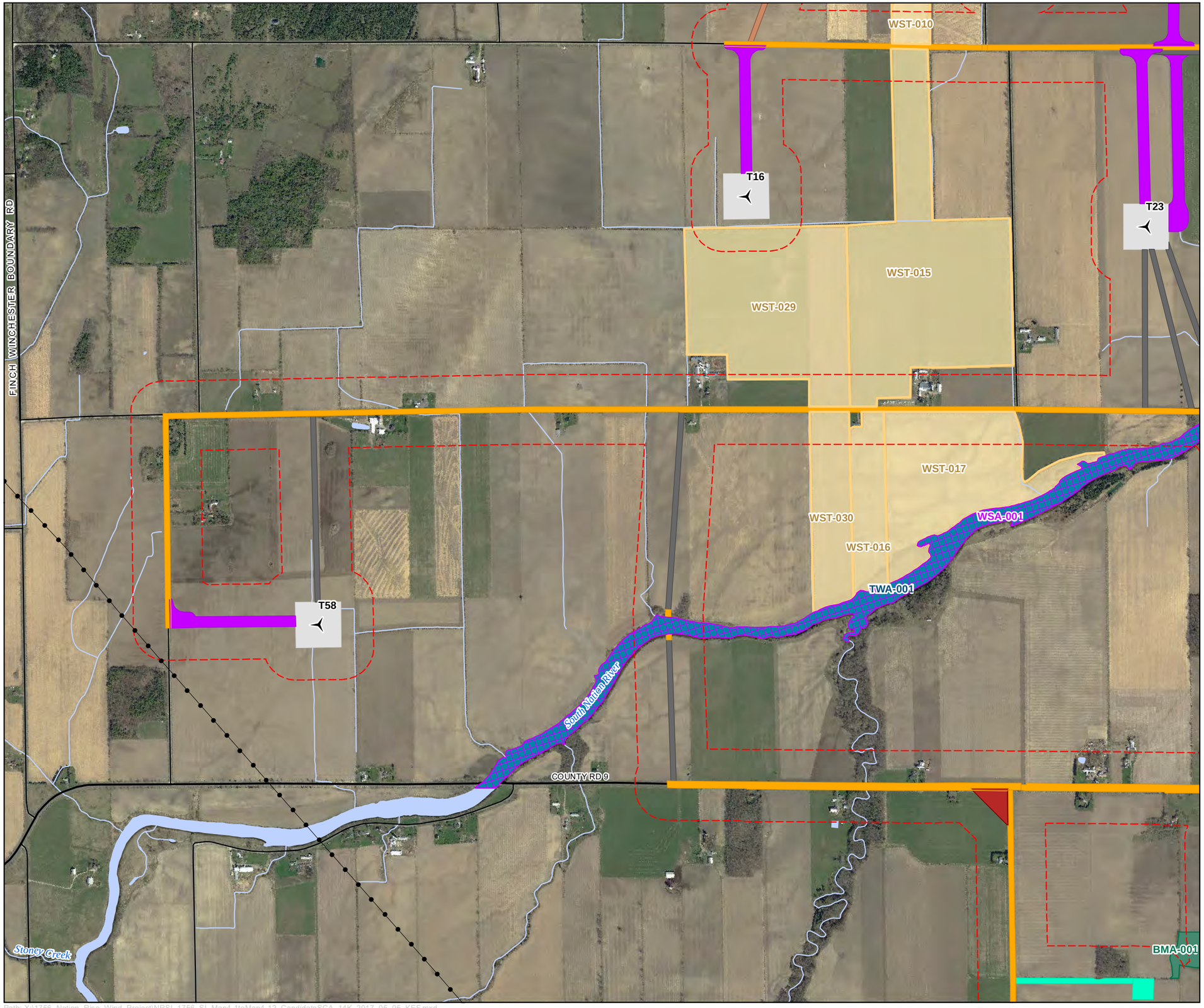
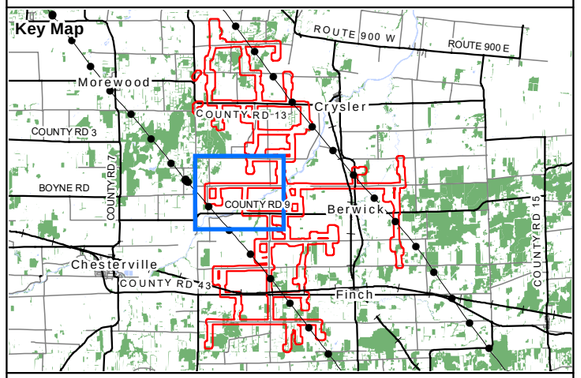
Map 4 - 5

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Turtle Wintering Area (TWA)
- Bat Maternity Colony (BMA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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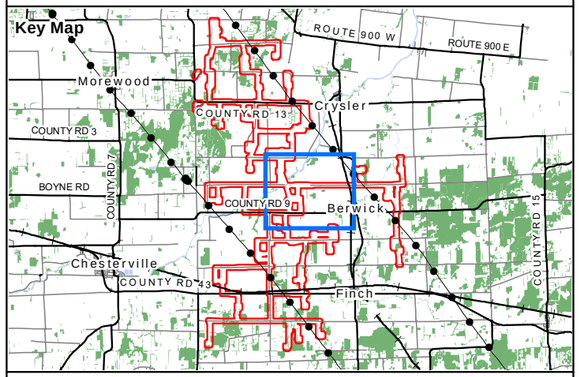
Map 4 - 6

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Turtle Wintering Area (TWA)
- Bat Maternity Colony (BMA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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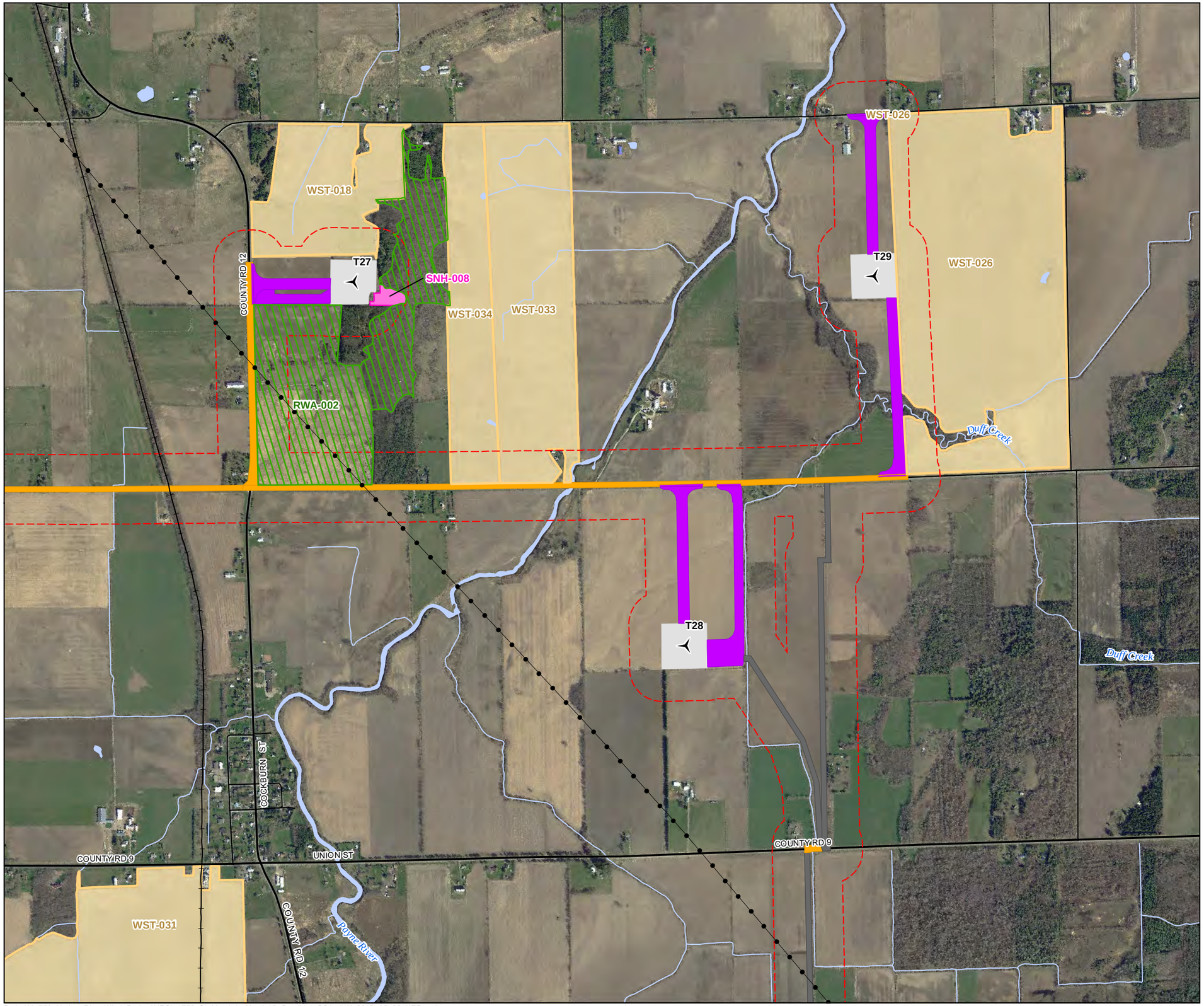
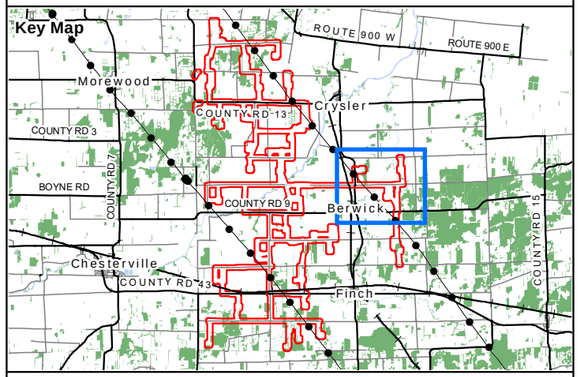
Map 4 - 7

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Snake Hibernaculum (SNH)
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Raptor Wintering Area (RWA)
- Snake Hibernaculum (SNH)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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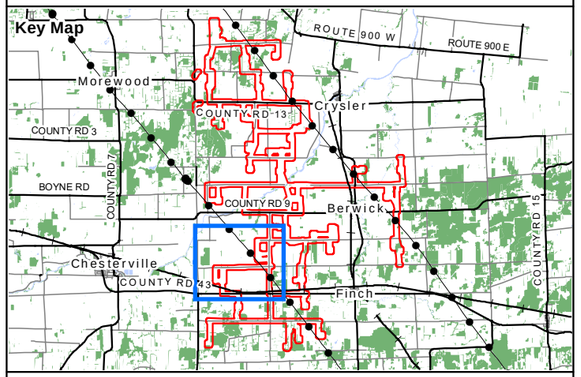
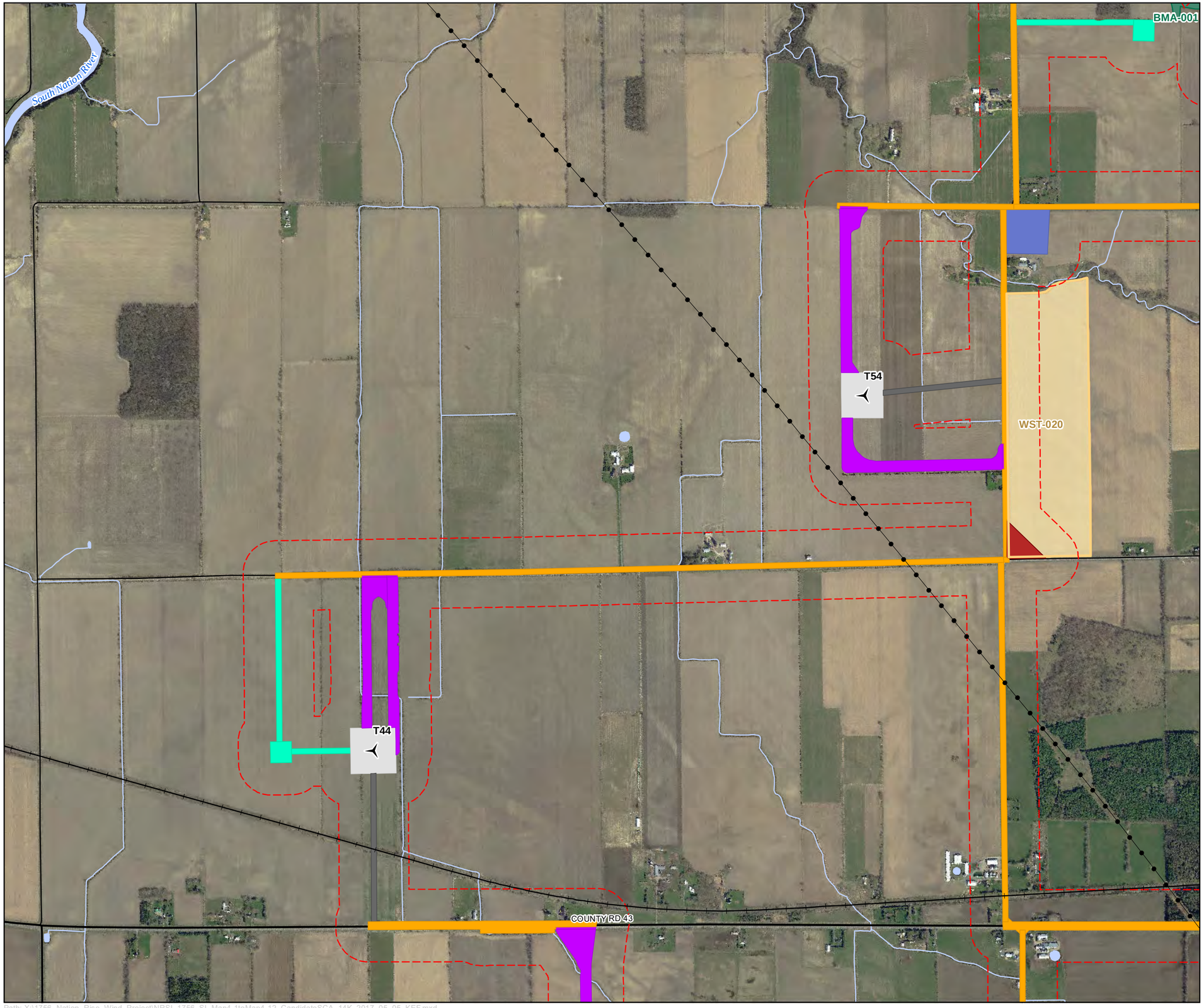
Map 4 - 8

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Bat Maternity Colony (BMA)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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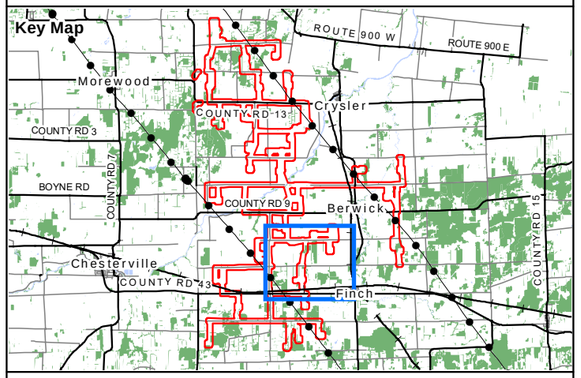
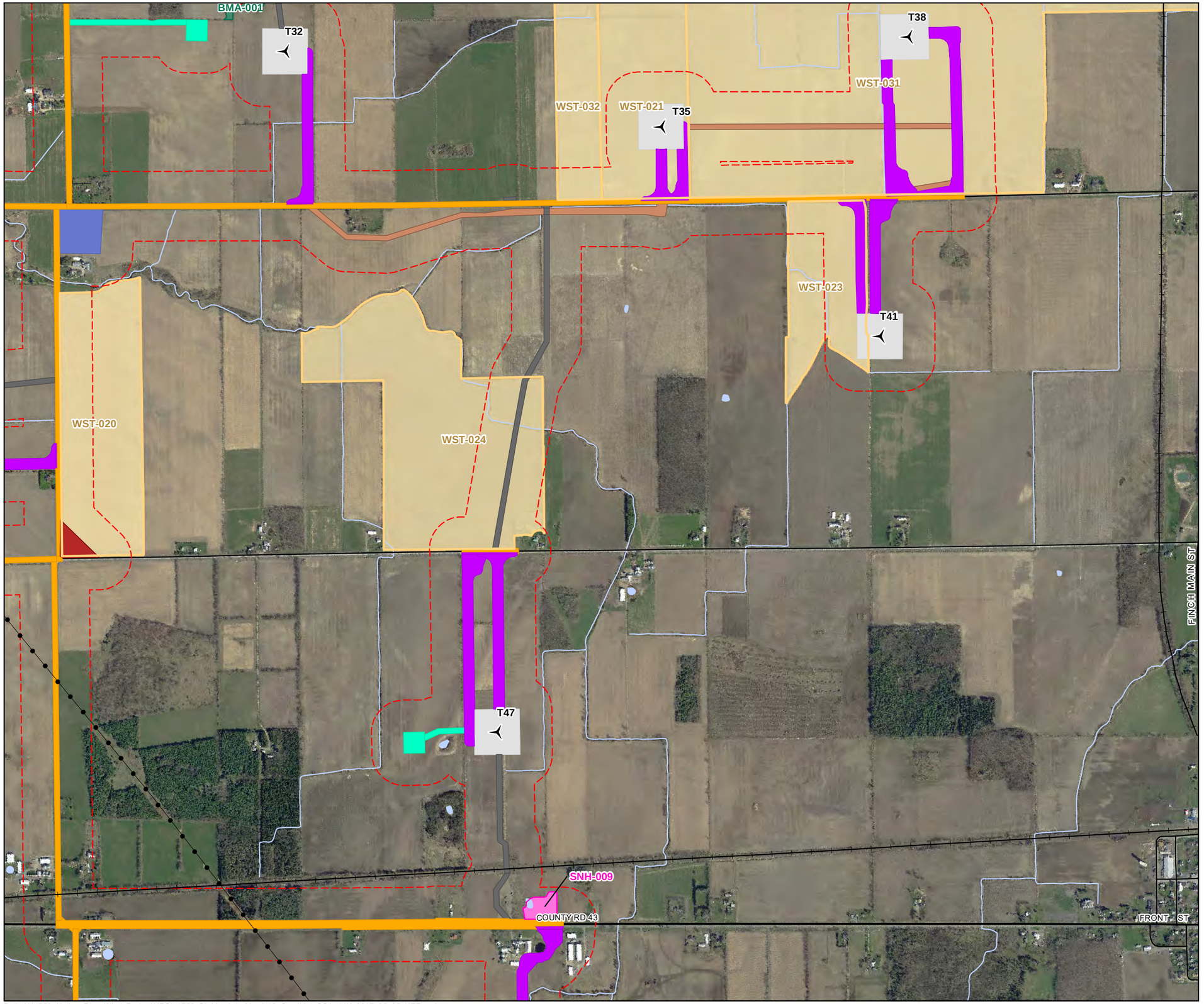
Map 4 - 9

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Snake Hibernaculum (SNH)
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Bat Maternity Colony (BMA)
- Snake Hibernaculum (SNH)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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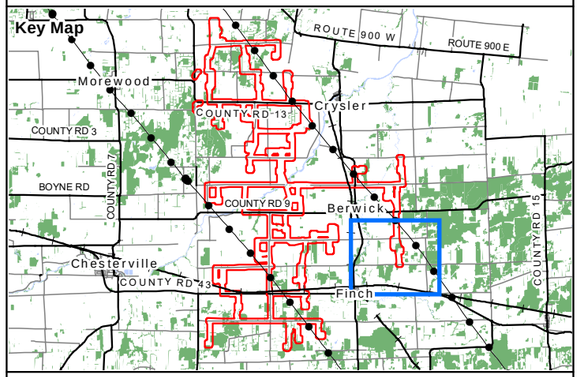
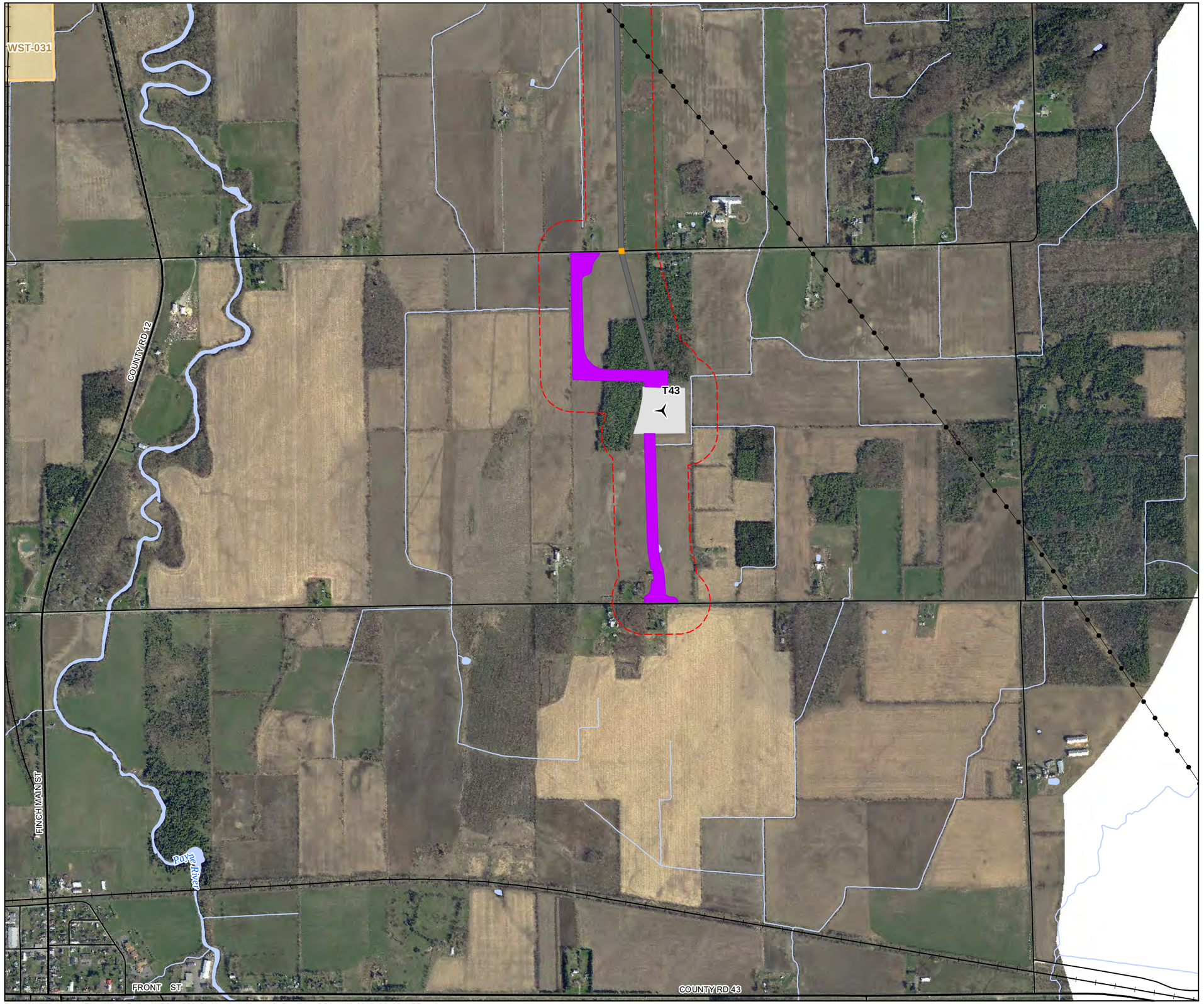
Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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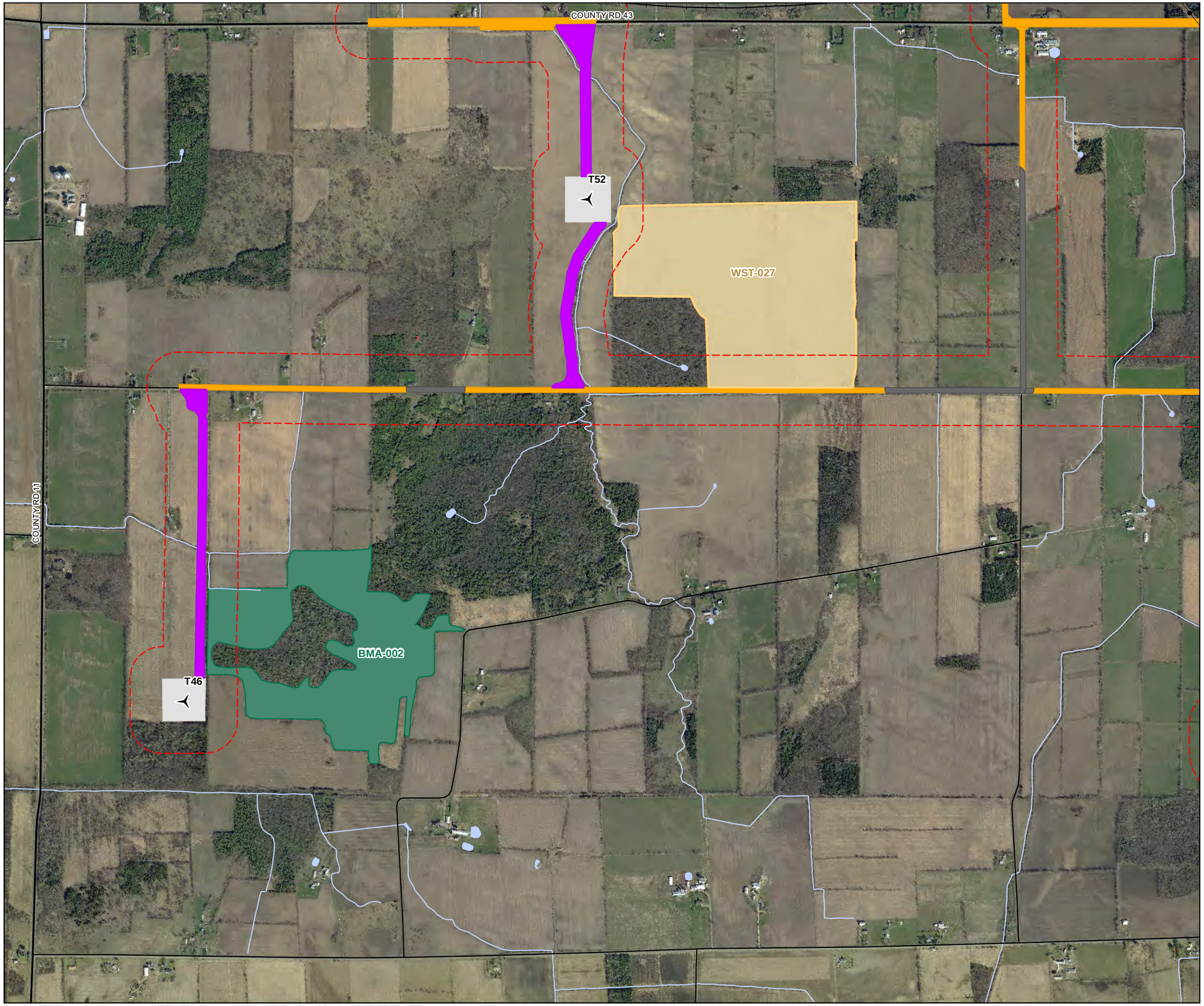
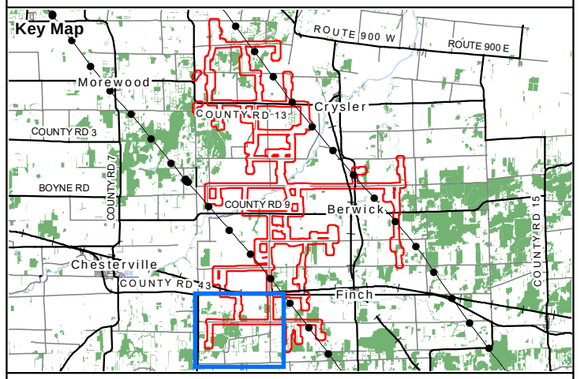


Map 4 - 11

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Seasonal Concentration Areas

- Waterfowl Stopover and Staging Area (Terrestrial) (WST)
- Bat Maternity Colony (BMA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

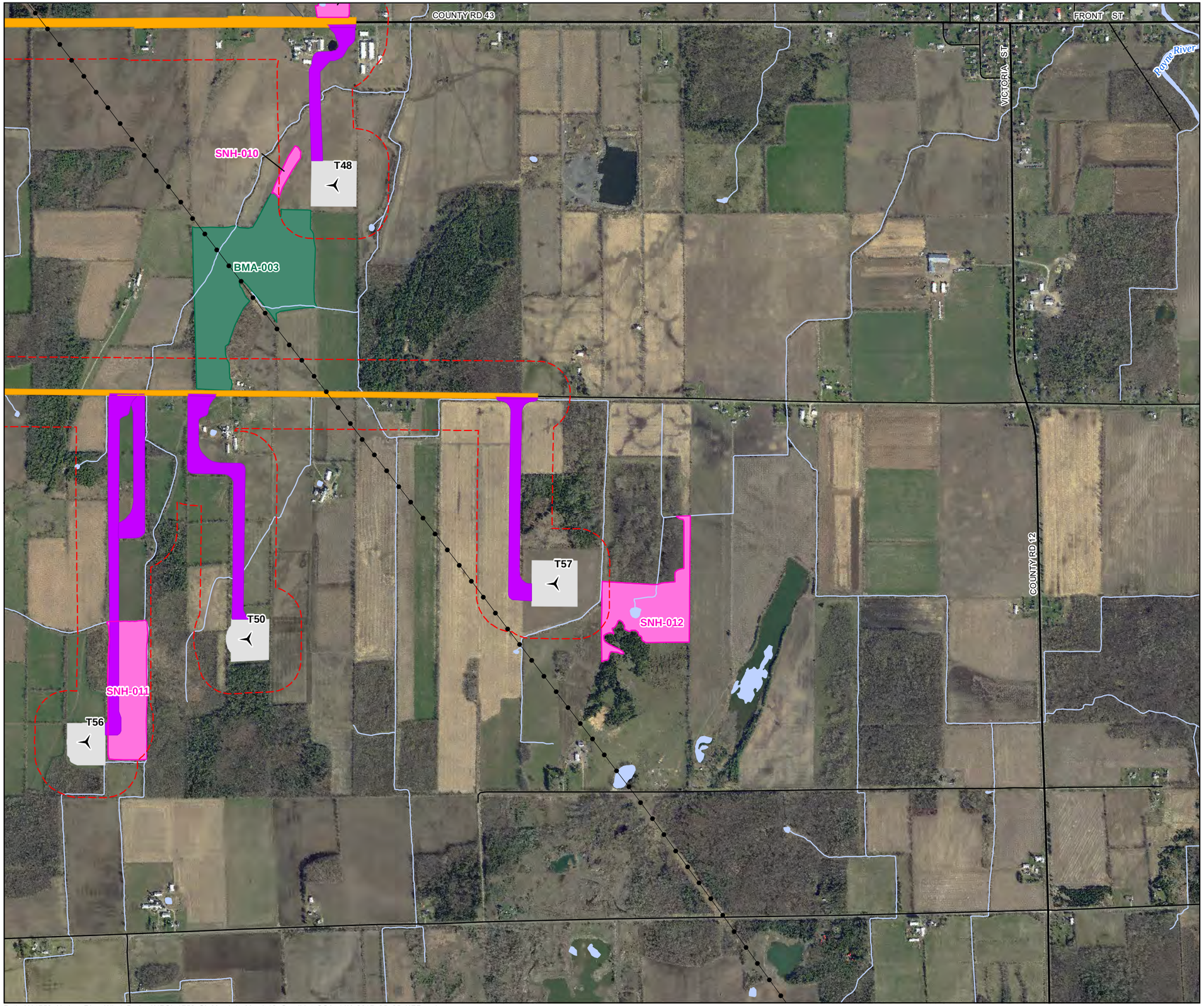
N

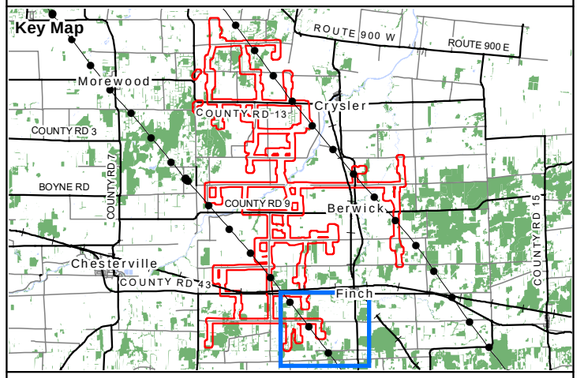
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map4-1toMap4-12_CandidateSCA_14K_2017_05_05_KEF.mxd

Map 4 - 12

Nation Rise Wind Farm

Candidate Seasonal Concentration Areas





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Snake Hibernaculum (SNH)
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Seasonal Concentration Areas

- Bat Maternity Colony (BMA)
- Snake Hibernaculum (SNH)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

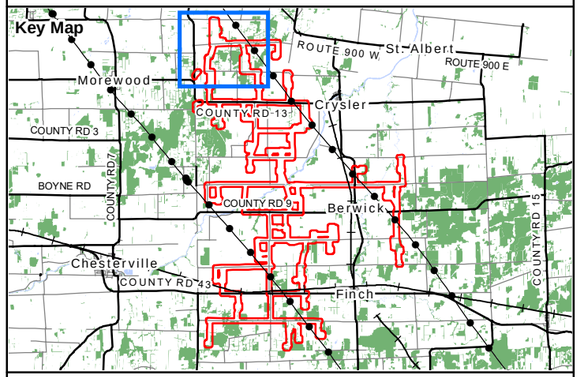
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map4-1toMap4-12_CandidateSCA_14K_2017_05_05_KEF.mxd

Maps 5-1 to 5-12
Candidate Rare Vegetation Communities and Specialized Wildlife Habitats

Map 5 - 1

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Temporary Access Road for Construction
- Proposed Meteorological Tower Footprint and Access Road

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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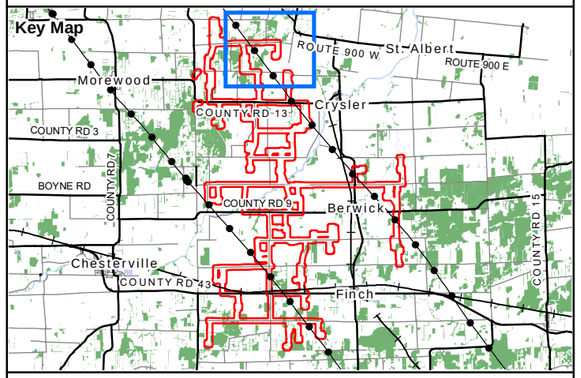
Map 5 - 2

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Rare Vegetation Communities

- Alvar (ALV)

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

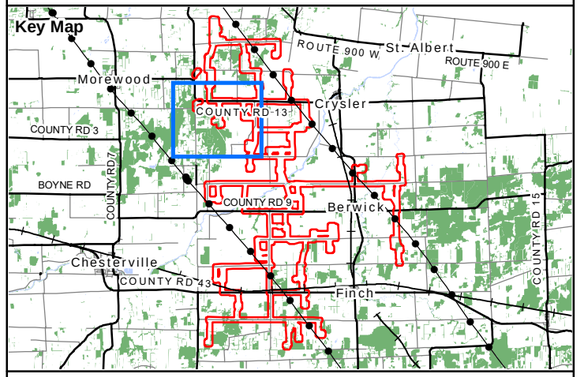
0 200 400 600 800 Meters

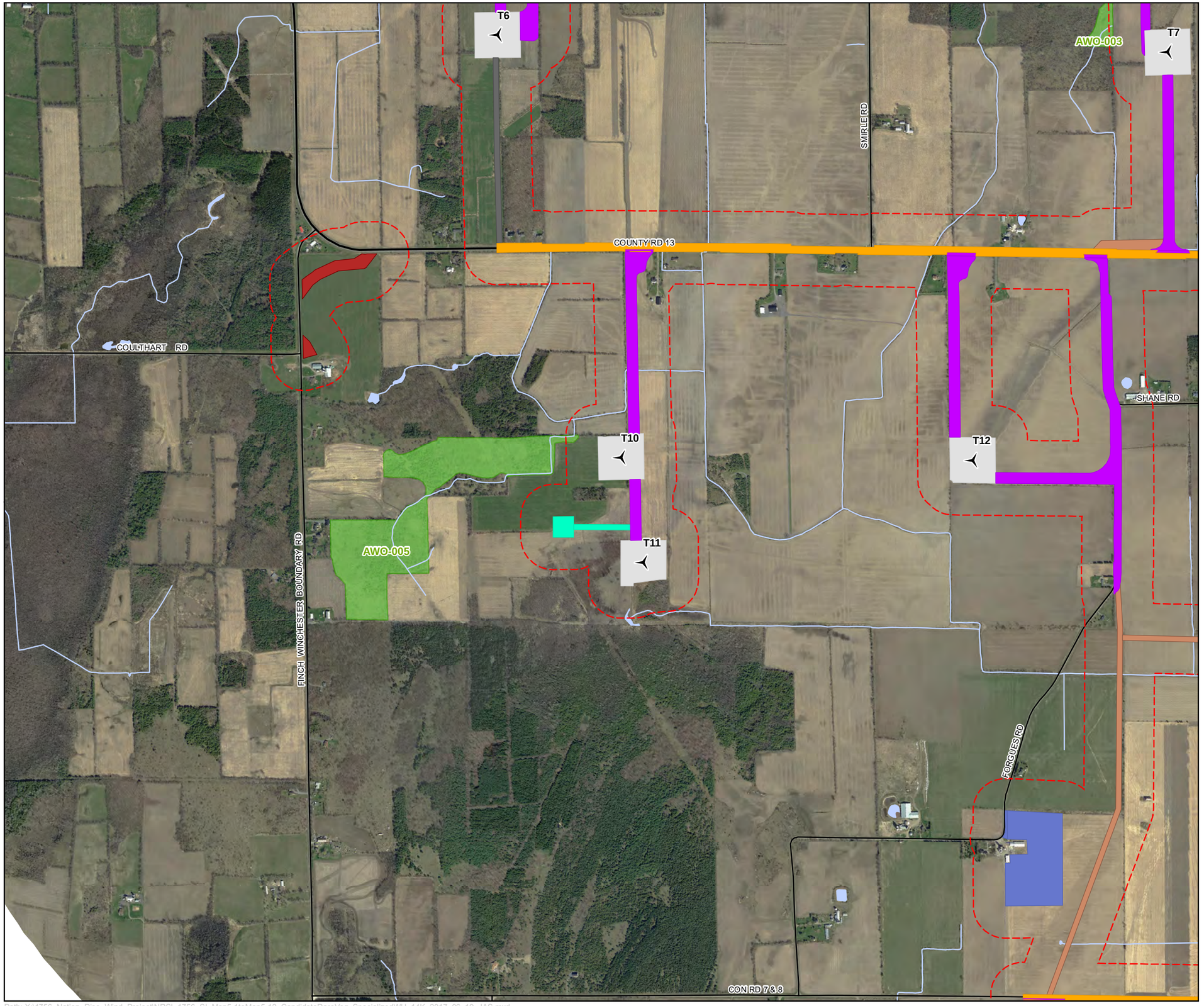
N

Map 5 - 3

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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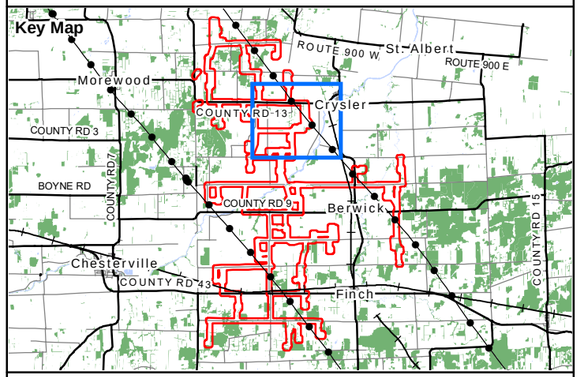
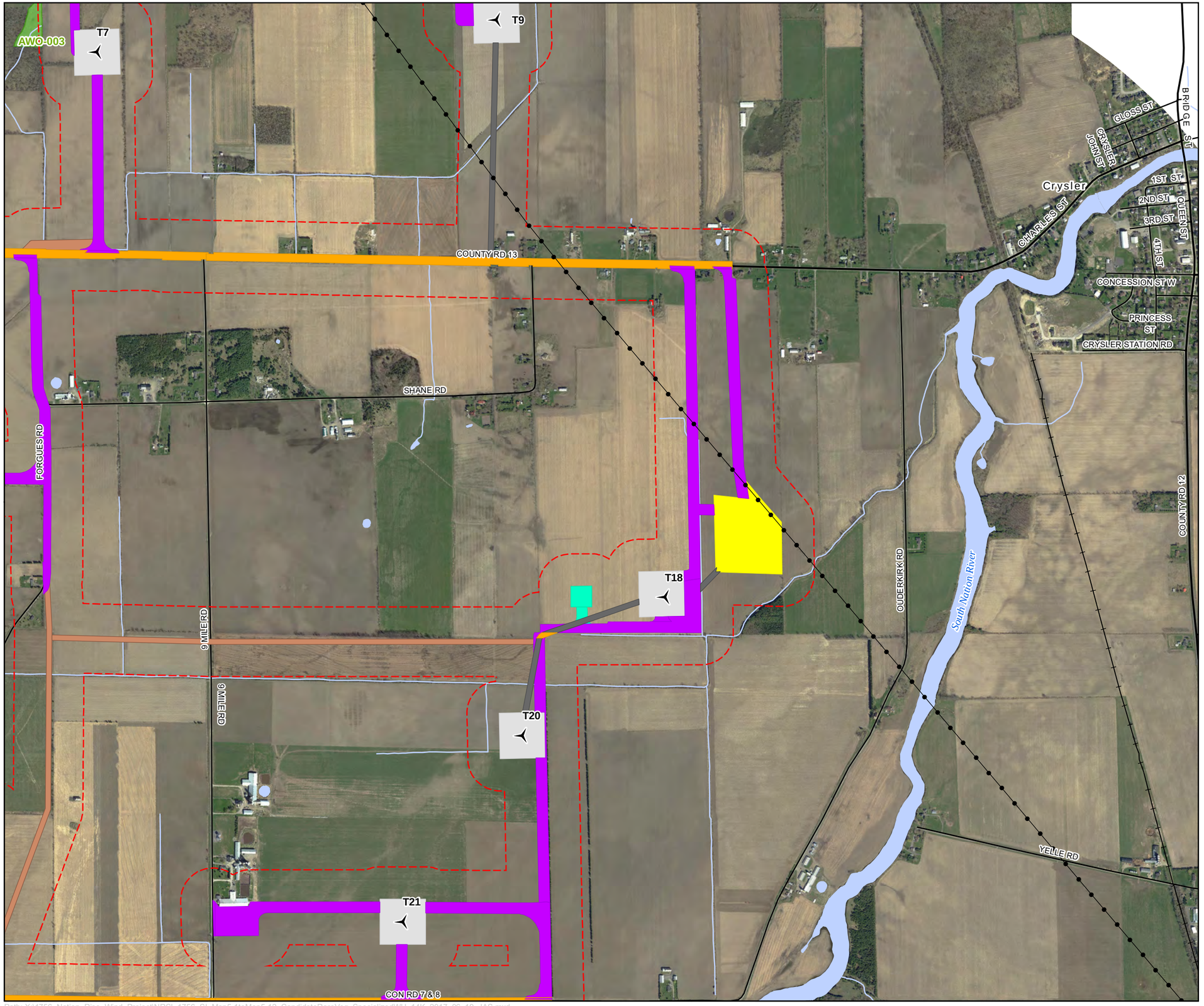
Map 5 - 4

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road
- Proposed Substation

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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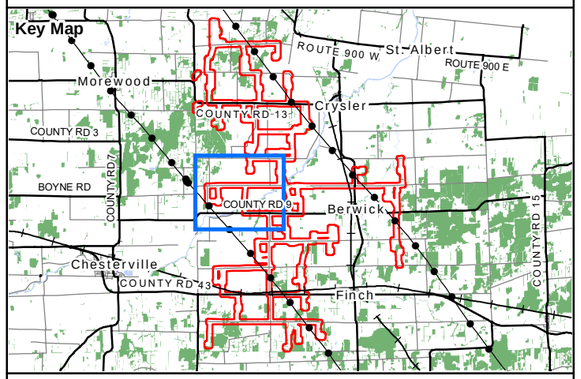
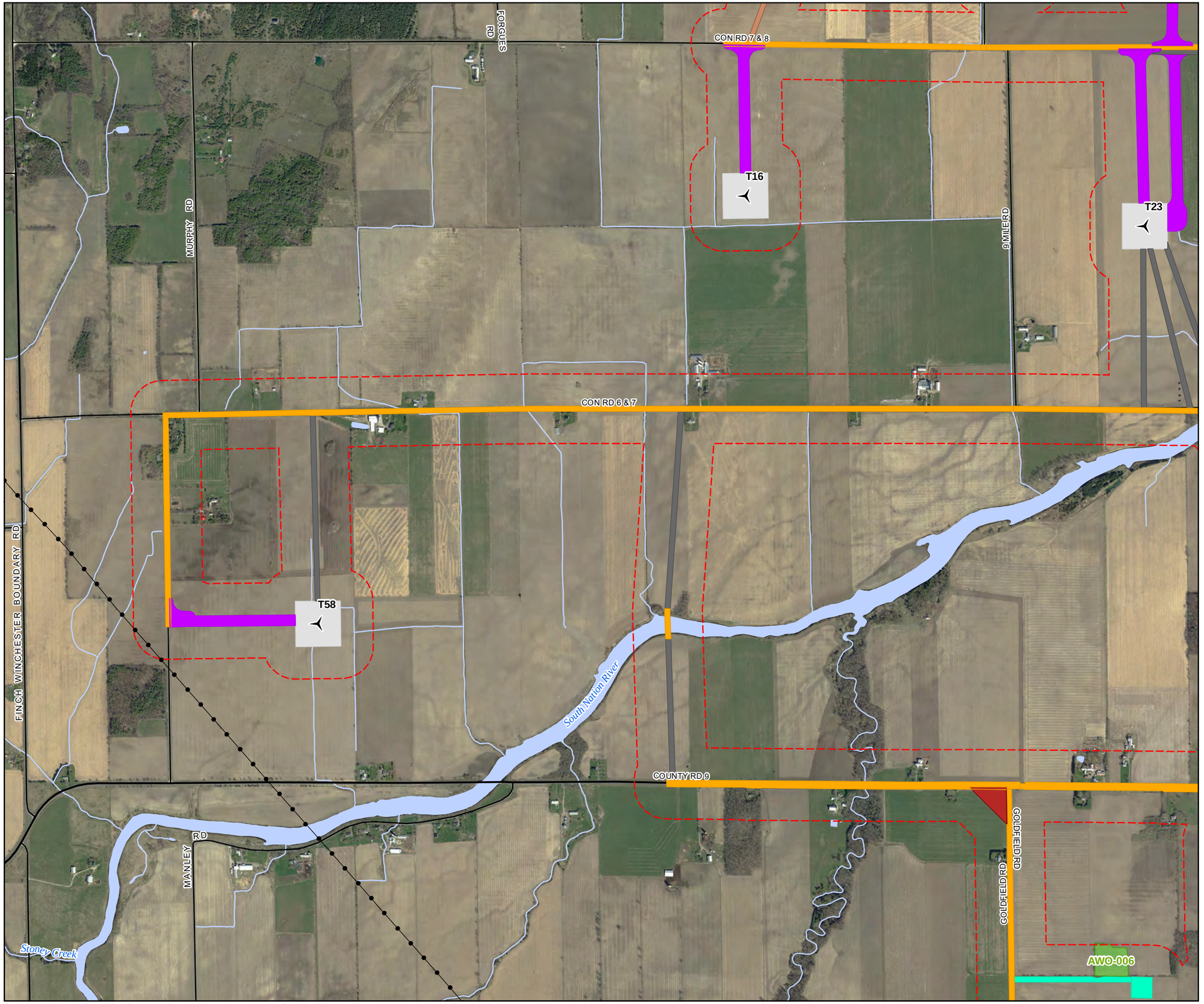
Map 5 - 5

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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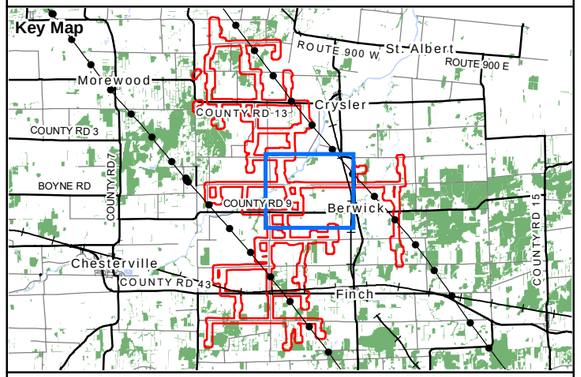
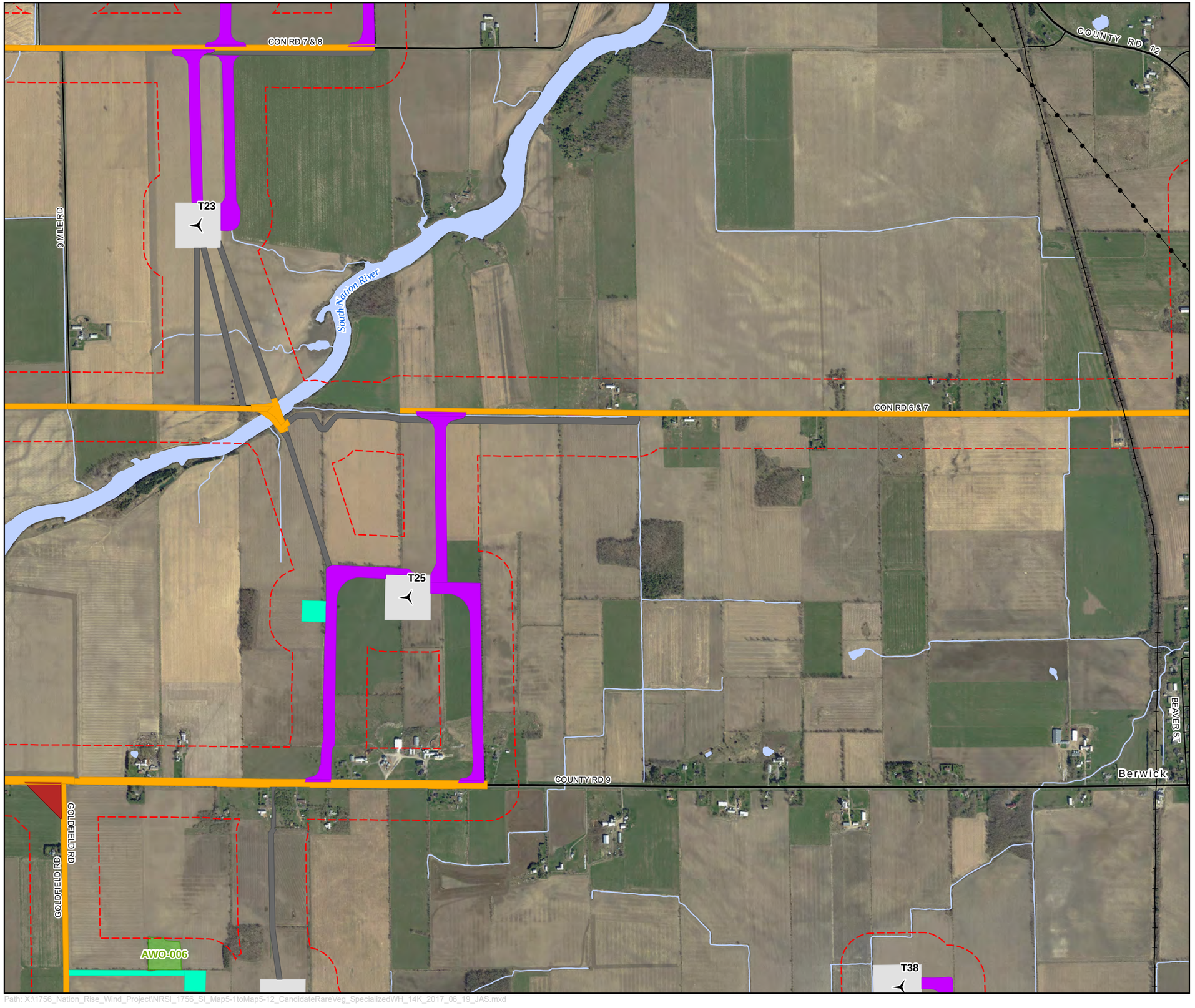
Map 5 - 6

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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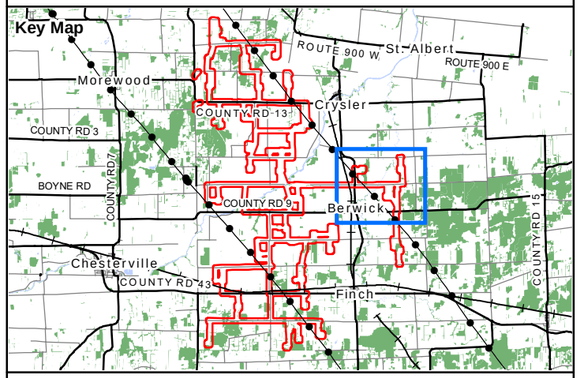
Map 5 - 7

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

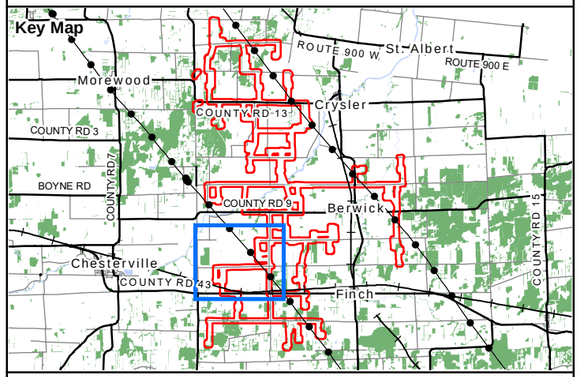
N

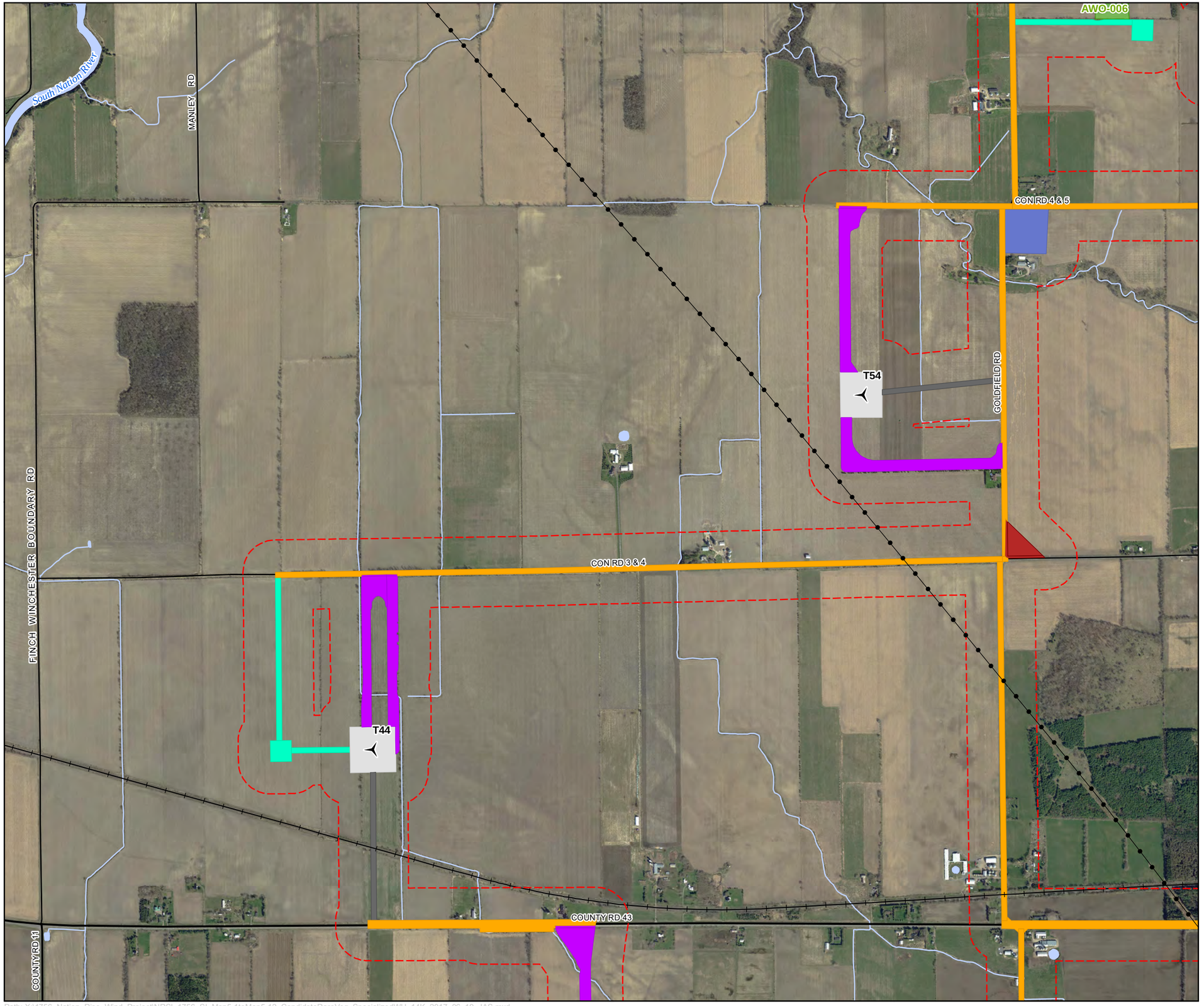
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map5-1toMap5-12_CandidateRareVeg_SpecializedWH_14K_2017_06_19_JAS.mxd

Map 5 - 8

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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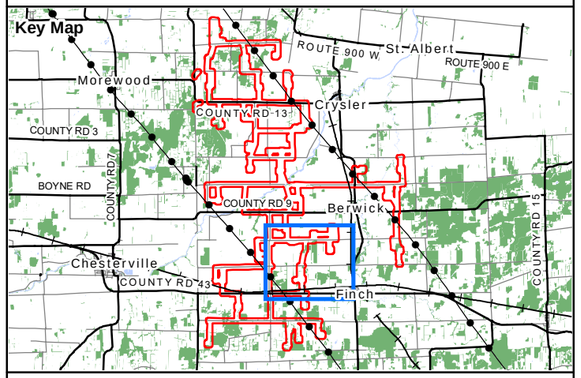
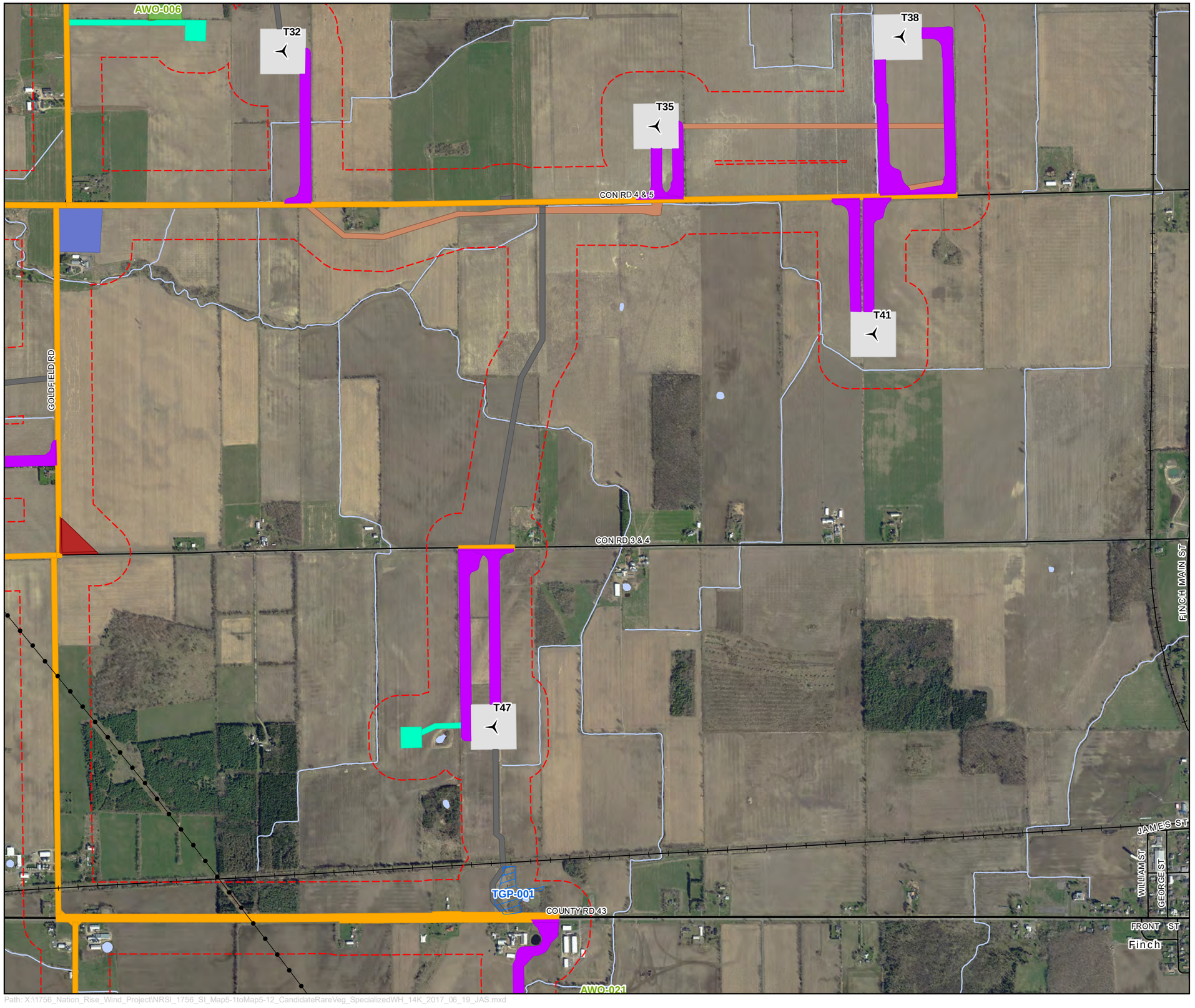
Map 5 - 9

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Candidate Rare Vegetation Communities

- Tallgrass Prairie

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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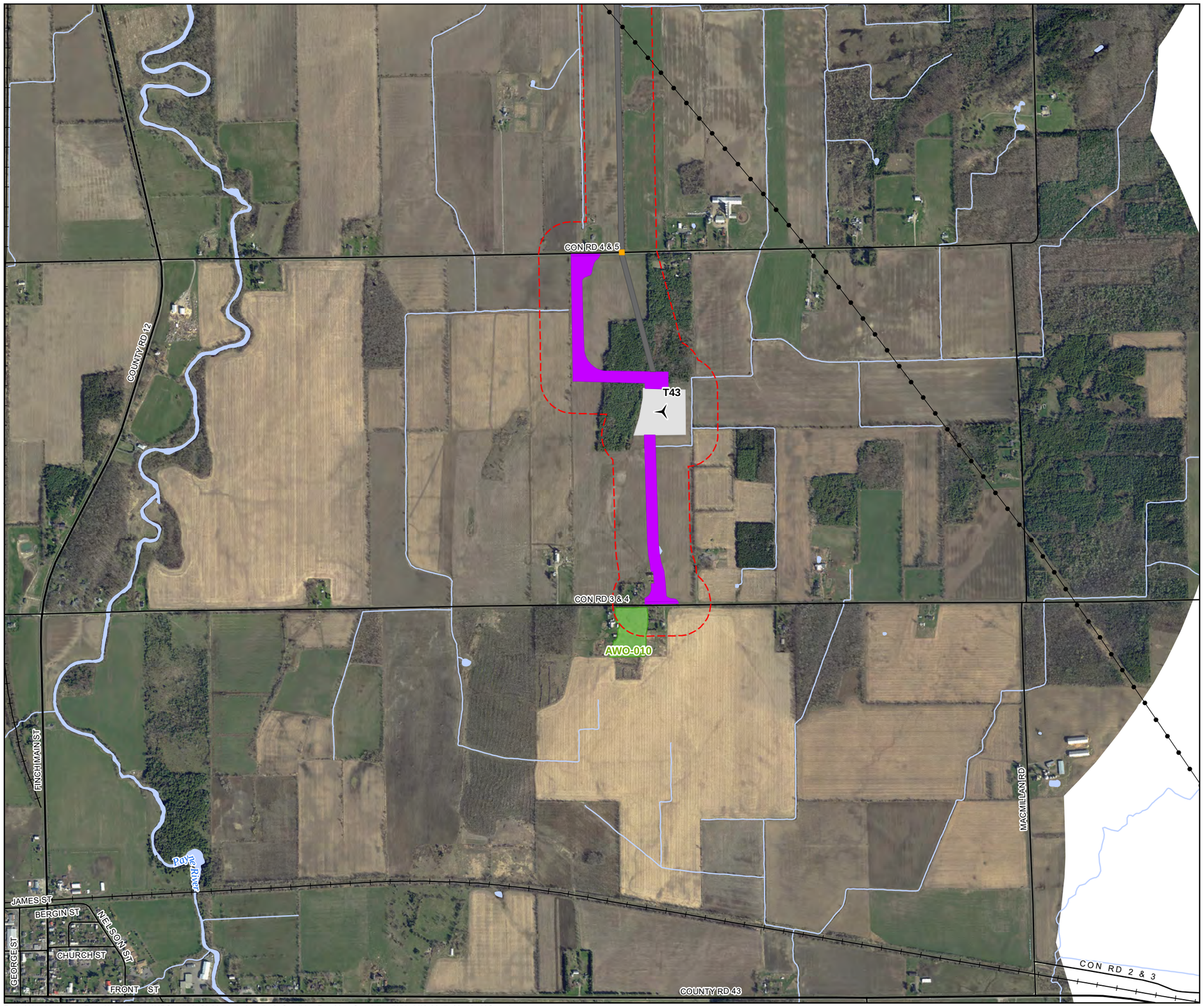
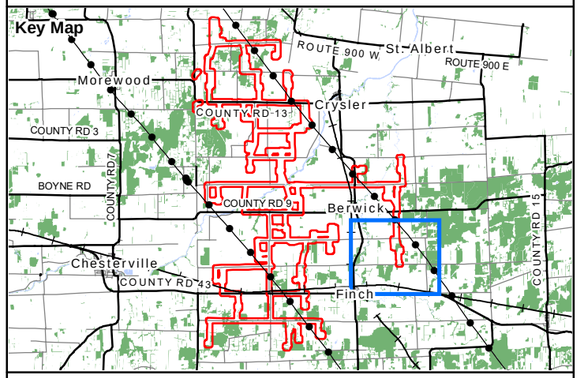
Map 5 - 10

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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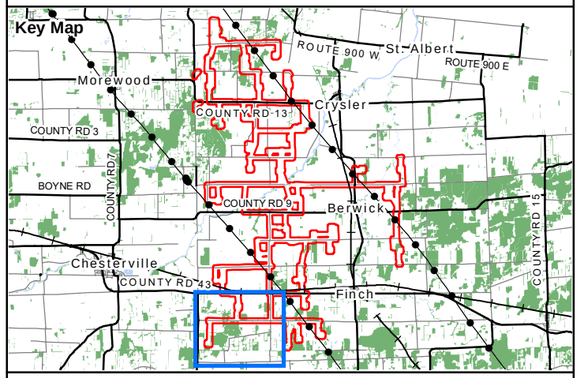
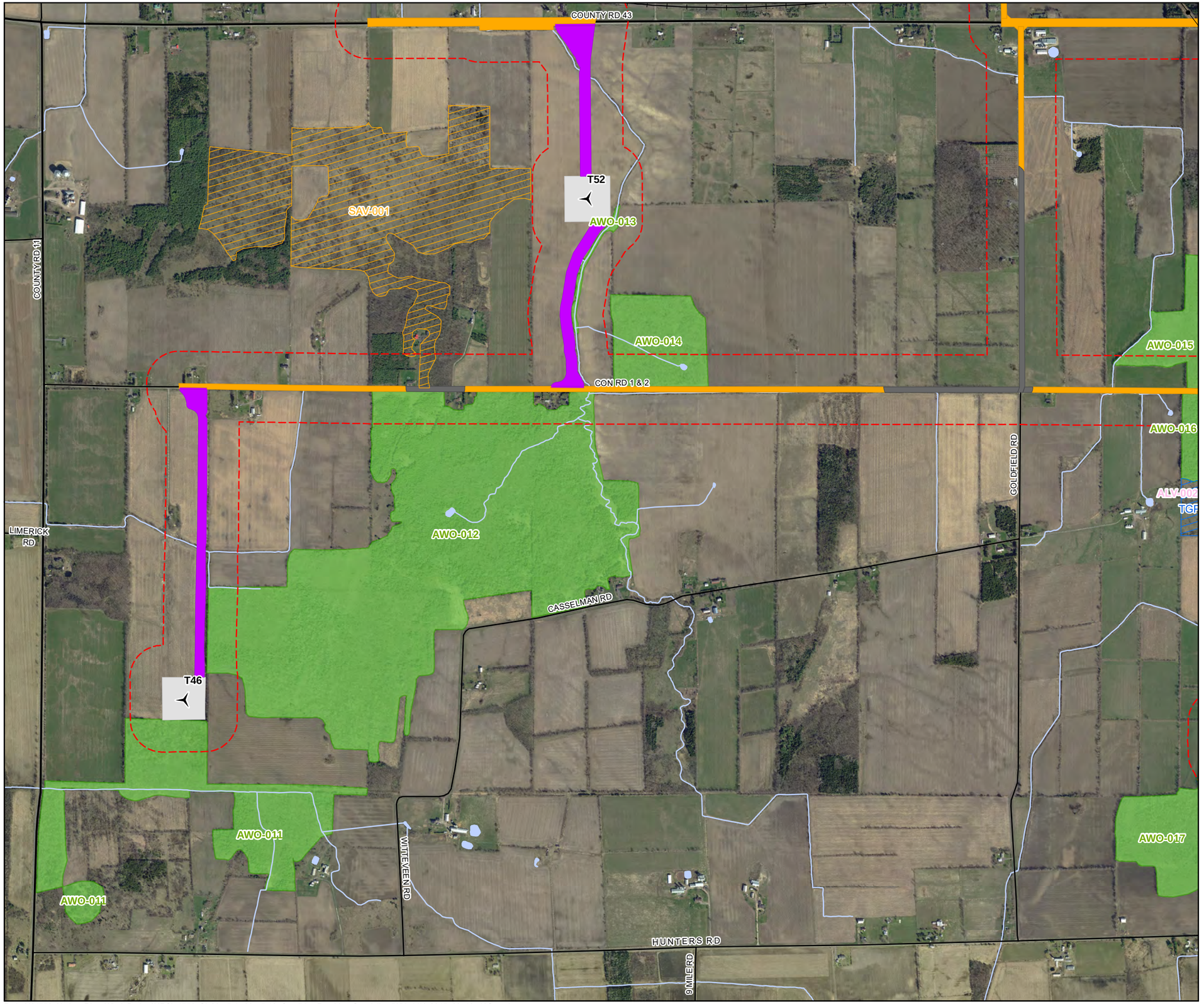
Map 5 - 11

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Rare Vegetation Communities

- Savannah
- Tallgrass Prairie

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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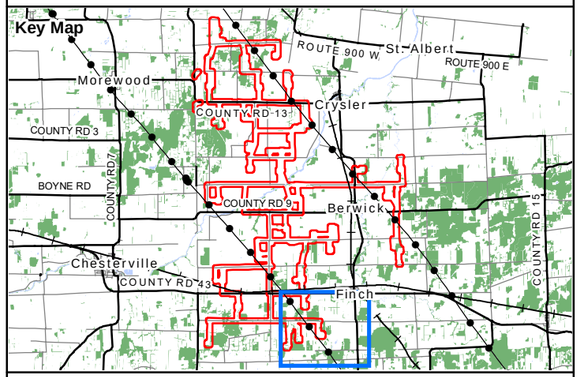
Map 5 - 12

Nation Rise Wind Farm

Candidate Rare Vegetation Communities & Specialized Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Rare Vegetation Communities

- Alvar (ALV)
- Tallgrass Prairie
- Old Growth Forest (OGF)

Candidate Specialized Wildlife Habitats

- Amphibian Breeding Habitat (Woodland) (AWO)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: June 19, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

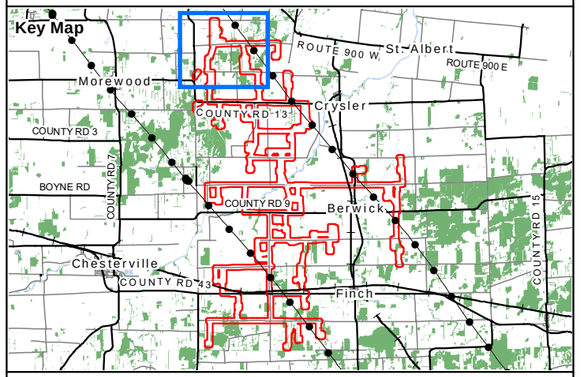
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map5-1toMap5-12_CandidateRareVeg_SpecializedWH_14K_2017_06_19_JAS.mxd

Maps 6-1 to 6-12
Candidate Habitats for Species of Conservation Concern

Map 6 - 1

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown
- Proposed Temporary Turning Radius
- Proposed Temporary Access Road for Construction
- Proposed Meteorological Tower Footprint and Access Road

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Open Country Bird Breeding Habitat (OCB)
- Common Nighthawk (CONI)
- Mühlenberg's Weissia (MUWE)
- Monarch (MONA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

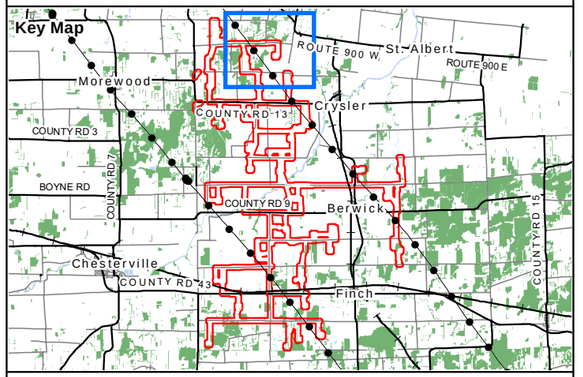
N

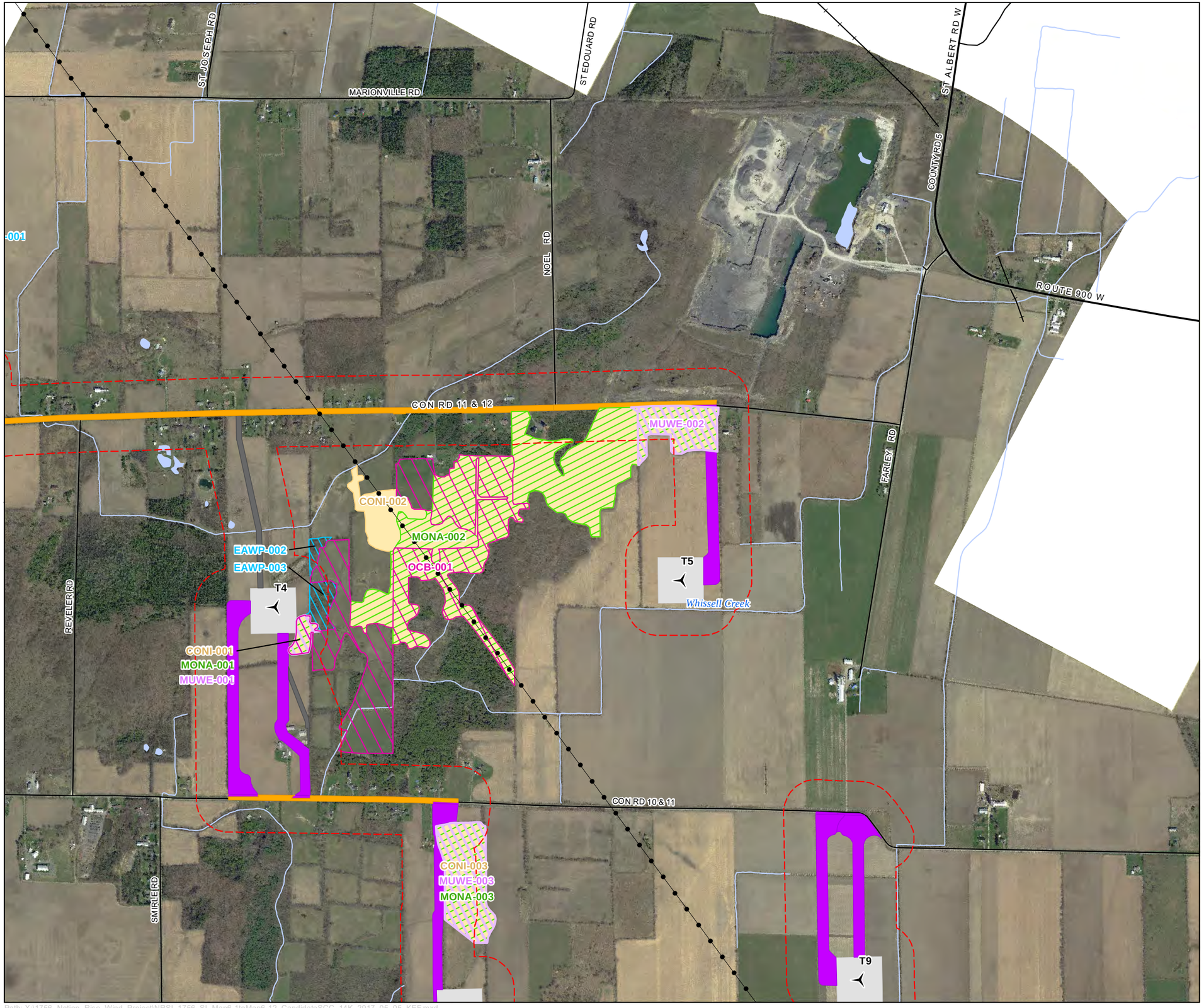
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map6-1toMap6-12_CandidateSCC_14K_2017_05_05_KEF.mxd

Map 6 - 2

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Open Country Bird Breeding Habitat (OCB)
- Common Nighthawk (CONI)
- Mühlenberg's Weissia (MUWE)
- Monarch (MONA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

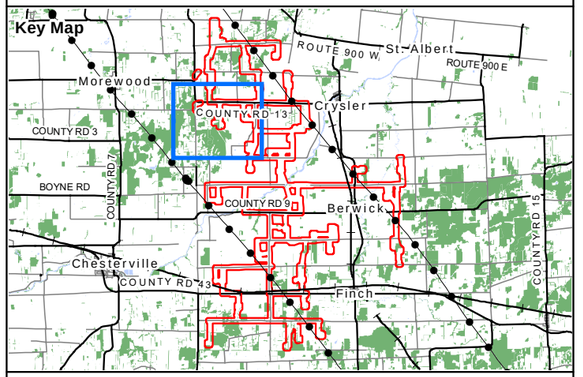
N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map6-1toMap6-12_CandidateSCC_14K_2017_05_05_KEF.mxd

Map 6 - 3

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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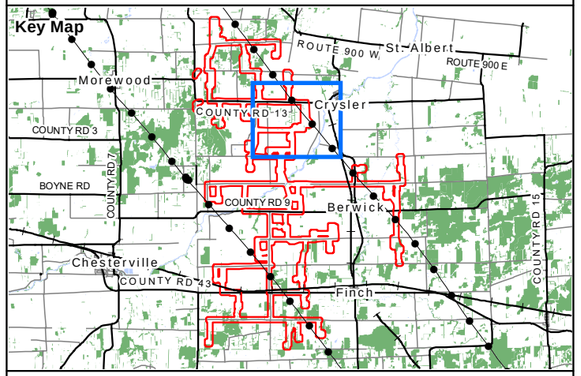
Map 6 - 4

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road
- Proposed Substation

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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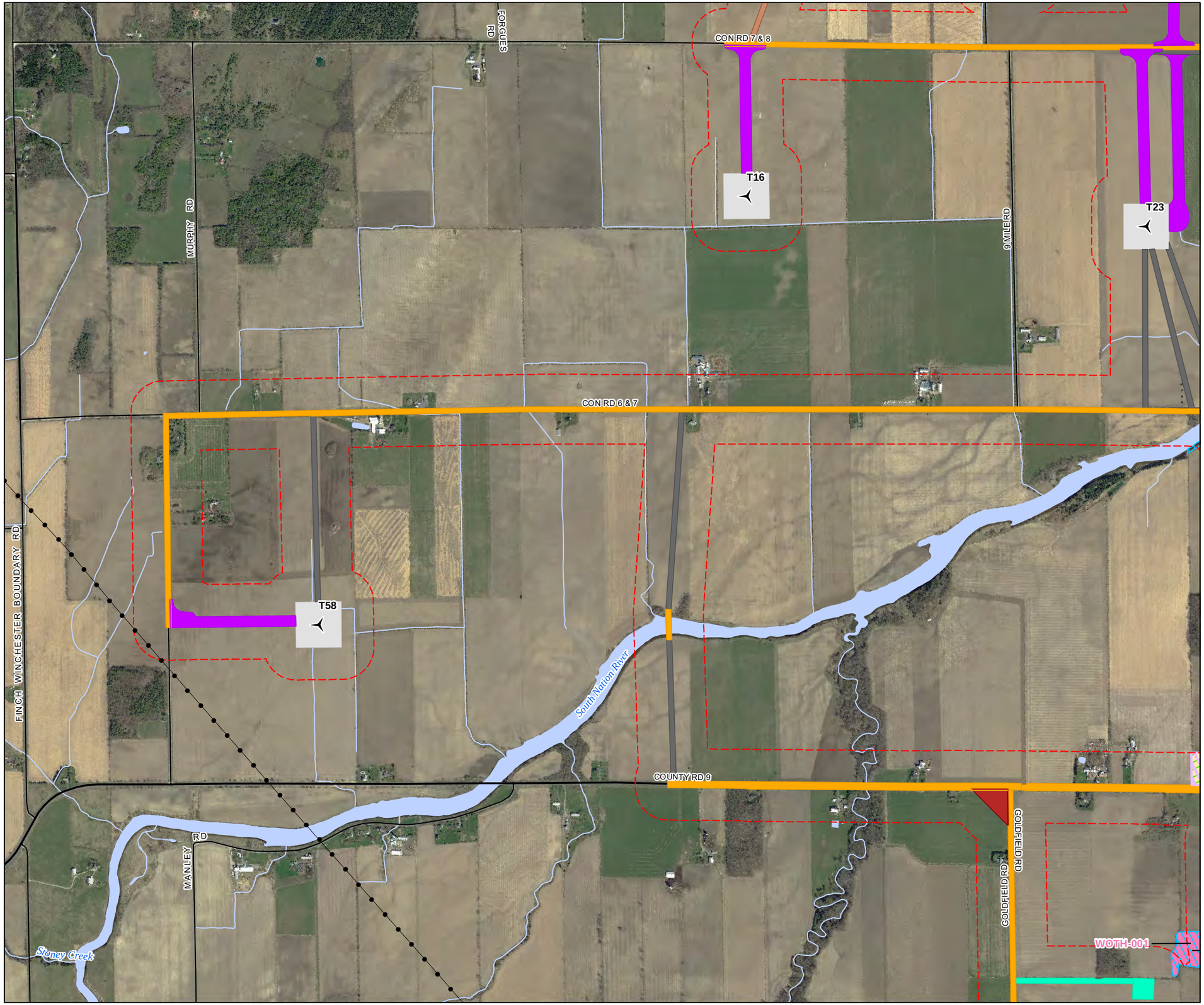
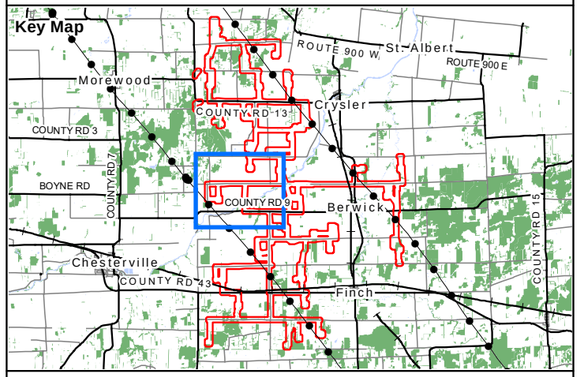


Map 6 - 5

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Common Nighthawk (CONI)
- Mühlenberg's Weissia (MUWE)
- Wood Thrush (WOTH)
- Monarch (MONA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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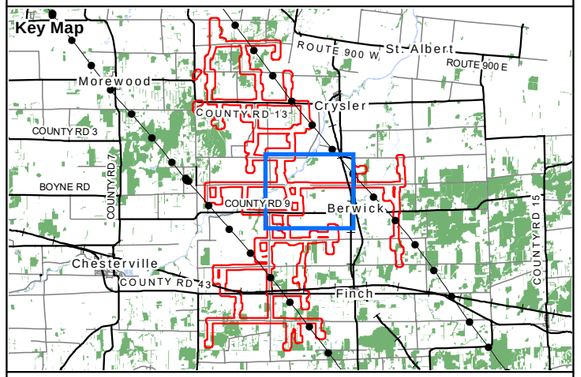
Map 6 - 6

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Common Nighthawk (CONI)
- Mühlenberg's Weissia (MUWE)
- Wood Thrush (WOTH)
- Monarch (MONA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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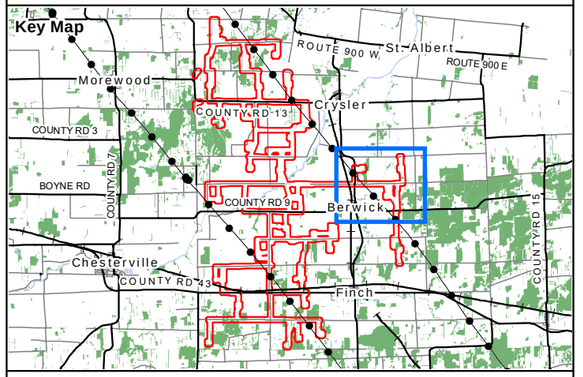
Map 6 - 7

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Common Nighthawk (CONI)
- Wood Thrush (WOTH)
- Monarch (MONA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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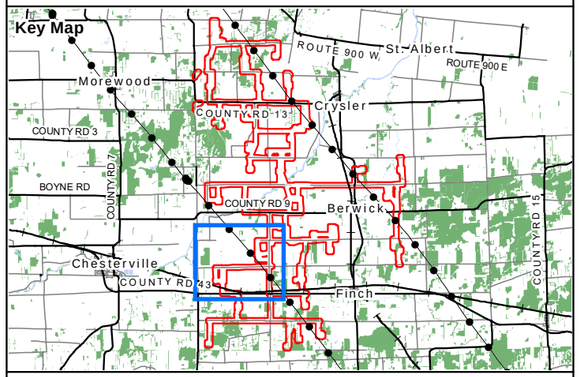
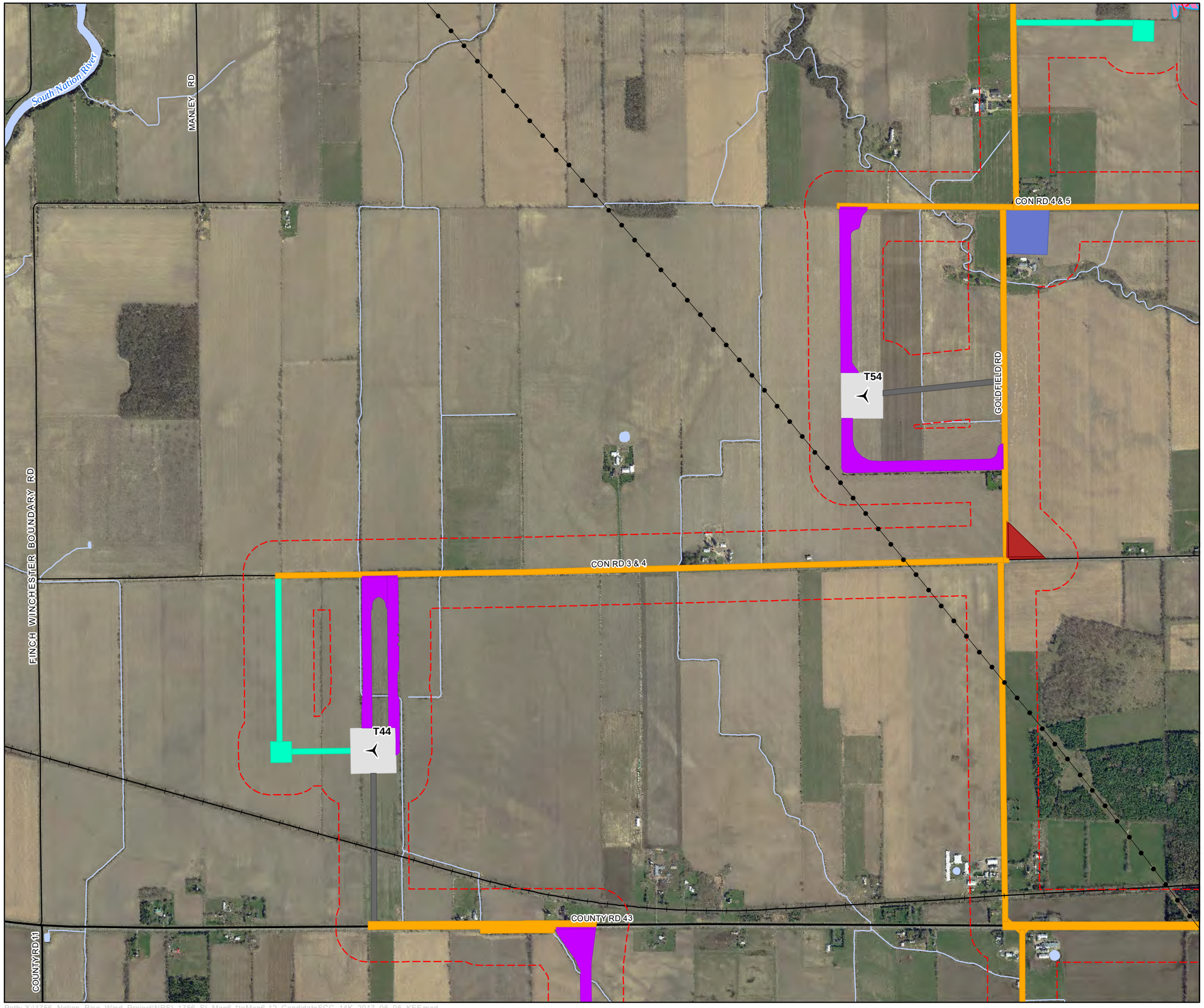
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map6-1toMap6-12_CandidateSCC_14K_2017_05_05_KEF.mxd

Map 6 - 8

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Wood Thrush (WOTH)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

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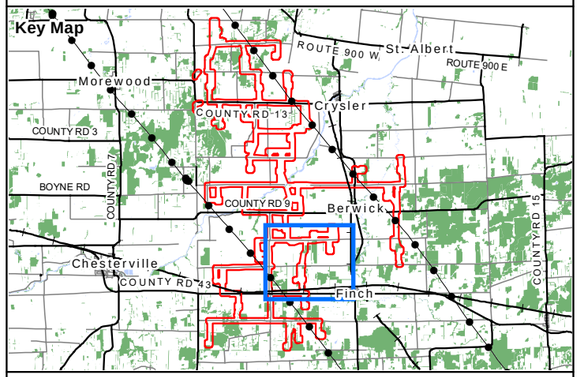
Map 6 - 9

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Common Nighthawk (CONI)
- Wood Thrush (WOTH)
- Monarch (MONA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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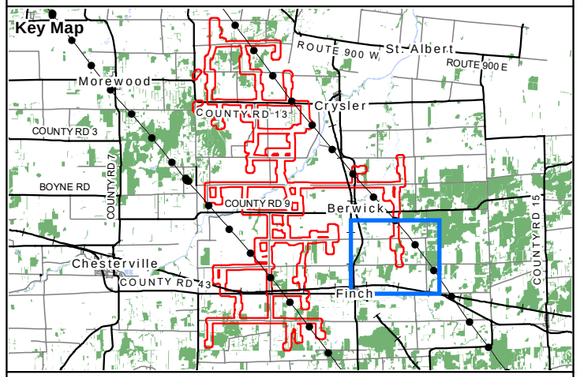
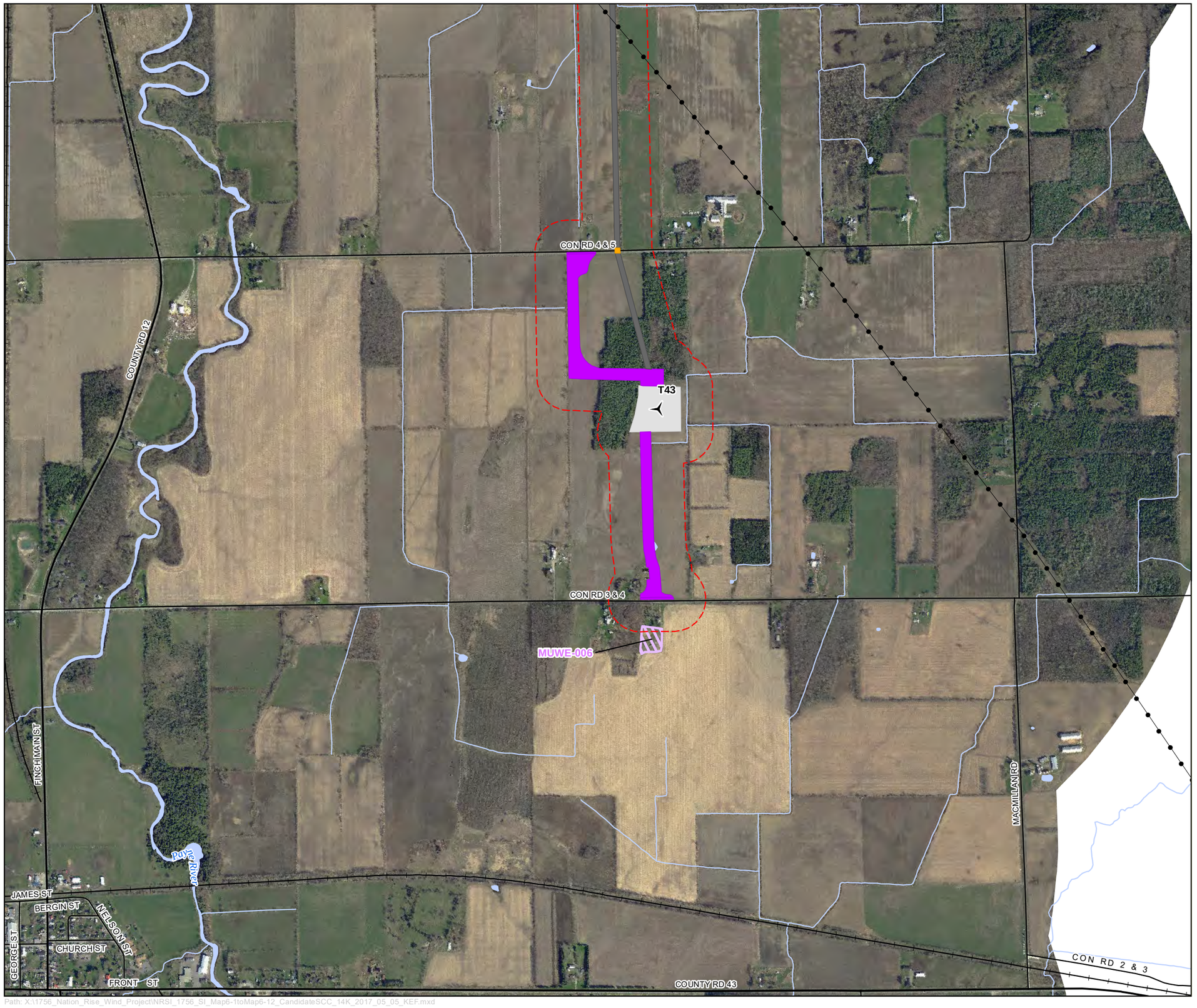
Map 6 - 10

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Habitats for Species of Conservation Concern

- Mühlenberg's Weissia (MUWE)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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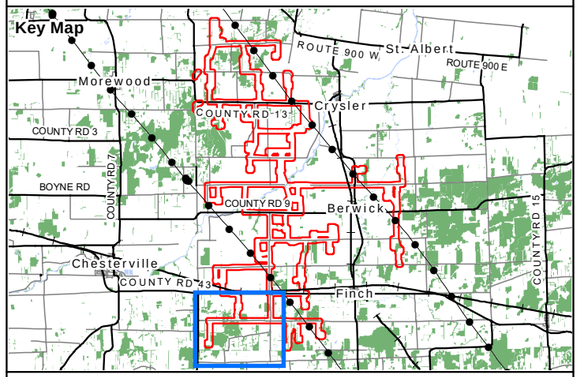
Map 6 - 11

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Mühlenberg's Weissia (MUWE)
- Wood Thrush (WOTH)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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0 200 400 600 800 Meters

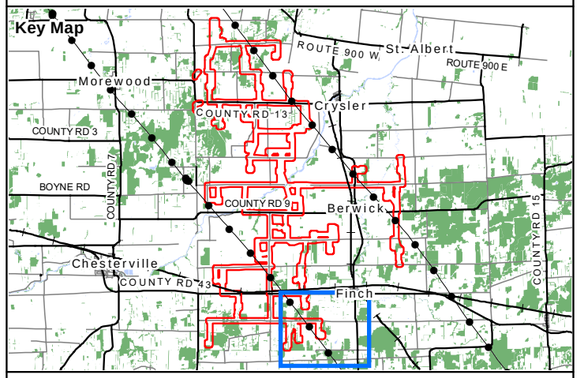
N

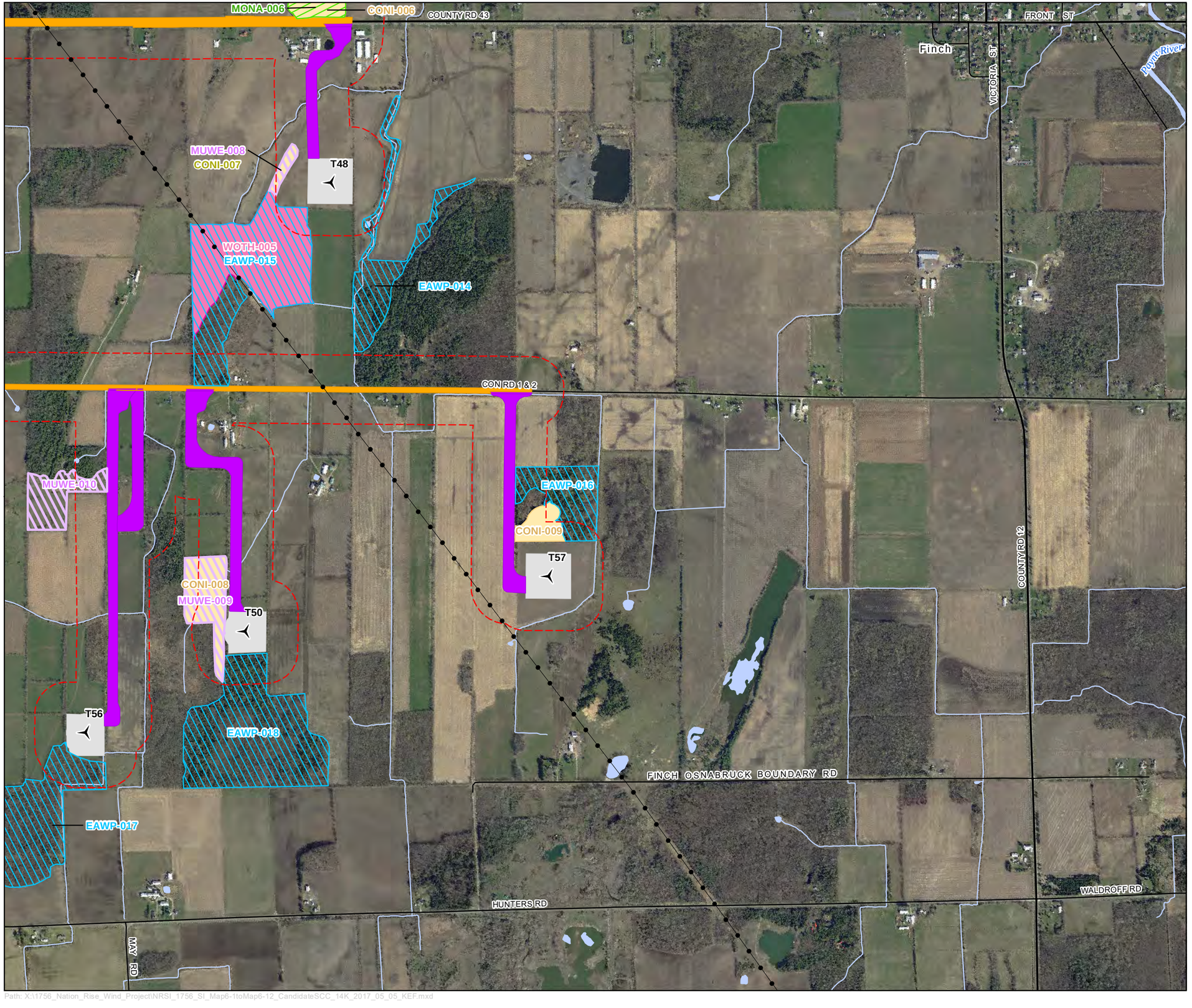
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map6-1toMap6-12_CandidateSCC_14K_2017_05_05_KEF.mxd

Map 6 - 12

Nation Rise Wind Farm

Candidate Habitats for Species of Conservation Concern





Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

Candidate Habitats for Species of Conservation Concern

- Eastern Wood-Pewee (EAWP)
- Common Nighthawk (CONI)
- Mühlenberg's Weissia (MUWE)
- Wood Thrush (WOTH)
- Monarch (MONA)

The distances from the project location to candidate wildlife habitats are outlined within the body of the report in Table 15.

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

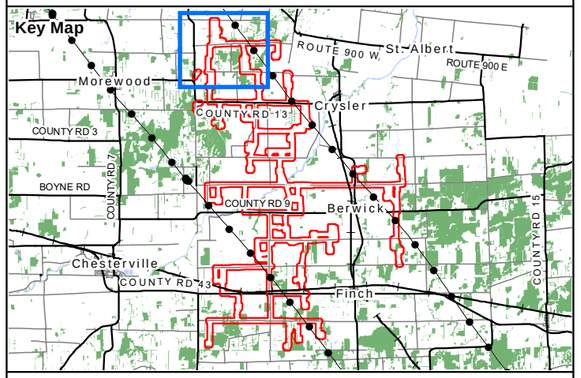
N

Maps 7-1 to 7-12
Generalized Candidate Significant Wildlife Habitat

Map 7 - 1

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Temporary Access Road for Construction
- Proposed Meteorological Tower Footprint and Access Road

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0 200 400 600 800 Meters

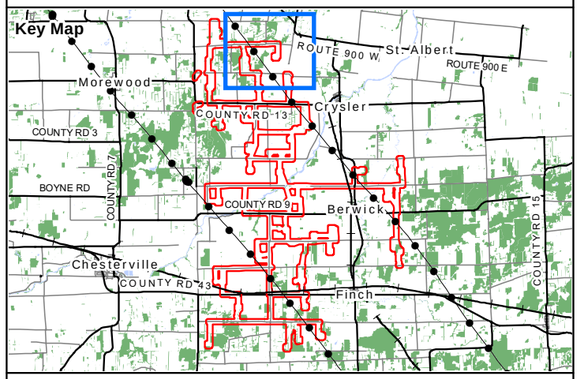
N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map7-1toMap7-12_Generalized_14K_2017_05_05_KEF.mxd

Map 7 - 2

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

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0 200 400 600 800 Meters

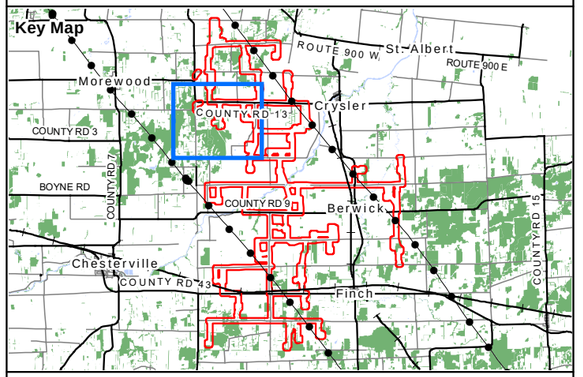
N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map7-1toMap7-12_Generalized_14K_2017_05_05_KEF.mxd

Map 7 - 3

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

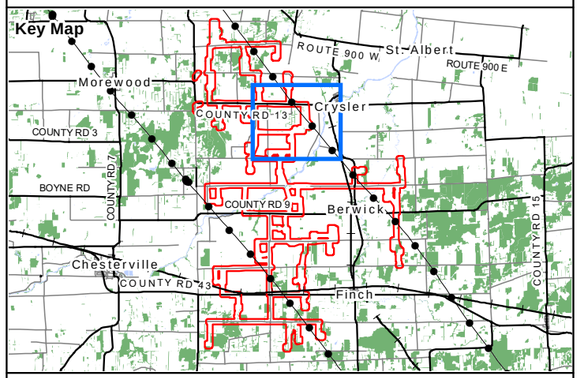
N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map7-1toMap7-12_Generalized_14K_2017_05_05_KEF.mxd

Map 7 - 4

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road
- Proposed Substation

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0 200 400 600 800 Meters

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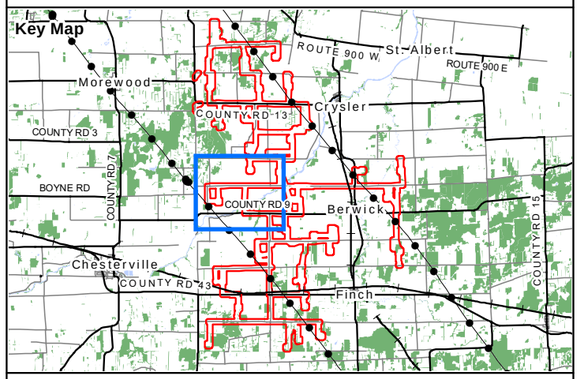
Map 7 - 5

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

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0 200 400 600 800 Meters

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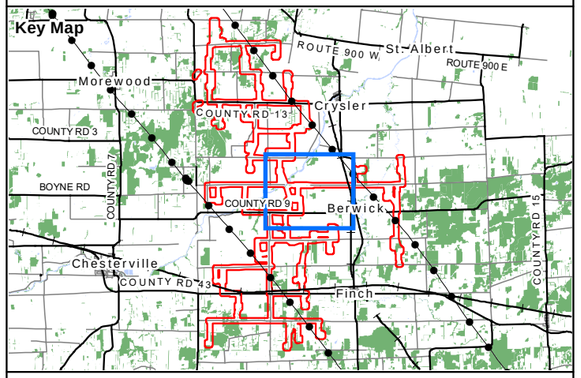
Map 7 - 6

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
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- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

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0 200 400 600 800 Meters

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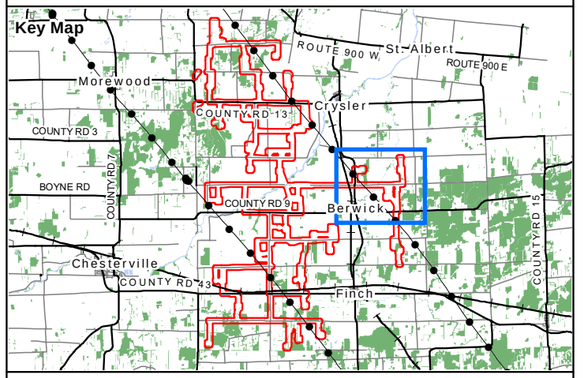
Map 7 - 7

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

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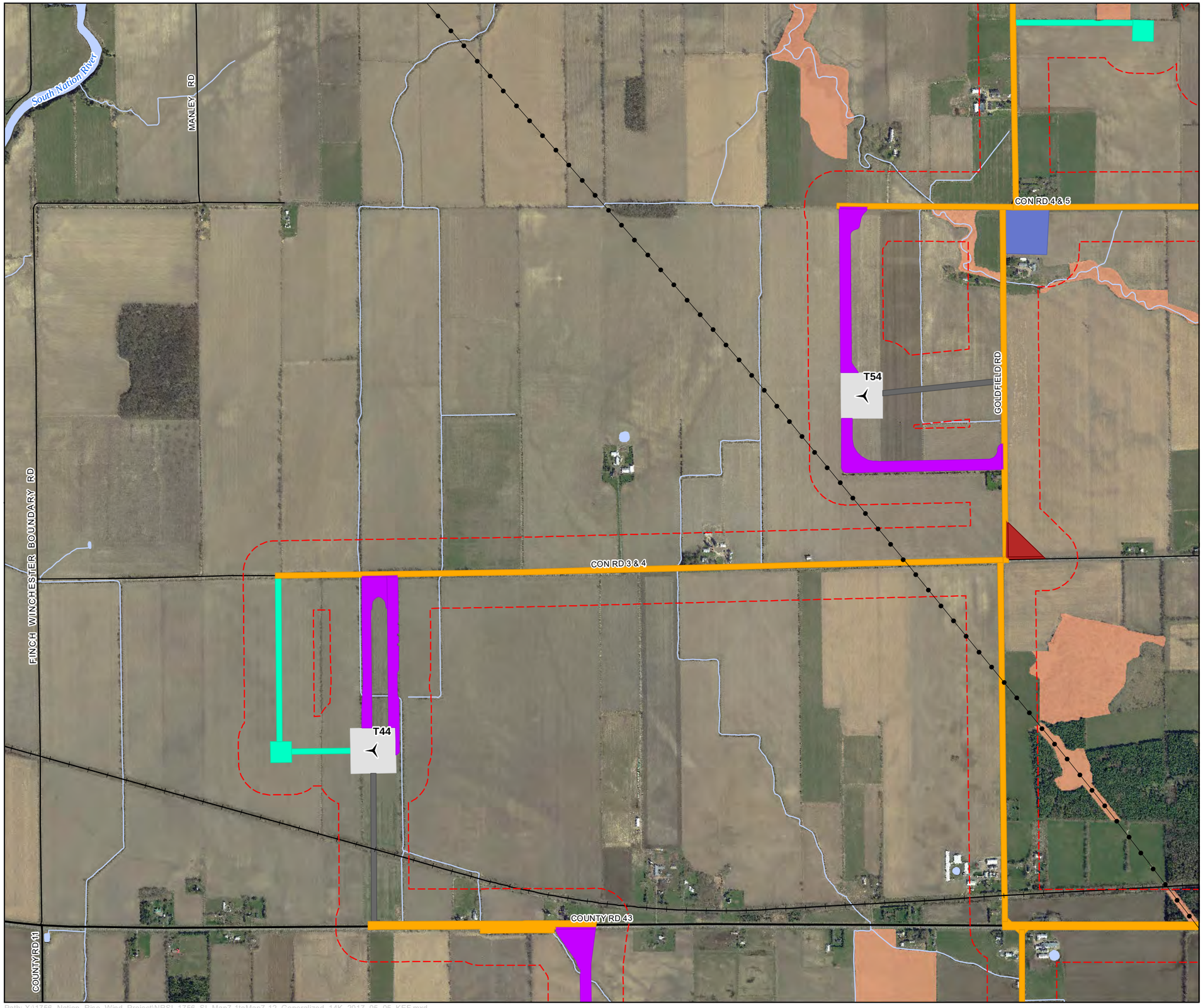
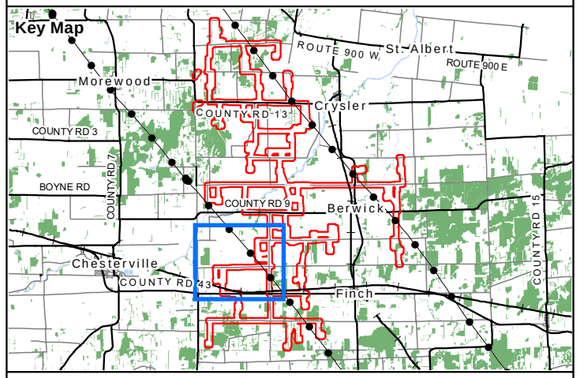
Map 7 - 8

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat





Legend

- Utility Line
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- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
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- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown
- Proposed Temporary Turning Radius
- Proposed Meteorological Tower Footprint and Access Road

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

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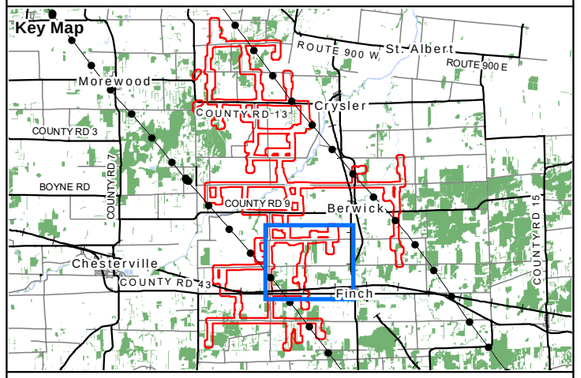
Map 7 - 9

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line
- Proposed Laydown Area
- Proposed Temporary Turning Radius
- Proposed Crane Path
- Proposed Meteorological Tower Footprint and Access Road

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

T32 T35 T38 T41 T47

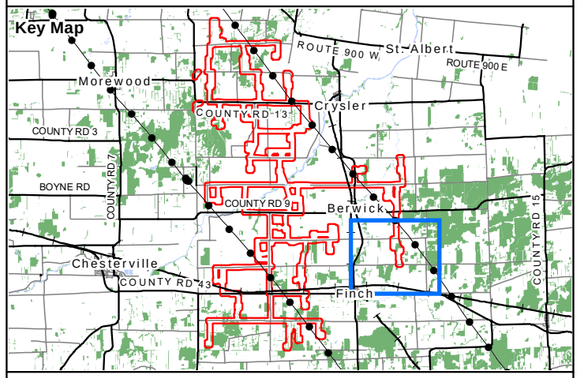
CON RD 4 & 5
CON RD 3 & 4
COUNTY RD 43
GOLDFIELD RD
FINCH MAIN ST
JAMES ST
WILLIAM ST
GEORGE ST
FRONT ST
Finch

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_SI_Map7-1toMap7-12_Generalized_14K_2017_05_05_KEF.mxd

Map 7 - 10

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

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0 200 400 600 800 Meters

N

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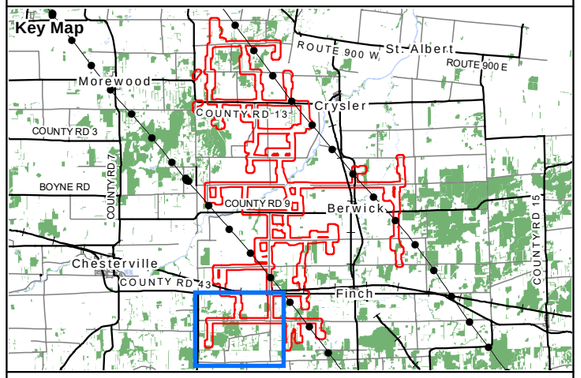
Map 7 - 11

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
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- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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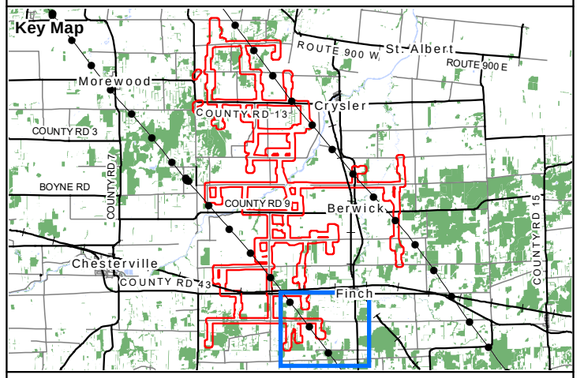
Map 7 - 12

Nation Rise Wind Farm

Generalized Candidate Significant Wildlife Habitat



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Generalized Candidate Significant Wildlife Habitat

Project Location

- Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Underground Collection System
- Proposed Turbine Laydown, Access Road, Collection Line

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Project: 1756 Date: May 5, 2017	NAD83 - UTM Zone 18 Size: 11x17" **1:14,000**

0 200 400 600 800 Meters

N

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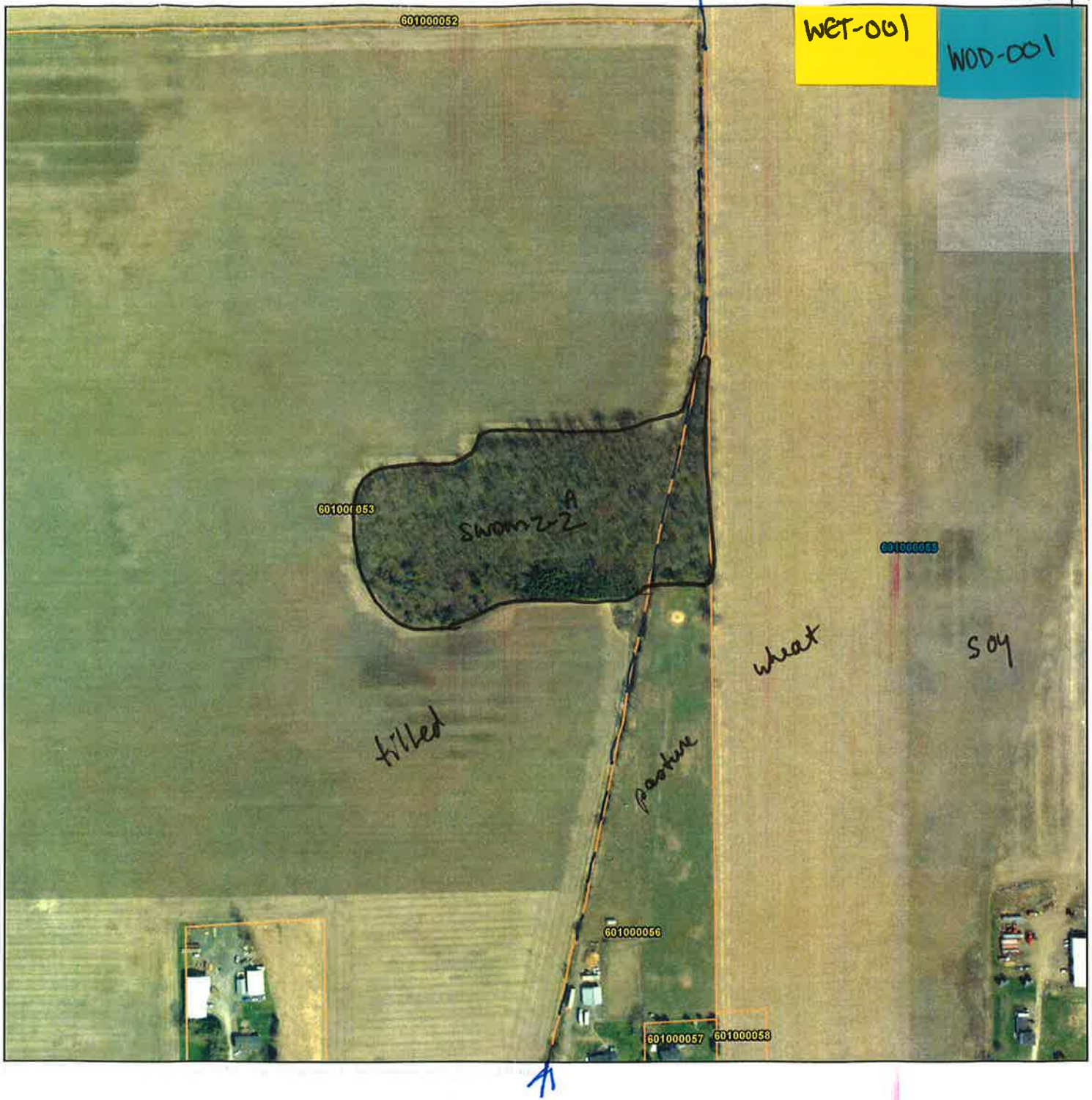
Appendix I
Site Investigation Field Notes

Appendix I
Site Investigation Field Notes

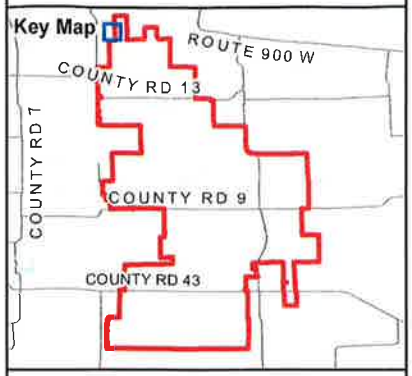
may 19 2016
Christy Humphrey, Amanda Bichel



Nation Rise Wind Project

Natural Features Field Map

Area 2



Legend

- Land Parcel
- Parcel with Access
- Parcel without Access

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT WOD-001 WET-001

Site: Nation Rise		1756
Polygon: Area 2		
UTM:		
Date: May 19, 2016	Time: 1817 - 1820	
Surveyor(s): Christy Humphreys, Amanda Bichel		
Weather: 18°C, Wind 3, CC 60%, No precip.		

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Cleeve/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Green Ash > white elm
2	Sub-canopy	3	2	Green Ash > White Elm > manitoba maple
3	Understorey	4 5	2	Ribes americanum, choke cherry, red elderberry, Red Raspberry
4	Groundcover	6 7		not visible

HT Codes: 1 >25m 2 25 10m 3 10 2m 4 2 1m 5 1 0.5m 6 0.5 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 10% 2 10 25 3 25 60% 4 >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	
Snags		< 10		10 - 24		25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes: N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:		
Polygon:		
UTM:		
Date:	Time:	
Surveyor(s):		
Weather:		

Layers: 710 2-10 0.5-2 <0.5 (1=canopy 2=sub-canopy 3=understorey 4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm	O	O	O		
Green Ash	A	O	O		
Manitoba Maple		O	O		
White Spruce		O	O		
Choke Cherry			O		
Red American Elderberry			O		
Red Elderberry			O		
Nannyberry			O		
Red Raspberry			O		

Species	Layer 1	2	3	4	Sample
Fragaria virginiana				O	

Wildlife and Other Notes

No Access

Photo 0266

SOS? AMRO... BCJA RWBL

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-001

hS1

Wetland Vegetation Communities

Area 2

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601000053
Observer(s): Christy Humphrey + Amanda Bichel		**ELC Code:** SWDM 2-2
Date: May 19, 2016	**Time (24h):** 18:12-18:20	
Wetland #: WET-001	**Weather:** Precipitation: None	Temp (° C): 18
Veg Community #: hS1	Wind Speed & Direction: 3	Cloud %: 60
Wetland Type: S	**Site Type:** P	**Dominant Form:** h
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds	
Photos: 286		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Green Ash (65) > White Elm (25) > Manitoba maple
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) clay loam per Matthews + Richards

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ∅ active beaver lodges/dams
- ∅ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ∅ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ∅ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map
- ∅ human related disturbances (fill, docks, houses, etc)
- ∅ evidence of recreational activities (nature appreciation, fishing, hunting)
- ∅ locations of seeps or springs, lagg
- ∅ iron precipitates, marl deposits
- ∅ winter cover for wildlife
- ∅ ungulate summer habitat, moose aquatic feeding habitat
- ∅ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ∅ dec. forest; ∅ recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ∅ fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  none visible.
- ∅ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

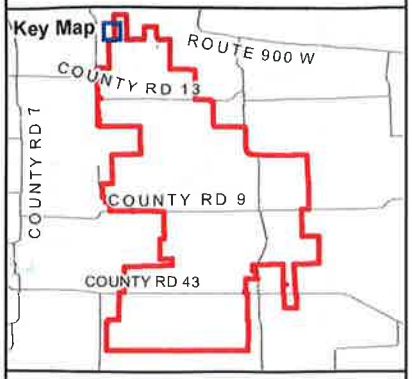
Attach full species list and wetland map.

Dec 7 2016 Christy Humphrey Christina Cather

Nation Rise Wind Project

Natural Features Field Map

Area 2



Legend

- Land Parcel
- Parcel with Access
- Parcel without Access

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-001

ES.S2

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601000053	
Observer(s): Christy H. Christina C.		**ELC Code:** SWT	
Date: Dec. 7 2016	**Time (24h):** 0835		
Wetland #: WET-001	**Weather:** Precipitation: snow	Temp (° C): -4	
Veg Community #: ES S2	Wind Speed & Direction: 3	Cloud %: 100	
Wetland Type: S	**Site Type:** P	**Dominant Form:** ES	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos: 484			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 40)	deciduous trees - remnants from clear cut
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) clay loam per Mathews + Richards.

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟿)
  See map
- ○ human related disturbances (fill, docks, houses, etc)
  Clear cut of mature trees Only small saplings remain.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools ? unknown
- ○ invasive species (plant, aquatic)
  unknown

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

May 19 2016
CH, PB

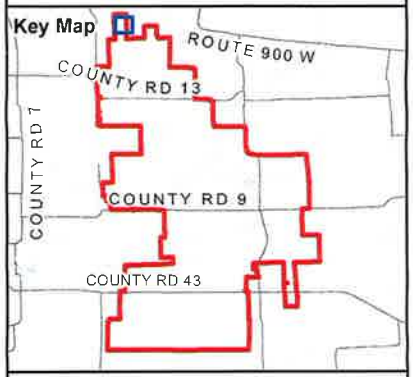
WET-002

WOD-002

Nation Rise Wind Project

Natural Features Field Map

Area 1



Legend

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Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-002 WET-002

Site: Nation River	1756
Polygon: Area 1-A	
UTM:	
Date: May 19, 2016	Time: 16:45 - 17:50
Surveyor(s): Christy Humphrey, Amanda Bickel	
Weather: 18°C, Wind 3, 0%, Rain	

Community Classification

Vegetation Type:	SWCR1-White Cedar Calcareous Rock/Bedrock Coniferous Swamp	
X	Inclusion:	RBTB1 Calcareous Treed Rock Barren Ecosite
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mat	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock (X)	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Rolling Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Soil/Soil Dep	Floating-Lvd	Bryophyte	
	Bedrock (X)	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	——
1	Canopy	2	4	White Cedar >> White Elm > Green Ash
2	Sub-canopy	3	3	White Cedar >> White Elm > Manitoba Maple > Green Ash
3	Understorey	4/5	2	Red Raspberry > Choke Cherry > Alt-lvd Dogwood > Rubus americana
4	Groundcover	6/7	2	Moss >> Goldenrod sp. > Fragaria virginiana > Virginia Creeper

HT Codes: 1 >25m 2 25 - 10m 3 10 - 2m 4 2 - 1m 5 1 - 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 - 10% 2 10 - 25 3 25 - 60% 4 >60%

Size Class Analysis	0	< 10	0	10 - 24	A	25 - 50	0	> 50
Snags	0	< 10	0	10 - 24	0	25 - 50	A	> 50
Deadfall/Logs	0	< 10	0	10 - 24	0	25 - 50	R	> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ____of____

PLANT SPECIES LIST

Site:		
Polygon:		
UTM:		
Date:	Time:	
Surveyor(s):		
Weather:		

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar	A	O	O	D	
White Elm	O	O	O	O	
Manitoba Maple		O	O		
Green Ash	O	O	O	O	
Trembling Aspen					
Virginia creeper				O	
Rubus occidentalis			R		
Riverbank Grape				O	
Alt-lvd Dogwood		R	O		
Red Raspberry			O		
Rubus americana			O		
Choke Cherry			O		
Red Elderberry			O		

Species	Layer 1	2	3	4	Sample
Tuberous Lily				O	
Lady Fern				O	
Reed Canary				R	
Goldenrod sp.				O	
Enchanter's Nightshade				O	
Fragaria Virginiana				O	
Ranunculus acris				R	
Galium mollugo				O	
Ostrich Fern				O	

Wildlife and Other Notes

- Very shallow, stony soil over bedrock.
- In center of polygon, bedrock is at the surface, karst topography - gravel - cracks, fractured.
- Green ash growing from cracks between patterned bedrock.
- Elsewhere in polygon, large boulders are common at the surface (natural)

> RBTB1 inclusion (10m x 10m)

Photos: 270 - 283

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-002

Site:	Nathan Rise 1756
Polygon:	Area 1-B
UTM:	
Date:	May 19, 2016 Time: 17:50-18:30
Surveyor(s):	Christy Humphrey, Amanda Bichel
Weather:	18°C, wind 2, cc 80%, No precip.

Community Classification

Vegetation Type:	WOOM5-2 Fresh-Moist Elm Deciduous Woodland
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mat	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	X Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

Layer	HT	Cover	Species
* Super-canopy		0	—
1 Canopy	2	1	Trembling Aspen > White Elm
2 Sub-canopy	1-2	3	White Elm > Trembling Aspen > Green Ash > Common Apple
3 Understorey	0.5-1		Nannyberry > White Elm > Trembling Aspen > Red Osier
4 Groundcover	0.1	4	Grasses > Goldenrod sp. > Fragaria virginiana > Wild Parsnip

50% canopy cover

HT Codes: 1 = 25m 2: 25 - 10m 3 10 - 2m 4 2 - 1m 5 1 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 10% 2 10 - 25 3 25 - 60% 4 >60%

Size Class Analysis	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 0.1-5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash		O	O		
White Elm	R	O	O		
Trembling Aspen	R	O	O		
White Cedar		O			
Hawthorn sp.		O			
Red Osier			O		
Meadowsweet				O	
Nannyberry		R	O		
Red Raspberry				O	
Common Apple		O	O		

Species	Layer 1	2	3	4	Sample
Wild Carrot				O	
Wild Parsnip				O	
Goldenrod sp.				A	
Fragaria virginiana				O	
Dandelion				O	
Smooth Brome				O	
Grasses				A	

Wildlife and Other Notes

Photos 294, 295 In the process of being cleared

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-002

CS1

Wetland Vegetation Communities

Area 1-A

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 601000059

Observer(s): Christy Humphrey + Amanda Bichel **ELC Code:** SWCR1

Date: May 19, 2016 **Time (24h):** 16:45 - 17:50

Wetland #: WET-002 **Weather:** Precipitation: Rain Temp (° C): 18°C

Veg Community #: CS1 Wind Speed & Direction: 3 Cloud %: 100

Wetland Type: S **Site Type:** I **Dominant Form:** C

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 278 - 283

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 20)	White Elm (40) > Green Ash (35) > Manitoba maple (15)
c (%: 60)	White cedar (100%)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: 0-30cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) Clay loam / Sandy loam Some bedrock out

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock per Matthews & Richardson

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; F=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- Ø locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- Ø wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- Ø plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent - - - - ⟶
  none Isolated
- ○ human related disturbances (fill, docks, houses, etc)
  ongoing, active clearing at edges
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- Ø locations of seeps or springs, lagg
  - depression area in centre with no trees, high grasses, perhaps some seasonal seepage (but not at this time)
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
  cedars
- Ø ungulate summer habitat, moose aquatic feeding habitat
- Ø suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; Ø dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O ~~row~~ crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; Ø ~~fence~~ rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; Ø rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- Ø vernal pools
- Ø invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-002 WET-002

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:**	
Date: May 14 2016	**Start Time:** 4:45pm	**End Time:** 6:15pm	**Observers:** Amanda Trichet, Christy Humphrey
Weather Conditions: 80% cloud cover, 18°, light precip, wind=3			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor	✓		
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst	✓		Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Project Name:	Nator Rise	Project #:	17-51a	Date:	May 19, 2019	Area and/or Polygon ID:	

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Karst	1	04R1095 5007478 ±10m	280-282	•10m x 10m area • crevices w/ Foot deep small trees growing out between some fissures. to candidate snake hibernaculum	

TY	Species	EV	#	Notes
B	Blue Jay	S	5	
	Robin	S	6	
	Chickadee	D	06	
	Red-tailed Hawk	S	02	
	American Crow	S	2	
	Barn Swallow	S	5	
	Crow	S	5	
V	Spotted Towhee	S	5	
M	raccoon	SI	1-dead	

TY	Species	EV	#	Notes
M	Coyote	SC	1	
B	Yellow rumped warbler	S	2	
B	Red-tailed hawk	SI	1	Feathers

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

December 7, 2016 Christy H.
0830-0840 Christina C.

PROPERTY LINE ASSESSMENT

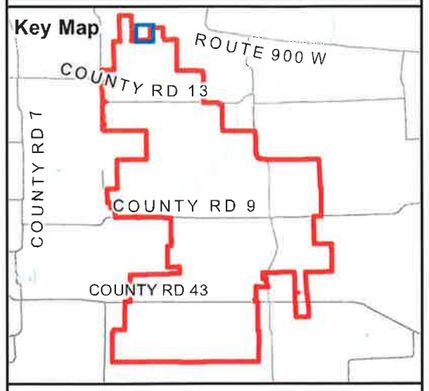
Dec. 7 2016
Christy Humphrey, Christina Carter

WOD-003

Nation Rise Wind Project

Natural Features Field Map

Area 5 & 6



Legend

- Utility Line
- Secondary Road
- Land Parcel

air photo interp. —

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LER.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT

Site: Nation Rise	1756
Polygon: 601000068	Area 6
UTM:	
Date: Dec. 7 2016	Time: 15:00 – 15:15
Surveyor(s): Christy Humphrey, Christina Carter	
Weather: 4°C, RC 70%, Wind 1, No precip	

Community Classification

Vegetation Type:	MEMM3 Dry-Fresh Mixed Meadow Ecosite
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Mat	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	X Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	White Ash, manitoba maple
2	Sub-canopy	3	2	White Elm > Hawthorn sp = White cedar
3	Understorey	3/4	2	Hawthorn sp > Solidago sp > Wild carrot
4	Groundcover	1/6	4	Grasses (Smooth Brome)

HT Codes: 1 >25m 2 25 10m 3 10 2m 4 2 1m 5 1 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 10% 2 10 25 3 25 - 60% 4 >60%

Size Class Analysis		< 10		10 - 24		25 - 50		> 50
	O		R		R		N	
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes: N None R Rare O Occasional A Abundant

Community Age								
	X Pioneer		Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 7/0 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm		O			
White Cedar			O		
Red Pine			O		
Manitoba Maple	R				
White Ash	R				
Common Apple		R			
Hawthorn sp		O	O		

Species	Layer 1	2	3	4	Sample
Solidago sp.			O		
Smooth Brome			O	A	
Wild Carrot			O		

Wildlife and Other Notes

Surveyed from Roadside.

Photo 512

Lots of dead young Elm

Wildlife Habitat Field Data Collection WOD-003

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Pipe	**Project #:** 1756	**Area and/or Polygon ID:** Area C 6010000608	
Date: Dec. 7/16	**Start Time:** 15:00	**End Time:** 15:15	**Observers:** CH, CJC
Weather Conditions: 4°C, 90% CC, wind 1, no precip.			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7/16

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: Area 6 601000068

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow	1	—	—	Habitat type.	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Downy Woodpecker	OB	1	Foraging in tree					
B	American Crow	S	1						
B	Snow Goose	OB	~3,000	Flying over towards NW					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

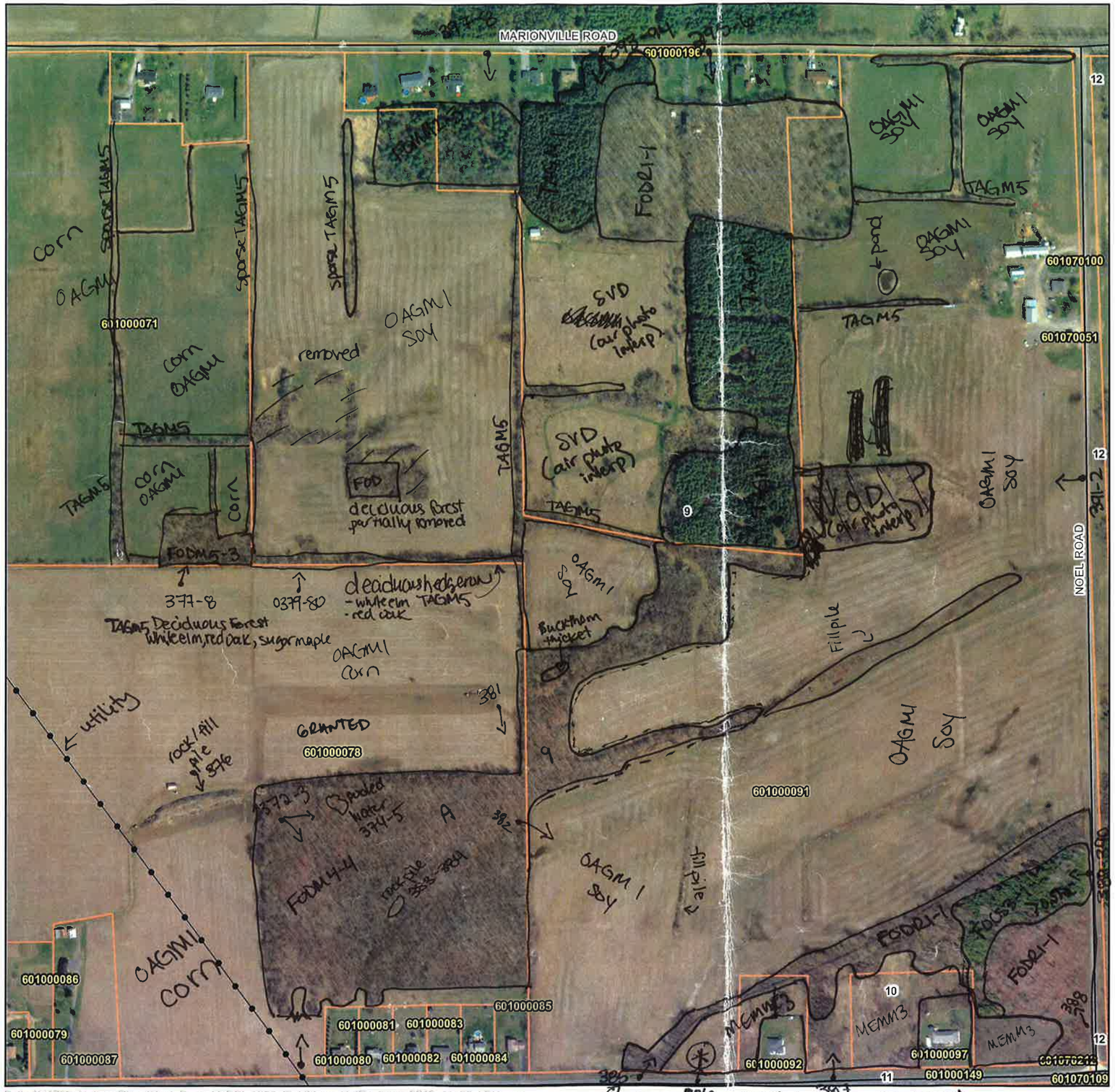
Dec 6 2016
EMB KLB

WET-003 | WOD-004 | WOD-005

Nation Rise Wind Project

Natural Features Field Map

Area 9 & 10

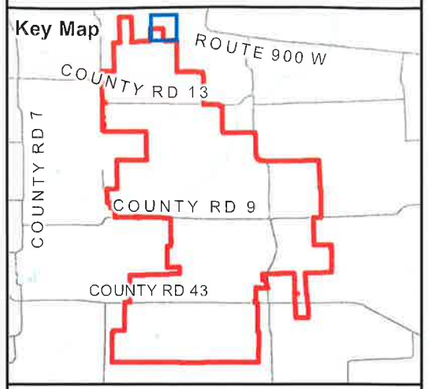


Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

(drain in [illegible] deciduous)

(*) = wild carrot / goldenrod sp. meadow roadside)

Key Map



Legend

- Utility Line
- Secondary Road
- Land Parcel

601000078 - Granted

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Project: 1756	NAD83 - UTM Zone 18
Date: November 2, 2016	Size: 8.5 x 11"
	1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-004

Site:	1756 Nation Rise Wind Project
Polygon:	6010000798 (feature 9) 9 A
UTM:	
Date: DEC 6 2016	Time: 7:55-10:35
Surveyor(s): ~~PWD~~ EMB / KLB	
Weather: -7°C wind 2 W cc:20%	Precip: Fog

Community Classification

Vegetation Type:	FOD M41 Dry-Fresh Immature Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	3	Hop Hornbeam / White Elm, / Sugar maple
2	Sub-canopy	3	4	Hop Hornbeam / White Elm / Sugar Maple -
3	Understorey	4	4	European Buckthorn / Hop Hornbeam
4	Groundcover	6	1	grass sp. = red raspberry

← snow cover

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	N	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X	Young	X	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	6010000798 (feature 9)
UTM:	
Date: Dec 6 2016	Time: 7:55
Surveyor(s): ~~PWD~~ EMB KLB	
Weather: -7°C wind 2W CC:20% precip: fog	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm	O	O	R		
~~Acer~~ Malus domestica		R			
Manitoba Maple		R			
Green Ash	R	R			
Sugar Maple					
European Buckthorn		O	D		
White Ash	O	O			
Juglans sp.		R			
Hop Hornbeam	D	O	R		
Norway Maple	R			R	
Black Walnut		R		R	

Species	Layer 1	2	3	4	Sample
wild carrot				R	
prickly ash			O		
~~Juglans~~ Juglans nigra (black walnut)				R	
red raspberry				R	
grass sp.				R	

Wildlife and Other Notes

Grass sp. = red raspberry

Exposed rock

Perched water - pics 374-375

Clay loam soils, 2m deep, over bedrock.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PROPERTY LINE ASSESSMENT WOD-004

Site:	1756 Nation Rise Wind Project
Polygon:	Feature 9 - 601000196 - Roadside
UTM:	
Date:	DEC 6 2016 Time: 12:10-12:31
Surveyor(s):	~~PWD~~ EMB KLB
Weather:	Temp 0°C Wind 2W Precip None CC: 5%.

Community Classification

Vegetation Type:	TAGM1 - Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
X Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	X Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	white spruce
2	Sub-canopy	3	3	white spruce
3	Understorey	5	3	Greydogwood > staghornsumac > Hawthorn -> roadside
4	Groundcover	7		

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

-roadside

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	X Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	Feature 10 - 601000196 - roadside
UTM:	
Date:	DEC 6 2016 Time: 12:10
Surveyor(s):	PWD EMB KLB
Weather:	0°C wind 2W Precip: None cc: 5%.

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White spruce	D	D			
staghorn sumac			R		
greydogwood			R		
Hawthorn sp.			R		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

*Did not do Skull Habitat form -> roadside from distance photos 391-392

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PROPERTY LINE ASSESSMENT WOD-004

Site:	1756 Nation Rise Wind Project
Polygon:	Feature 9-60100096-Roadside
UTM:	
Date: Dec 6 2016	Time: 12:31-12:53
Surveyor(s):	PWD EMB KLB
Weather:	Temp 0°C Wind SW 10 precip. CC: 5%

Community Classification

Vegetation Type:	FODR1-1 Dry-Fresh Sugar Maple Shallow Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	Sugar maple >> white elm
2	Sub-canopy	3	3	Sugar maple >> White elm
3	Understorey	4	2	Sugar Maple (saplings)
4	Groundcover	1		

→ roadside ROW only

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	R	10 - 24	M	25 - 50	M	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

→ roadside

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	D	D	D		
White Elm	O	O			

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

photos 395-396

Assessed from Roadside.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PROPERTY LINE ASSESSMENT WOD-004

Site:	1756 Nation Rise Wind Project
Polygon:	Feature 9-601000196-Roadside
UTM:	
Date:	Dec 6 2016 Time: 12:45-12:53
Surveyor(s):	PWD EMB PWD
Weather:	Temp 0°C Wind 2W No precip <5%

Community Classification

Vegetation Type:	TAGM1 - Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
X Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	X Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Sufficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	White spruce >> white elm
2	Sub-canopy	3	4	white spruce >> white elm >> sugar maple
3	Understorey	5	2	tall goldenrod
4	Groundcover	7		

→ roadside & snowfence

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	R	25 - 50	M	> 50
Snags	M	< 10	R	10 - 24	N	25 - 50	A	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50	M	> 50

→ roadside

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
white spruce	D	D			
White elm	O	O			
sugar maple		R			

Species	Layer 1	2	3	4	Sample
tall goldenrod			O		

Wildlife and Other Notes

see wildlife form photos 393-4

Assessed from Roadside.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PROPERTY LINE ASSESSMENT WOD-004

Site:	1756 Nation Rise Wind Project
Polygon:	Feature 9 - Polygon 96 - Roadside
UTM:	
Date: Dec 6 2016	Time: 12:53 - 13:10
Surveyor(s): ~~PWD~~ EMB KLB	
Weather: Temp 0°C No precip. CC 5% wind 2W	

Community Classification

Vegetation Type:	FOMN2-3 DM-Fresh Whitepine Hardwood Mixed Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll/ Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	X Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—	NA	NA
1	Canopy	2	4	White Pine > Sugar maple = White Elm
2	Sub-canopy	3	3	White Pine > White elm > Sugar maple
3	Understorey	4	2	sugar maple
4	Groundcover	7		

→ roadside ROW cover

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Snags	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	O	R	R		
White Elm	O	O			
White Pine	O	O			

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photos 397-398

Assessed from roadside

Wildlife Habitat Field Data Collection WOD-004

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rec	**Project #:** 1756	**Area and/or Polygon ID:** 6010620 78 (feature 9)	
Date: Dec 6/16	**Start Time:** 7:52	**End Time:** 13:10	**Observers:** EHO PWD KLB
Weather Conditions: -7°C Wind: 2 W Pr: 20% Precip Fog			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		X	
Vernal Pool	X		
Pond		X	
Shallow Marsh (MAS) or Open Water		X	
Swamp		X	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		X	
Meadow	X		
Thicket, Woodland, Hydro Corridor	X		
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst	X		Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		X	
Old Rock or Debris Pile, Old Stone Fence	X		
Abandoned Road or Rail Bed		X	
Abandoned Well		X	
Old Foundation		X	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		X	
Medium		X	
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec 6 2016

Project Name: [illegible] Pipe **Project #:** 1756 **Area and/or Polygon ID:** Feature 9

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Ob Rock Pile	1	0482641500 7672	384, 383	-large boulders, snow covered, 3ft x 3ft blks, pile is 10m x 2m	None >120m
Vernal pool	1	0452649 5007690	374, 375	- pooled water (image), 4m x 5m ~10cm deep @ deepest	None
Utility corridor not SWH -> over corn field & no change in veg/habitat	1	—	—	over corn field & no change in vegetation or habitat	None
Karst	1	scattered within FODM4-4	—	FODM4-4, unknown depth of cracking (no specific cracking observed, rather just large chunks of rock)	None Generalized
Meadow	1	see map	386, 387	MEMM3 adjacent to Forest (FODR1-1 and FOCS3-1)	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
M	Eastern Cottontail	TK	N/A						
M	Raccoon	TK	N/A						
B	Black-capped Chickadee	S	1*						
B	American Robin	S	2**						

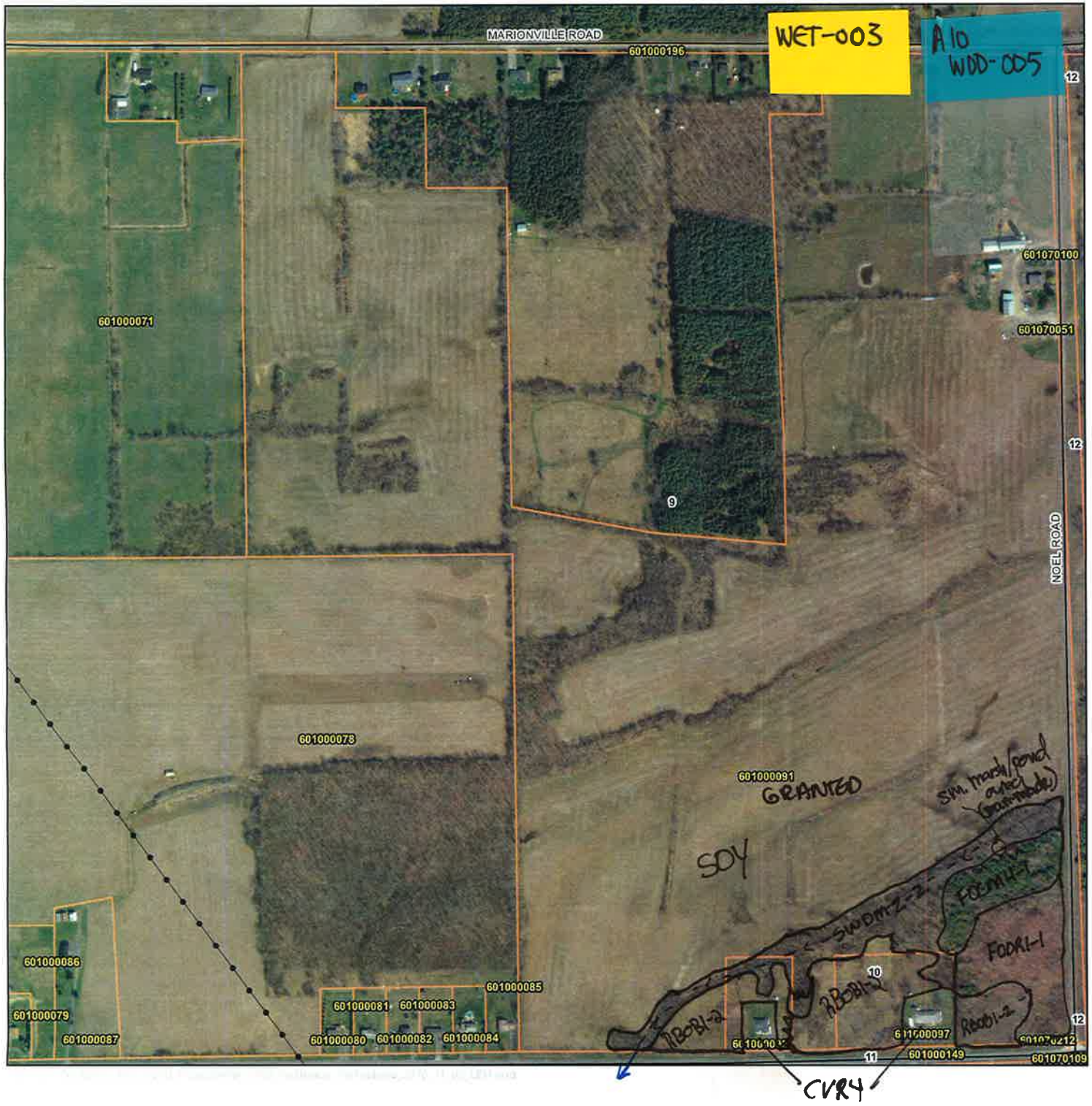
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

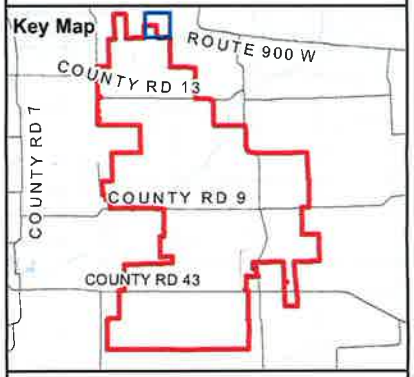
Feb 3 2017
JBB, AMC



Nation Rise Wind Project

Natural Features Field Map

Area 10



Legend

- Utility Line
- Secondary Road
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756	NAD83 - UTM Zone 18
Date: November 2, 2016	Size: 8.5 x 11"
	1:6,000

0 50 100 150 Meters

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-005

Site: NATION RISE	1756
Polygon: 601000091	Area 10
UTM:	
Date: Feb 3 2017	Time: 16:00 – 16:18
Surveyor(s): TBB AMC	
Weather: -5°C, ~70%, wind W, no precip	

Community Classification

Vegetation Type:	FOR1-1 Dry-Fresh Sugar Maple Hardwood Calcareous
Inclusion:	Shallow Deciduous Forest Type
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	/ Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	/ Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Hop Hornbeam = sugar maple
2	Sub-canopy	3	4	Hop Hornbeam = Sugar maple
3	Understorey	4-5	2	Hawthorn sp. ? common buckthorn
4	Groundcover	0-3	–	Snow covered – cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembl aspen	O	O			
Hop Hornbeam	A	A	O		
White Elm		O			
Sugar Maple	A	A			
White Ash	O	O			
Apple		R			
Bur Oak	O	O			
Hawthorn sp.	O	O			
W. White Cedar	O	O	O		
Black Cherry	R	R			
Am. Beech	O	O			
Large tooth aspen	O	O			
Alternate leaved dogwood			O		
Prickly Ash			O		
Glossy Buckthorn			O		
Hawthorn Sp.			O		
C. Juniper			R		
C. Buckthorn			O		

Species	Layer 1	2	3	4	Sample
Staghorn Sumac				R	

Wildlife and Other Notes

- 4 cores completed depth to bed rock 5-15cm
- 15 cm core done on highest topographic point
- Some outstanding elms @ DBH, old Sugar Maple/American Beech
- Snow covered, cannot assess topographic ground cover.

Photos: 160204-161722

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-005

Site: NATION RISE			1756
Polygon: 601000091			Area ID
UTM:			
Date: Feb. 3, 2017	Time: 16:52 - 17:05		
Surveyor(s): JBB, AMC			
Weather: -5°C, cc 70% w IW, no precip			

Community Classification

Vegetation Type:	FOCM4-1 Fresh-Moist White Cedar Coniferous Forest Type
~~Inclusion:~~	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2		White Cedar > Tremb. Aspen > White Birch
2	Sub-canopy	3		White cedar > trembling aspen
3	Understorey	4-5		white cedar
4	Groundcover	1-7	/	snow cover-cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	< 10	10 - 24	25 - 50	> 50
Snags	< 10	10 - 24	25 - 50	> 50
Deadfall/Logs	< 10	10 - 24	25 - 50	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	/ Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
White Cedar	D	D	O								
Sugar Maple	O	O									
Trembling Aspen	O	O									
White Elm		O									
White Birch		O									

Wildlife and Other Notes

- Depth to bedrock ~ 50cm
- significant snow cover, cannot assess topography or ground cover.

Photos: 165254

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:			
Aspect:			
%			
Type:			
Class:			

Polygon: FOC M4-1

Strata:	Texture	vfSC		
	Depth	23cm		
Strata:	Texture	fSC		
	Depth	56cm		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture				
Surface Stoniness		—		
Surface Rockiness		—		
Depth to:				
	Mottles	38cm		
	Gley	909		
	Bedrock	56cm		
	Water table	?		
	Carbonates	23cm		
Depth of Organics		3cm		
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		2		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

soil horizon A appears to have organics

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-005 WET-003

Site: NATION RISE	175
Polygon: 601009091	Area 10
UTM:	
Date: Feb 3, Feb 4, 2017	**Time:** 17:07 - 17:30, 08:00-08:20
Surveyor(s): JBB, AMC	
Weather: -5°C, cc 70%, w 1 W, no precip.	

Community Classification

Vegetation Type:	SWDM 2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	/ Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	/ Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	4	4	green ash > white elm
2	Sub-canopy	3	3	green ash > white elm
3	Understorey	4/3	2	common buckthorn > hawthorn sp.
4	Groundcover	6/7	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis							
	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	A	A	O		
White Elm	O	O			
White Cedar	O	O			
Trembl. Aspen	O	O			
Sugar Maple	O	O			
Bur Oak	O	O			
Min. Maple	O	O			
Prickly Ash			O		
Staghorn Sumac			O		
Hawthorn sp.			O		
Alternate-leaved dogwood			O		
River bank grape			O		
Common buckthorn			O		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

BCCH Very variable topography with variable species. Care taken, showed 10cm organics over clay. Community to east contains green ash with sugar maple in 10cm organic, then green ash dominated following riverine feature heading west. Snow covered ground layer, cannot assess below

Photos: 080720-081612

small pond feature observed - snow covered, but can be seen on aerial

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-003

hS1-A

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60100091

Observer(s): JBB, AMC **ELC Code:** SWDM2-2

Date: Feb 3, Feb 4, 2017 **Time (24h):** 1507-1730 0800-0820

Wetland #: WET-003 **Weather:** Precipitation: no precip Temp (° C): -5

Veg Community #: hS1-A Wind Speed & Direction: W Cloud %: 70

Wetland Type: S **Site Type:** **Dominant Form:** h

Permanent Open Water: 1 % **Check one:** (X) central area ( ) spread out in ponds 1 small pond/marsh

Photos: 080720-08161

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	green ash 7% white elm
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SC Mineral [X] Organic [ ] Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock 2 10 cm organics

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ⊘ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  See map, snow covered
- ⊘ human related disturbances (fill, docks, houses, etc)
  channel appears man-made
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ⊘ winter cover for wildlife
  nearby FOC white cedar community
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  shallow soils, within slight depression
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊗ dec. forest; O recent cutover or clearcut (<5yr); ⊗ conif. forest; O mixed forest; O crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ⊘ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  unable to assess, snow covered
- ○ vernal pools
- ⊘ invasive species (plant, aquatic)
  common buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site: NATION RISE	1756
Polygon: 60100091	Area 10
UTM:	
Date: Feb. 3, 2017	Time: 16:20 - 16:50
Surveyor(s): JBB, AMC	
Weather: -5°C, cc 70%, w/W, no prec.	

Community Classification

Vegetation Type:	RBOB1-2 Calcareous Open Rock Barren Meadow Tyl
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	/ Meadow
Aquatic	/ Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	/ Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
/ Open	Open Water	Plankton	/ Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	/ Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	1	green ash
2	Sub-canopy	3	1	white elm
3	Understorey	45	2	Hawthorn sp. > 1.3m, smooth buckthorn > 1.3m, eastern red cedar
4	Groundcover	67	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	/ Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm		O			
White Pine			R		
White Cedar			O		
Sugar Maple		R	O		
White Ash		R			
green ash	R	R			
River bank grape			R		
Hawthorn sp.		O	O		
Staghorn Sumac		O	O		
C. Buckthorn			O		
C. Juniper			R		

Species	Layer 1	2	3	4	Sample
Wild Carrot			O		
Upright Brome			O		
Smooth Brome			O		
Early Goldenrod			O		

Wildlife and Other Notes

- 3 cores done < 15cm
- Black-capped Chickadee
- Photos: 162539-164512
- Rested - continuous
- meadow adjacent to forest communities with hawthorn areas between transition of communities, overall, shrub cover <25%
- calcareous bedrock observed, snow covered ground layer, cannot assess below (including bedrock cover)

WOD-005 WET-003

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE	**Project #:** 1756	**Area and/or Polygon ID:** ARSAID 601000091	
Date: Feb 3 and 4, 2014	**Start Time:** 16:20 / 8:00	**End Time:** 17:30 / 8:40	**Observers:** JBB, AMC
Weather Conditions: ~5 or 10°C, WIW, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond	✓		
Shallow Marsh (MAS) or Open Water	✓		
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	✓		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Project Name:	Project #:	Area and/or Polygon ID:	Date:
NATION RISE	1756	AREA ID. 601000091	Feb. 3 and 4, 2017

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
POND/SHALLOW MARSH	1		Photos	- Cannot assess due to snow cover.	
SWAMP	1	SEE ELC MAP.	Photos: 080720-081612	- no nest/stick bowls. - long swale, along Area 10, ice of/open suggesting permanence	- NONE.
MEADOW	1	SEE ELC MAP.	Photos 160204-161722	- height of veg.: 0.1-2.5m (shrubs) - seed site - see ELC map. - some goldenrods/asters - no raptor perches. - transitioning into thicket.	- none
LARGE DBH Cavity Tree	3	- within forest adjacent to white cedar (See ELC map).	Photos 219-221	- Sugar maple - 0.8-1.25m DBH. - 1 cavity - no evidence from bats or other fauna	- none.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Black-capped Chickadee	VO	1						
B	Am. Goldfinch	VO	2						
M	Fauna	TK	1						
B	Am. Crow	OB	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec. 6, 2016
(8) (11)

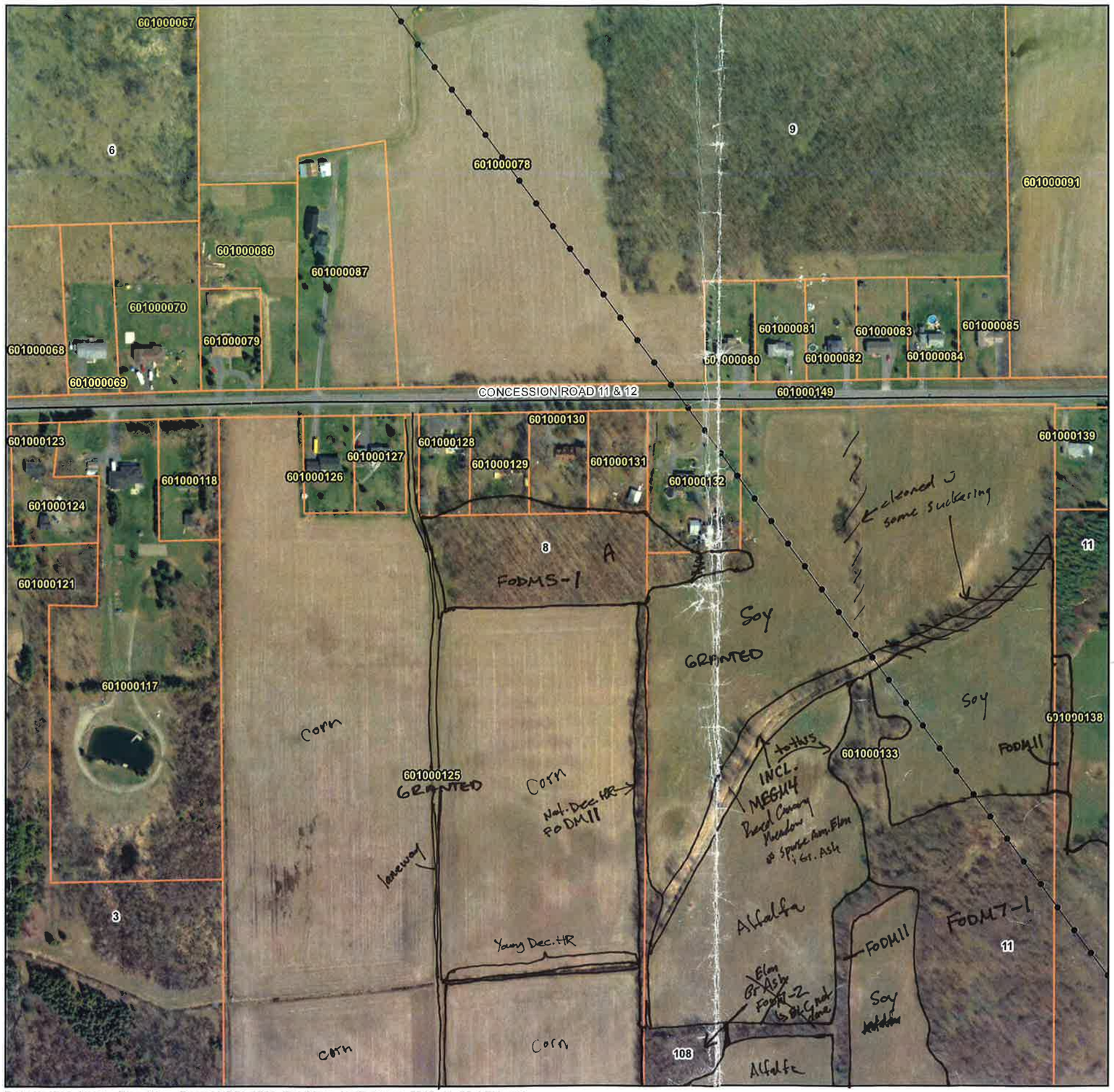
PWD

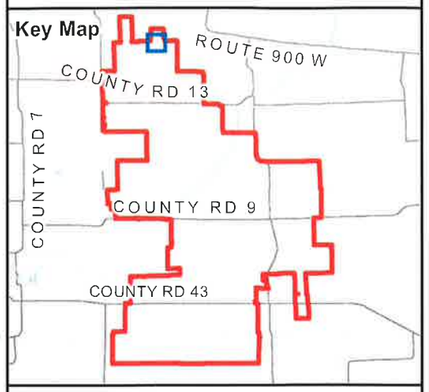
WOD-005

Nation Rise Wind Project

Natural Features Field Map

Area 8





Legend

- Utility Line
- Secondary Road
- Land Parcel

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Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-005

Site:	1756 Nation Rise Wind Project
Polygon:	8 601000125 A
UTM:	
Date: Dec.6.2016	Time: 1055 - 1109
Surveyor(s):	PWD
Weather:	-1°C, 10% c.c. wind 1/S. no precip.

Community Classification

	Vegetation Type:	FODM5-1 D-F Sugar Maple Dec. Forest Type.
X	Inclusion:	FODM11 Naturalized Dec. Hedgerow.
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Site	Plant Form		
Open		Open Water	Plankton	Forb	Coniferous
Shrub		Shallow Water	Submerged	Lichen	Mixed
X Treed	X	Surficial Dep	Floating-Lvd	Bryophyte	
		Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	1	4	Sugar Maple >> Am. Basswood > White Ash
2	Sub-canopy	2	2	Sugar Maple >> Am. Basswood > White Ash
3	Understorey	3	2	Sugar Maple = Chokecherry > Alt.-lvd Dogwood = Hop Horn.
4	Groundcover			

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	D	D	A		
Wh. Ash	R	R	O		
Chokecherry			O		
Com. Buckthorn			R		
Alt-lvd Dogwood			O		
Am. Basswood	O	R	R		
Bitternut Hickory	R				
Hop Hornbeam		R	O		

Species	Layer 1	2	3	4	Sample
Cannot observe (snow)					

Wildlife and Other Notes

Almost entirely (98%) Sugar Maple
E. Cottontail (TK)

Photos: 5893 – 5898

Modified ELC Community Description

Soils	1	2	3
Position:	T		
Aspect:	N/A		
%	0-0.5		
Type:	S		
Class:	A		

Polygon: 8.60100012S.FODHS-1

Strata: Texture	L		
Depth	68		
Strata: Texture	SiC		
Depth	68		
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture	L		
Surface Stoniness	0		
Surface Rockiness	0		
Depth to:			
Mottles	64		
Gley	No		
Bedrock	+68		
Water table	No		
Carbonates	42		
Depth of Organics	0		
Pore Size Disc #1	-		
Pore Size Disc #2	-		
Pore Size Disc #3	-		
Moisture Regime	3		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

Stopped auger at 68cm (not due to bedrock).

Wildlife Habitat Field Data Collection WOD-005

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 8, 60/000125, FODMS-1	
Date: Dec. 6, 2016	**Start Time:** 1055	**End Time:** 1109	**Observers:** PWD
Weather Conditions: See ELC			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 6, 2016

Project Name: Nation Rise WP Project #: 1756 Area and/or Polygon ID: 8. 601000125, FODMS-1

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
None obs.					

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
M	E. Cottontail	TK							

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec. 8, 2016

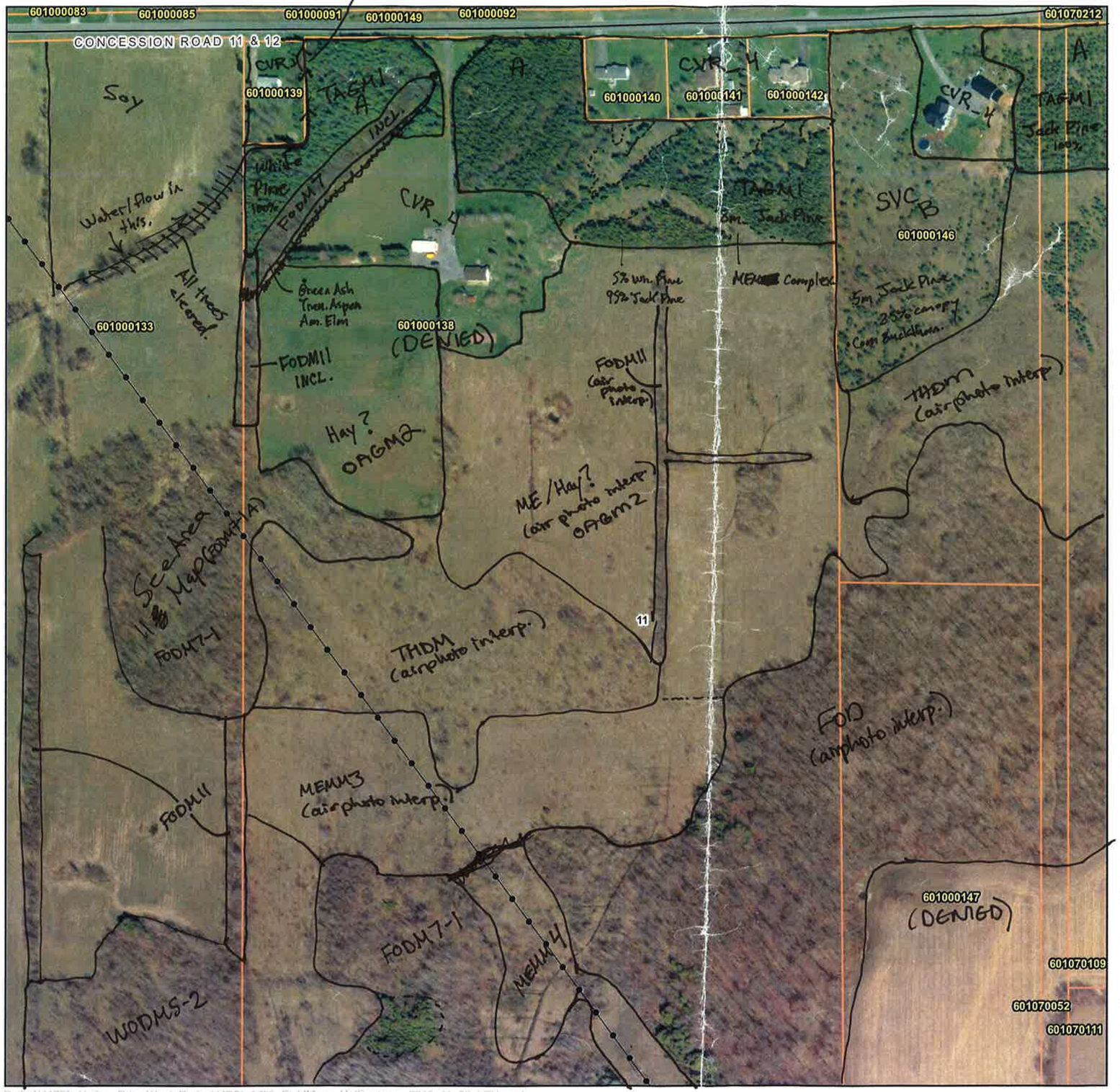
PWD

WOD-005

Nation Rise Wind Project

Natural Features Field Map

Area 11



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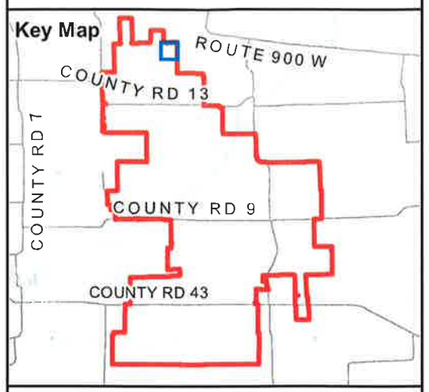

Legend

- Utility Line
- Secondary Road
- Land Parcel

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

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Modified ELC Community Description Page 1 of 2

PROPERTY LINE ASSESSMENT WOD-005

Site:	1756 Nation Rise Wind Project
Polygon:	11, 601000138 (Assessed from Con 11-12) A
UTM:	
Date:	Dec. 8, 2016 Time: 1115 - 1125
Surveyor(s):	PWD
Weather:	1°C, 95% cc, wind 2/NW, no precip.

Community Classification

	Vegetation Type:	TAGM1 Coniferous Plantation
X	Inclusion:	FODM7 F-m Lowland Deciduous Forest.
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
X Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	X Plantation

Cover			Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous	
Shrub	Shallow Water	Submerged	Lichen	Mixed	
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte		
	Bedrock	Graminoid	Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	3	4	Jack Pine / White Pine (depending on block)
2	Sub-canopy	–	–	–
3	Understorey	–	–	–
4	Groundcover	7	1	Wild Carrot

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	N	25 - 50	N	> 50
Snags	O	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

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Modified ELC Community Description Page 2 of 2

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
White Pine	D										
Wild Carrot				O							
Com. Burdock				R							
White Ash			R								
Jack Pine	D										
Wild Carrot				O							
Com. Buckthorn			O								
White Pine	R										

Wildlife and Other Notes

Photos: 5993, 5994 Surveyed from Roadside

Likely occurring on shallow soils over bedrock (given exposed bedrock at quarry across road).

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Modified ELC Community Description Page 1 of 2

PROPERTY LINE ASSESSMENT

Site:	1756 Nation Rise Wind Project
Polygon:	11, 601000146 (Assessed from Con. 11-12) B
UTM:	
Date:	Dec. 8, 2016 **Time:** 1115 - 1125
Surveyor(s):	PWD
Weather:	1°C, 95% cc, wind 2/NW, no precip

Community Classification

Vegetation Type:	SVC Coniferous Savanna
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	? Basic Bedrock	Valley Slope	Beach/Bar	Marsh	X Savannah
X Natural	Carb Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	? Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	3	2	Jack Pine
2	Sub-canopy	-	-	-
3	Understorey	4	2	Com. Buckthorn >> Jack Pine
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 2 of 2

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Jack Pine	O	O			
Com. Buckthorn			O		

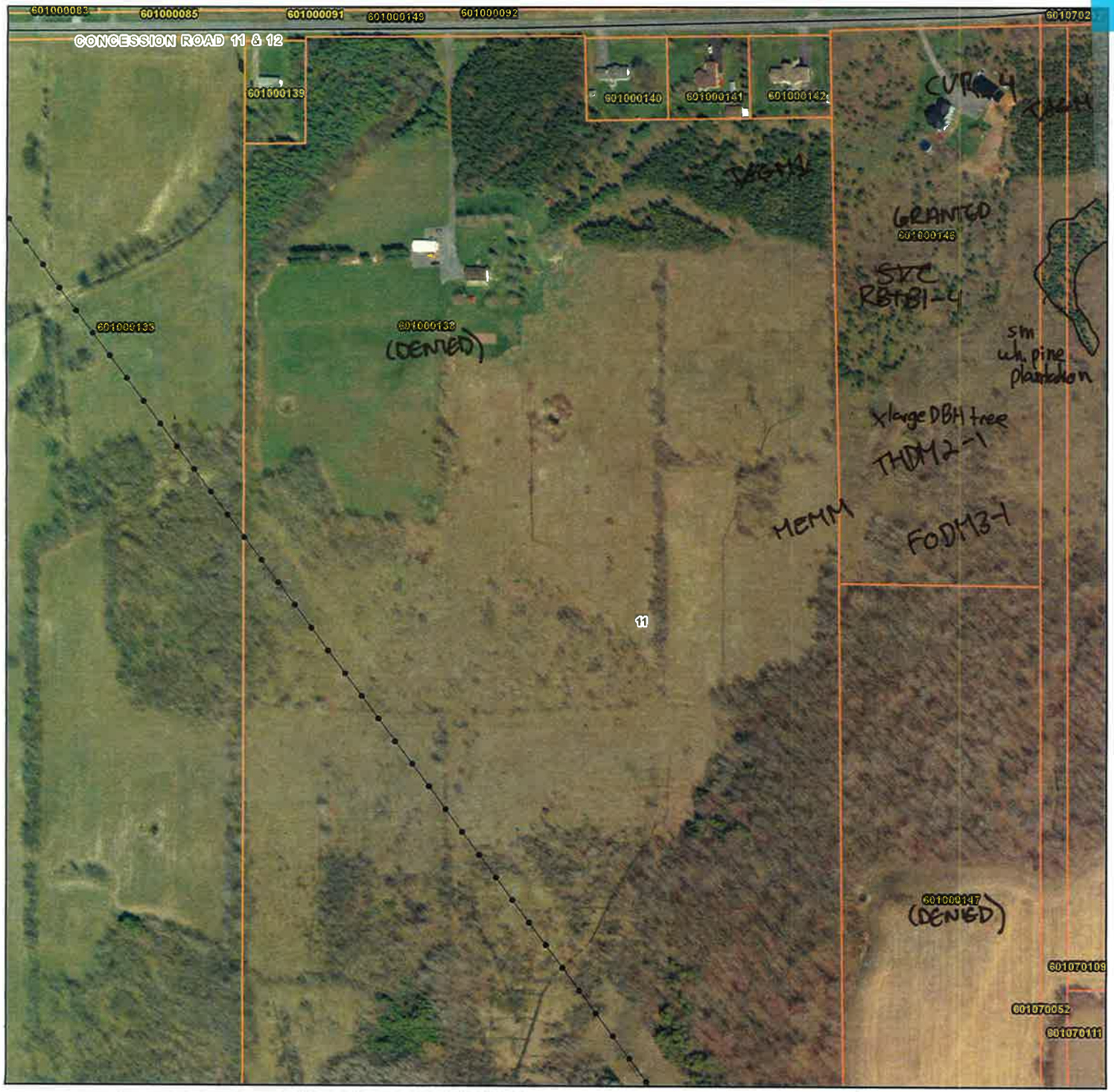
Species	Layer 1	2	3	4	Sample
Wild Carrot				?	
Grass species				?	

Wildlife and Other Notes

Photos: 5991 Surveyed from Roadside

- May be an 'open' community due to shallow soils or (less likely) due to anthropogenic management of the stand.
- Would appear that Jack Pine were planted, but community appears as a treed conifer savanna on shallow soils.

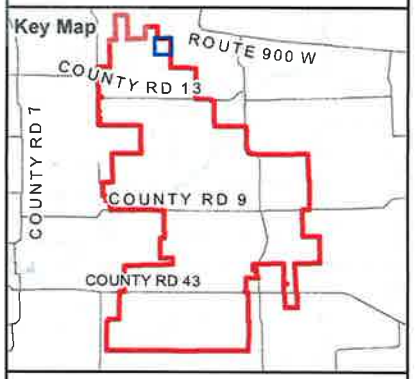
WOD-005 Jan. 20, 2017 JBB



Nation Rise Wind Project

Natural Features Field Map

Area 11



Legend

- Utility Line
- Secondary Road
- Land Parcel

*see previous ELC polylines, assessed as accurate.

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-005

Site: Nation Rise WP	1756
Polygon: 601000146-a	Area11
UTM:	
Date: Jan 20, 2017	Time: 12:47-13:00
Surveyor(s): JBB	
Weather: 2°C, cc100%, wIE no precip	

Community Classification

Vegetation Type:	TAGM1 Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Jack pine
2	Sub-canopy	3	3	Jack pine > white elm
3	Understorey	4-5	1	Jack pine > staghorn sumac > com.buckthorn
4	Groundcover	6-7	1	- COULD NOT ASSESS ACCURATELY -

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Jack Pine	D	D	O		
white elm		O			
green ash		R			
staghorn sumac			O		
riverbank grape			R		
hawthorn sp.			O		
blackraspberry			O		
common lilac			R		
tartarian honeysuckle			O		
red raspberry			O		
common buckthorn			O		

Species	Layer 1	2	3	4	Sample
smooth brome				O	
red clover				O	
wild strawberry				O	

Wildlife and Other Notes

Photos: 027

Northern cardinal, cedar waxwings, blue jay, b-capped chickadee

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-005

Site: Nation Rise WP.		1756
Polygon: 60100014 6-F		Area 11
UTM:		
Date: Jan 20, 2017	Time: 12:38-12:45	
Surveyor(s): JTB		
Weather: 2°C, cc 100%, w1E, no precip		

Community Classification

Vegetation Type:	TAGM1 Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Jackpine
2	Sub-canopy	3	3	Jackpine
3	Understorey	4-5	1	Jackpine > common buckthorn > riverbank grape
4	Groundcover	6-7	1	- could not assess accurately -

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	C	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N None R Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
jack pine	D	D	O								
red raspberry			O								
tartarian honeysuckle			O								
riverbank grape			O								
common buckthorn			O								

Wildlife and Other Notes

photos: 025, 026

sharp shinned hawk

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise WP		1756
Polygon: 6C1000146-6		Area 11
UTM:		
Date: Jan 20, 2017	Time: 10:35 - 11:06	
Surveyor(s): JBB		
Weather: 2°C, ~100%, wlE, no precip		

Community Classification

Vegetation Type:	RBTB1-4 Jack Pine Treed Rock Barren
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	/ Savannah
/ Natural	/ Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	/ Coniferous
Shrub		/ Surficial Dep	Submerged	Lichen	Mixed
/ Treed		/ Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	1	Jack pine (41%)
2	Sub-canopy	3	2	Jack pine >> white elm > staghorn sumac
3	Understorey	4-5	2	Jack pine > staghorn sumac
4	Groundcover	6-7	4	-COULD NOT ASSESS ACCURATELY-

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	/	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:			
Polygon:			
UTM:			
Date:		Time:	
Surveyor(s):			
Weather:			

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

	Species	Layer 1	2	3	4	Sample
	jack pine	A	A			
	white elm		O			
N	prickly ash			O		
	black raspberry			O	O	
	riverbank grape			O		
	multiflora rose			O		
	common juniper			O	O	
	common lilac		O	O		
	crataegus sp.		O	O		
	common buckthorn		O	O	O	
	tatarian honeysuckle			O		
	staghorn sumac		O	O		

	Species	Layer 1	2	3	4	Sample
	smooth brome				O	
	canada thistle				O	
	grass-leaved goldenrod				O	
	teasel				O	

Wildlife and Other Notes

Photos: 001-009

- Culturally influenced, high level of invasive shrubs in Jack pine plantations to the east and west! Not believed to be alvar
- though covered in snow, several probes revealed bedrock at surface (or stones)

black-capped chickadee, blue jay, mourning dove, northern cardinal

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site:	Nation Rise WP		1756
Polygon:	601000146-C		Area 11
UTM:			
Date:	Jan. 20, 2017	Time:	11:14-11:24, 12:05-12:30
Surveyor(s):	JBB		
Weather:	2°C, cc100%, wlE, no precip		

Community Classification

Vegetation Type:	THDM2-1	Sumac Deciduous Shrub Thicket Type
Inclusion:		
Complex:		

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	/ Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
/ Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	1	white elm > jack pine > white pine
2	Sub-canopy	3	2	staghorn sumac > jack pine > white elm
3	Understorey	4-5	3	staghorn sumac > common buckthorn
4	Groundcover	5-7	3	- CANNOT ACCURATELY ASSESS -

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	C	10 - 24	N	25 - 50	N	> 50
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	C	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
white elm	O	O	O		
common juniper			O		
jack pine	O	O	O		
white pine	O	O	O		

Species	Layer 1	2	3	4	Sample
grass-leaved goldenrod				O	
tall goldenrod				O	
thimbleweed				O	
vipers bugloss				O	
curly-leaf dock				O	
smooth brome				O	
common mullein				O	
wild carrot				O	

Species	Layer 1	2	3	4	Sample
red osier dogwood			C		
common lilac			O		
black raspberry			O		
riverbank grape			O		
woodbine			R		
red raspberry			O		
common buckthorn			O		
glossy buckthorn			O		
staghorn sumac			A	O	

Wildlife and Other Notes

Photos: 021-024,

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	6		
Aspect:			
%	5-2%		
Type:			
Class:	2		

Strata: Texture	SCL		
Depth	44cm		
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture	SCL		
Surface Stoniness	N/A		
Surface Rockiness	4		
Depth to:			
Mottles	23cm		
Gley	999		
Bedrock	44cm		
Water table	999		
Carbonates	0		
Depth of Organics	2cm		
Pore Size Disc #1			
Pore Size Disc #2			
Pore Size Disc #3			
Moisture Regime	2		

Polygon: THDM2-1

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

~1 foot of snow over surface; stoniness and topography difficult to judge, appears some bedrock may be at surface

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Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT

Site: Nation Rise WP	1756
Polygon: 601 000146-d	Area 11
UTM:	
Date: Jan 20, 2017	Time: 11:25-11:37
Surveyor(s): JBB	
Weather: 2°C, cc 100%, w 1E, no precip	

Community Classification

Vegetation Type:	MEM Mixed Meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	/ Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
/ Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	/ Mixed
Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	0	
2	Sub-canopy	3	1	hawthorn sp.
3	Understorey	4-5	1	tall goldenrod > smooth brome
4	Groundcover	6-7	4	- COULD NOT ASSESS ACCURATELY -

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	N < 10	N 10 - 24	N 25 - 50	N > 50
Snags	N < 10	N 10 - 24	N 25 - 50	N > 50
Deadfall/Logs	N < 10	N 10 - 24	N 25 - 50	N > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	/ Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
hawthorn sp.		R	R		

Species	Layer 1	2	3	4	Sample
wild carrot				O	
tall goldenrod				A	
smooth brome				A	
orchard grass				O	
burdock				O	

Wildlife and Other Notes

Photos: 010 - 013

Covered in significant snow, species/abundance/topography/rockiness difficult to assess

ASSESSED FROM PROPERTY LINE

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise WP	1756 -
Polygon: 601000146-e	Area 11
UTM:	
Date: Jan 20, 2017	Time: 11:38 - 12:04
Surveyor(s): JBR	
Weather: 2°C, cc100%, w1E, no precip	

Community Classification

Vegetation Type:	FODM3-1 Dry-fresh Poplar Deciduous Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	trembling aspen > sugar maple > white elm
2	Sub-canopy	3	4	trembling aspen > sugar maple > white elm
3	Understorey	4-5	2	trembling aspen > white elm > common buckthorn
4	Groundcover	6-7	1	- CANNOT ASSESS ACCURATELY -

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
trembling aspen	A	A	O	O	
whitebirch	O	O			
red oak	R				
hop hornbeam		O			
bitternut hickory		O			
white elm	O	O	O		
sugar maple	O	O			
common buckthorn		O	O		
red osier dogwood			R		
multiflora rose			O		
hawthorn sp.		O	O		

Species	Layer 1	2	3	4	Sample
thimbleweed				O	

Wildlife and Other Notes

Photos: 016 - 020

Modified ELC Community Description

Page __ of __

Soils

	1	2	3
Position:	6		
Aspect:			
%	~0		
Type:			
Class:	a		

Polygon: FODM3-1

Strata: Texture	SCL	SCL	
Depth	5cm	56cm	
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture	SCL	SCL	
Surface Stoniness	*	*	
Surface Rockiness	*	*	
Depth to:			
Mottles	999	48cm	
Giey	999	53cm	
Bedrock	5cm	?	
Water table	999	999	
Carbonates	0	0	
Depth of Organics	3cm		
Pore Size Disc #1			
Pore Size Disc #2			
Pore Size Disc #3			
Moisture Regime	~~0~~	4	

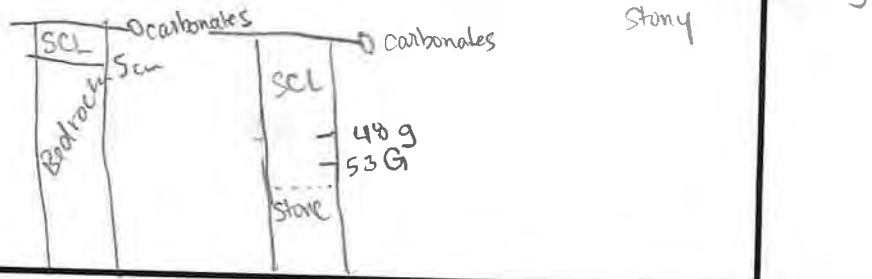
Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

Caldrot core #2 further than 56cm due to large stones

*Unable to assess surface stoniness/rockiness due to snow cover, but relatively stony



Area11 WOD-005

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 601000146	
Date: Jan 20, 2017	**Start Time:** 10:35	**End Time:** 13:00	**Observers:** JBB
Weather Conditions: 2°C, cc 100%, w 1E, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor	✓		
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst			Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well			
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc)
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	✓		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar			Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community			Sources of disturbance (includes presence of exotics)

*several of the above spaces could not be assessed due to snow cover

Characteristics of Identified Wildlife Habitat

Project Name:	Project #:	Area and/or Polygon ID:	Date:
Nation Rise WP	1756	Area 11 601000146	

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow/Thicket	1 each	See ELC Map	010-013, 021-024	• No tracks/holes from rodents etc. using subnivean zone • Cows/horses may use area to graze • Many good perches are present	None
Large DBH Cavity Tree	1	See Map	014, 015	• Potentially provides appropriate habitat/ shelter • ~95 DBH Sugar Maple • small cavity on upper small branch • No evidence of use	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec 6 2016
EMB KLB

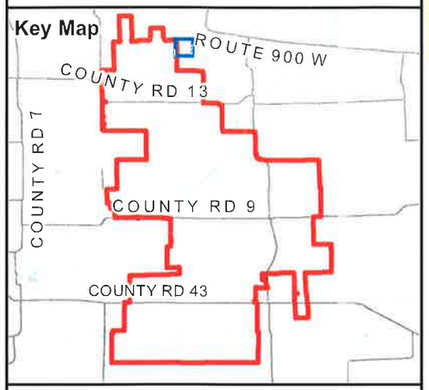
(Near WOD-005)

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

Nation Rise Wind Project

Natural Features Field Map

Area 11 & 13



Legend

- Secondary Road
- Land Parcel

601070110 Granted

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Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	601076110 Area 11 A
UTM:	
Date:	Dec 6 2016 Time: 13:20 - 14:45
Surveyor(s):	[redacted] FMB KLB
Weather:	temp: 0°C Window No precip cc: 5%

Community Classification

Vegetation Type:	MEMR1 Dry Fresh Calcareous Bedrock Mixed Meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	X Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	-	NA	NA
2	Sub-canopy	3	1	White elm
3	Understorey	4	1	Hawthorn sp > grey dogwood > red osier [illegible]
4	Groundcover	5	4	Meadow Fescue > canada bluegrass >> wild carrot

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	< 10	10 - 24	25 - 50	> 50
Snags	N < 10	N 10 - 24	N 25 - 50	N > 50
Deadfall/Logs	N < 10	N 10 - 24	N 25 - 50	N > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	[redacted]
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White elm		R			
Staghorn Sumac			R		
Hawthorn sp.			R		
r.o. dogwood			R	R	
European Buckthorn			R		
Grey Dogwood			R	R	
Manitoba Maple			R		
Jack Pine			R		

Species	Layer 1	2	3	4	Sample
wild carrot				O	
Meadow fescue				O	
common milkweed				R	
canadian blue grass				O	
canada thistle				O	
red raspberry				R	
crown vetch				R	
Sedge sp.				R	
black raspberry				R	
timothy				R	
riverbank grape				R	
common mullein				R	
prickly ash				R	
bull thistle				R	

Wildlife and Other Notes

PICS 399 - 403
SE wildlife farm
soil -> 20cm depth clay loam, [illegible]
exposed rock PICS 399-403

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation River **Project #:** 1756 **Area and/or Polygon ID:** 6010701110

Date: DEC. 6/16 **Start Time:** 13:20 **End Time:** 14:45 **Observers:** EMB ~~PWD~~ KLB

Weather Conditions: Temp 0°C Wind 2W Precip None CC 5%

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		X	
Vernal Pool		X	
Pond	✓		
Shallow Marsh (MAS) or Open Water		X	
Swamp		X	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		X	
Meadow	X		
Thicket, Woodland, Hydro Corridor		X	
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst	X		Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters)
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		X	
Old Rock or Debris Pile, Old Stone Fence	X		
Abandoned Road or Rail Bed		X	
Abandoned Well		X	
Old Foundation		X	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake	X		
Medium		X	
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec 6 2016

Project Name: Nation Rise WP | Project #: 1756 | Area and/or Polygon ID: Area 11

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
-Small Mammal Hole in Snow	2	0482649 5007662	403	-small mamal hole in snow (meadow)	-none
-Rock Wall	1	0484073 5008036	406, 407	-rock wall lining appx. level (15cm-1m diameter)	-none
-Rock Pile	1	0483828 5007910	409	-large rocks piled at edge of field -> both are too shallow	-none
-Karst	1	located sporadically throughout meadow	399, 400	unknown depth of possible cracks, few cracks observed	-None ✓
-Meadow	1	see map	399-403	MEMR1 - Dry Fresh Calcareous Bedrock Mixed Meadow small mammal tunnels observed in snow (approx. 1 inch diameter)	None
Pond	1	see map - on adjacent property	none	approximately 30m x 30m on airphoto.	-

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
M	White Tailed Deer	TK	N/A	408 pic					
B	Snow Geese	OB	200	410-411 - pics. flying overhead					
B	Snow Geese	OB	100	+100 (saw 1000 snow geese)					0483807 5007945 - See path on map

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

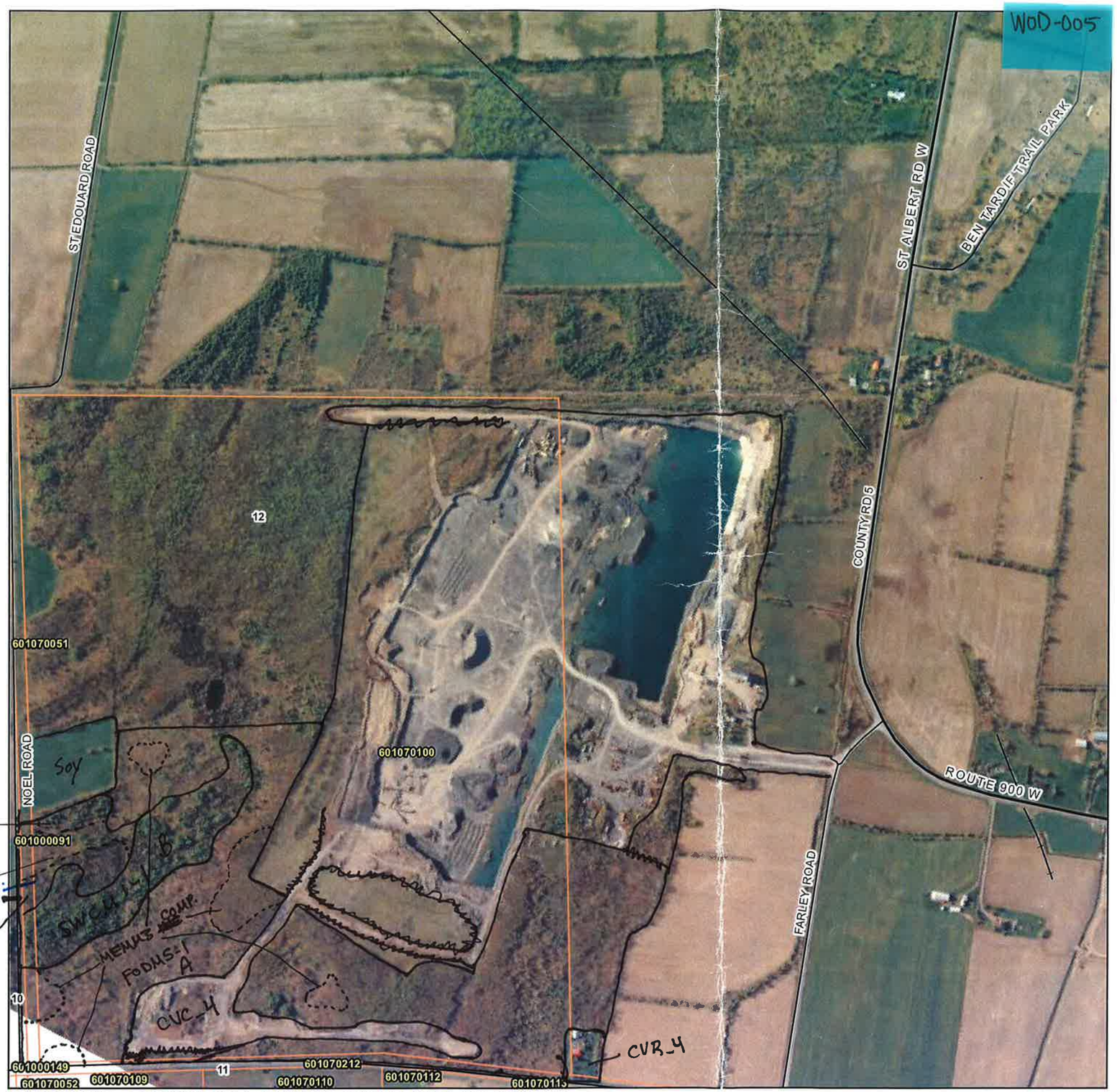
Dec. 8, 2016 PWD

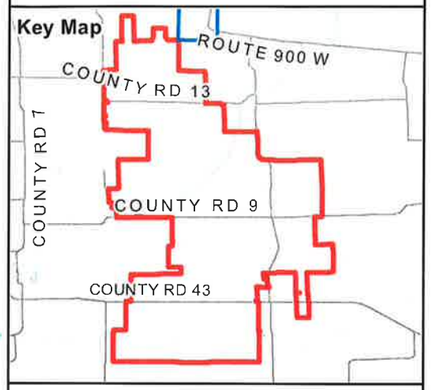
WOD-005

Nation Rise Wind Project

Natural Features Field Map

Area 12





Legend

- Primary Road
- Secondary Road
- Railway
- Land Parcel

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:9,000

0 50 100 150 Meters

N

P:\Projects\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LER.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 2

PROPERTY LINE ASSESSMENT WOD-005

Site:	1756 Nation Rise Wind Project
Polygon:	12, 601070100 (Quarry Property) B
UTM:	
Date:	Dec. 8, 2016 **Time:** 1305 - 1335
Surveyor(s):	PWD
Weather:	2°C, 80% c.c, wind 2/NW, no precip.

Community Classification

Vegetation Type:	SWCM1-1 White Cedar Mineral Conif. Swamp Type.
X **Inclusion:**	TAGM1 Coniferous Plantation (Wh. Pine)
X **Inclusion Complex:**	FODM7-1 F-M-Wh. Elm Dec. Lowland Forest
X **Inclusion**	SWTM3 Willow Min Dec. Thicket Swamp

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	2	Trem. Aspen > Am. Elm
2	Sub-canopy	3	4	White Cedar >> Trem Aspen = Am. Elm
3	Understorey	4	2	Trem. Aspen > Com. Buckthorn > Wh. Cedar
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	C	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 2 of 2

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	R				
Am. Elm	O	O			
Com. Buckthorn			O		
Grey Dogwood			O		
White Cedar		A	O		
Red Osier Dogwood			O		
Trem. Aspen	O	O	O		
Willow sp.			R		

Species	Layer 1	2	3	4	Sample
Wild Carrot				O	
N.E. Aster				O	
Goldenrod sp.				O	
Cattail sp.				R	

Wildlife and Other Notes

Photos: 5996 - 5998

Surveyed from Roadside

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-003

cSS

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 600107 0100
Observer(s): PWD		**ELC Code:** SW CM1-1
Date: Dec. 8 2016	**Time (24h):** 1305 - 1335	
Wetland #: WET-003	**Weather:** Precipitation: None	Temp (° C): 2
Veg Community #: CSS	Wind Speed & Direction: 2/NW	Cloud %: 90
Wetland Type: S	**Site Type:** P	**Dominant Form:** C
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds	
Photos: 5996 - 5998		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%20)	Trembling Aspen 7 White Elm
c (%:70)	White Cedar
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:40)	Trembling Aspen 7 common Buckthorn Red Osier, Gray Dogwood
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) Shallow

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ⊘ active beaver lodges/dams
- ⊘ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ⊘ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ⊘ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent - - - - ⟶)
  all inlets
- ⊘ human related disturbances (fill, docks, houses, etc)
- ⊘ evidence of recreational activities (nature appreciation, fishing, hunting)
- ⊘ locations of seeps or springs, lagg
- ⊘ iron precipitates, marl deposits
- ○ winter cover for wildlife
  cedar
- ⊘ ungulate summer habitat, moose aquatic feeding habitat
- ⊘ suitability for waterfowl breeding, staging, moulting
- ⊘ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊘ dec. forest; ⊘ recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; ⊘ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊘ fence rows; ⊘ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; ⊘ rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  unknown
- ○ invasive species (plant, aquatic)
  buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PROPERTY LINE ASSESSMENT

Site:	1756 Nation Rise Wind Project
Polygon:	12,60\070100 (Quarry Property) A
UTM:	
Date: Dec. 8, 2016	Time: 1340 – 1430
Surveyor(s):	PWD
Weather:	2°C, 80% c.c, wind 2/NW, no prec. p.

Community Classification

Vegetation Type:		FODM5-1 D-F Sugar Maple Dec. Forest
	Inclusion:	
X	**Complex:**	MEHM3 D-F Mixed Meadow

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	2	4	Sugar Maple
2	Sub-canopy	3	2	Sugar Maple > Am. Elm
3	Understorey	4	2	Staghorn Sumac > Com Buckthorn
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	A	O	O		
Am Elm	O	O			
Staghorn Sumac			O		
Com. Buckthorn			O		
White Cedar		R			
E. Red Cedar			O		
Manitoba Maple		O			

Species	Layer 1	2	3	4	Sample
Wild Carrot				O	
Grasses				O	

Wildlife and Other Notes

Photos: 5999 (complex of open areas), also 6001
6000 Sugar Maple stand
6002 Quarry access
6003, 6004 berm.
Surveyed from Roadside

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 12,601070100	
Date: Dec. 8, 2016	**Start Time:** 1305	**End Time:** 1430	**Observers:** PWD
Weather Conditions: See ELC sheet			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Project Name:	Project #:	Area and/or Polygon ID:	Date:
NationRise WP	1756	12.60\070100	Dec. 8. 2016

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Old Rock Pile	1	Rock/soil berm along Conc.11-12 between Noel Rd east to residence.	6002 6003 6004	• Long-standing berm (10yrs+) with 50% south-facing (+/- full sun). • Bedrock, concrete fragments and loose soil all visible in side of berm. • Likely sitting atop bedrock. • Areas sparsely vegetated with weeds and others with shrubs and young trees. Begins at blocked off entry to quarry on Conc. 11.	None observed. ✓

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
	None observed								

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

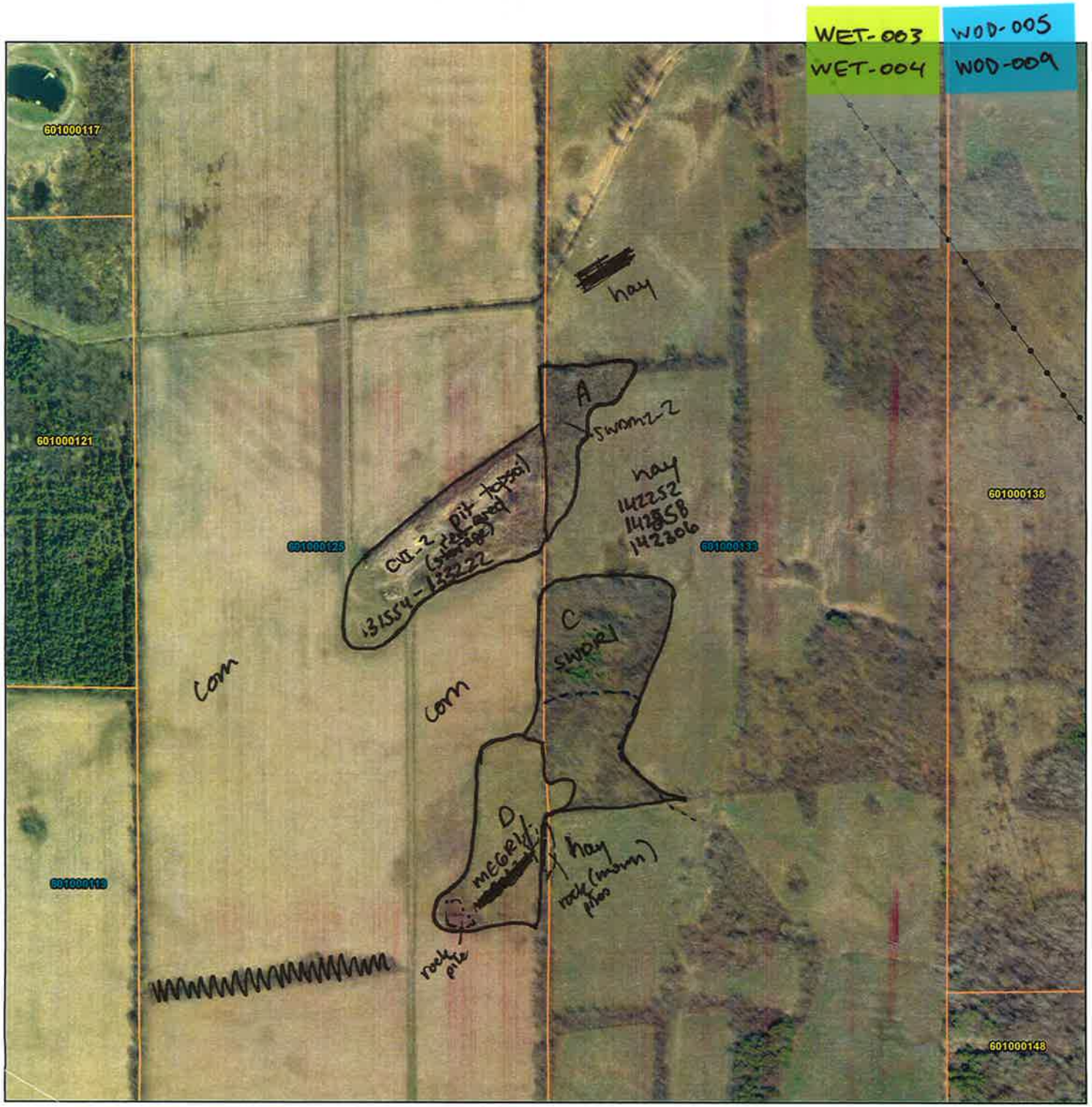
Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

WOD-005

Feb 16 2017 CHH.

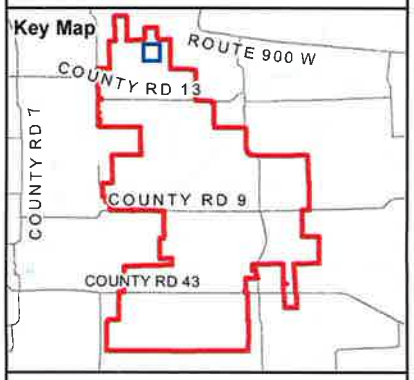
June 9 2016
CLH CP



Nation Rise Wind Project

Natural Features Field Map

Area 107 & 108



Legend

- Utility Line
- Land Parcel
- Parcel with Access
- Parcel without Access

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-005 WET-003

Site: NATION RISE	1756
Polygon: Area 108-A	
UTM:	
Date: JUNE 9 2016	Time: 1335 - 1430
Surveyor(s): CHRISTY, HUMPHREY, CAROLINE, PERICH	
Weather: 12°C, CC 40%, Wind 4 /SW, no precip	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	2	Green Ash > Basswood > Trembling Aspen > Bur Oak
2	Sub-canopy	3	4	Green Ash > Common Buckthorn > White Elm > Bur Oak
3	Understorey	4/5		Common Buckthorn > Green Ash >
4	Groundcover	6/7		Virginia Creeper > Enchanter's Nightshade > Choke Cherry > Green Ash

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	< 10	10 - 24	25 - 50	> 50
Snags	< 10	10 - 24	R 25 - 50	> 50
Deadfall/Logs	A < 10	A 10 - 24	N 25 - 50	N > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	R	A	D	D	
White Elm		O			
White Cedar			R		
Bur Oak	R	R	R		
Butternut				R	
Trembling Aspen	R				
Basswood	R		R		
Scattered Shrubs			O		
Alternate-leaf Dogwood					
Toxicodendron rydbergii				O	
Choke Cherry				O	
Riverbank Grape				R	
Common Buckthorn		A	A	O	
Virginia Creeper				A	

Species	Layer 1	2	3	4	Sample
Lycopus americanus				O	
Carex aquatilis				O	
Common Plantain				R	
Carex albursina				O	
Enchanter's Nightshade				O	
Prosartium					

Wildlife and Other Notes

Old hedgerow along the N end h. ts

442550

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	6		
Aspect:			
%	0		
Type:	Simple		
Class:	A		

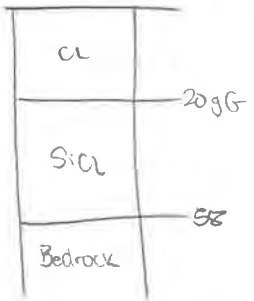
Polygon: 168 -A

Strata: Texture	CL		
Depth	20		
Strata: Texture	SiCl		
Depth	58		
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture			
Surface Stoniness			
Surface Rockiness			
Depth to:			
Mottles	20		
Gley	20		
Bedrock	58		
Water table			
Carbonates	none		
Depth of Organics			
Pore Size Disc #1			
Pore Size Disc #2			
Pore Size Disc #3			
Moisture Regime	6		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:



NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-003

hS17

Wetland Vegetation Communities

Area 108-A

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60/000133

Observer(s): Ch-Roty Humphrey Charlene Perkin **ELC Code:** SwDM2-2

Date: June 9, 2016 **Time (24h):** 13:35 - 14:30

Wetland #: WET-003 **Weather:** Precipitation: - Temp (° C): 12

Veg Community #: hS17 Wind Speed & Direction: 4 / SW Cloud %: 40

Wetland Type: S **Site Type:** I **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 142550

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 60)	Green Ash (80) > Basswood, Trembling Aspen / Bur Oak
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 40)	Common Buckthorn (50) > Green Ash (30) > White Elm, Bur Oak
ls (%: 30)	Common Buckthorn (35) > Choke Cherry (25) > Green Ash (20) > others
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Si CL Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: 58 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  none Isol.
- ○ human related disturbances (fill, docks, houses, etc)
  previously cleared, no regrowth
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  too dense
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools none observed. Unlikely even in wet years. Shrub growth too dense.
- ○ invasive species (plant, aquatic)
  Common Buckthorn.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-C09, WET-CC4

Site:	1756
Polygon:	(001000133
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Community Classification

Vegetation Type:	
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	X Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
X Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	Basswood > Bur Oak > Trembling Aspen
2	Sub-canopy	3	4	White Elm > (Common Buckthorn > Green Ash) >> White Cedar
3	Understorey	4	3	Common Buckthorn > Green Ash > White Elm > Prickly Gooseberry
4	Groundcover	5	4	Red Clover > Penstemon sp. > Virginia Creeper > Poa pratensis

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis →	A	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24		25 - 50		> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5.
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Basswood	R				
Green Ash		O	O	O	
Bur Oak	R		R		
White Cedar		*			
White Elm		A	O	O	
Trembling Aspen	R	R			
Riverbank Grape				O	
Prickly Gooseberry			O	O	
Meadowsweet				O	
Virginia Creeper				O	
Mt. Prickly Ash			O	O	
Common Buckthorn		A	O	O	

Species	Layer 1	2	3	4	Sample
Fragaria virginiana				O	
Fox glove Beardstongue				O	
Hogweed Agrimony				R	
Carex gracillima				O	
Poa Compressa				O	
Rugosa Plantain				O	
Kingdom (Anemone)				O	
Tufted Vetch				O	
Anemone virginiana				R	
Canada Thistle				R	
Ox-Eye Daisy				O	
Galium trifidum				O	
Poa palustris				R	
Timothy				O	
Goldenrod sp.				O	
Wild Parsnip				O	
Red Clover				O	
Moss				A	
Yarrow					

Wildlife and Other Notes

Soils - 15cm clay-loam over bedrock. No mottles or gley to 25cm → moisture Regime 0/Rapid.

Confirm with subcanopy vegetation dominated by White Elm & Green Ash

Some wet & some dry ground cover species

Tree height ~7-8m.

151213 - 152438

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use) Community ID: WET-004

ts S2

Wetland Vegetation Communities

Project Name: NIMMON RISE **Project #:** 1756 6d000133 Area 10B-C

Observer(s): CHRISTY HUMPHREY, CARLENE PERRIN

Date: JUNE 9 2016 **Time (24h):** 1445 - 1605

Wetland #: WET-004 **Weather:** Precipitation: None Temp (° C): 14

Veg Community #: ts S2 Wind Speed & Direction: 4 /SW Cloud %: 80

Wetland Type: Swamp **Site Type:** I **Dominant Form:** ts

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: IS1213 - 152438

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 80)	White Elm (40) Common Buckthorn (40) Green Ash (20)
ls (%:)	
gc (%: 30)	Red Clover (15) ? Penstemon digitalis (?)
ne (%: 75)	Poa pratensis (40) Carex gracillima (30)
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: — cm Organic Type: F M H Depth to bedrock: 20 cm max

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:
See separate wildlife sheet

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ⊘ active beaver lodges/dams
- ⊘ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ⊘ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ⊘ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  ✓ intermittent – but does not connect to anything. Dug ditch?
- ⊘ human related disturbances (fill, docks, houses, etc)
- ⊘ evidence of recreational activities (nature appreciation, fishing, hunting)
- ⊘ locations of seeps or springs, lagg
- ⊘ iron precipitates, marl deposits
- ⊘ winter cover for wildlife
- ⊘ ungulate summer habitat, moose aquatic feeding habitat
- ⊘ suitability for waterfowl breeding, staging, moulting
- ✓ surrounding topography (flat, rolling, hilly, steep)
  flat.
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ⊘ vernal pools
- ○ invasive species (plant, aquatic)
  wild parsnip

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site:	NATION RISE 1756
Polygon:	AREA 103 - D 601000125
UTM:	
Date:	JUNE 9 2016 Time: 1605 - 1620
Surveyor(s):	CHRISTY HUMPHREY, MARLENE PERRIN
Weather:	14°C, CC 80%, Wind 4 SW no precip

Community Classification

Vegetation Type:	MEGRI-DF Calcareous Bedrock Graminoid meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	1	White Ash, common Buckthorn
3	Understorey	3	1	Common Buckthorn
4	Groundcover	4	4	Poa pratensis >> Smooth Brome > Wild Parsnip > Black medic

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash		R			
Riverbank Grape					
Red Raspberry					
Virginia Creeper					
common Buckthorn		R			

Species	Layer 1	2	3	4	Sample
Poa pratensis				D	
Wild Parsnip				O	
Black medic				O	
Tufted Vetch				O	
Couchgrass				R	
common milkweed				O	
Field Chickweed				O	
meadow Goatsbeard				O	
common Mullein				O	
Goldenrod sp.				O	
Galium mollugo				O	
Bull thistle				O	
Catnip				O	
Dandelion				O	
Sulphur Cinquefoil				O	
Smooth Brome	O			O	

Wildlife and Other Notes

161457

WOD-005 WOD-009 WET-004 WET-003

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nina Reclaim **Project #:** 1756 **Area and/or Polygon ID:** 103

Date: 09/04/2006 **Start Time:** 13:30 **End Time:** 16:20 **Observers:** CE/PL

Weather Conditions: T12C W45KH CC 25% Rain 0

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic)
Pond		✓	Vegetation species, woody debris/basking logs within water Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation Size of site Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	✓		Evidence of small mammals Frequency and source of disturbance Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age Depth into the ground Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence	✓		Rock size Vegetation present Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance Soil Type Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location Proximity to water and type of water Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 09/09/2016

Project Name: Nor on Rea ...D Project #: 1756 Area and/or Polygon ID: 105

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Bat roosting trees (105A)	(2)			2/0.519ha = 3.85/ha. Not BMA.	
Old rock pile (105A)	1	0482920 5007078±6m		~25m long, 1m wide, 0.5-1m high full shade, near edge of forest - Not deep enough, it's shaded.	None
	1	0482920 5007021±8m		~8m long, 1m wide, 1-1.5m high part sun, at edge of forest - not deep enough.	E caprimulgus
Bat roosting trees (105C)	3			3/1.402ha = 2.02/ha. Not BMA.	
Old rock pile (105C)		0483390 5006836 ±7m		~15m long, 1m wide, 0.5-1m high, part sun, on edge of forest covered in vegetation (wild grape, virginia creeper, smooth brome) - not deep enough	None
		0483054 5006703 ±7m		~15m long, 1m wide, 0.5m high part sun, on edge of treed area, covered in vegetation (wild grape, poison ivy, virginia creeper) - not deep enough	None
		0483040 5006732±6m	16457	~30m long, 2.5-3m wide, 2m high full to part sun, along edge of field, partially covered in vegetation (wild grape, [illegible]) ✓	None
		0483006 5006656 ±6m		~20m long, 15m wide, 4m high ✓ full sun, in open field, partially covered in vegetation (wild grape, virginia creeper)	None

TY	Species	EV	#	Notes
M	White-tailed deer	TK		
M	E. caprimulgus	CA	1	
B	Song sparrow	S	1	
B	Northern flicker	S	1	
B	Mallard	NB	1	
B	Killdeer	S	1	
B	Wild turkey	NB	1	flushed adult grouse
B	Common yellowthroat	S	1	
B	American robin	NB	1	

TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

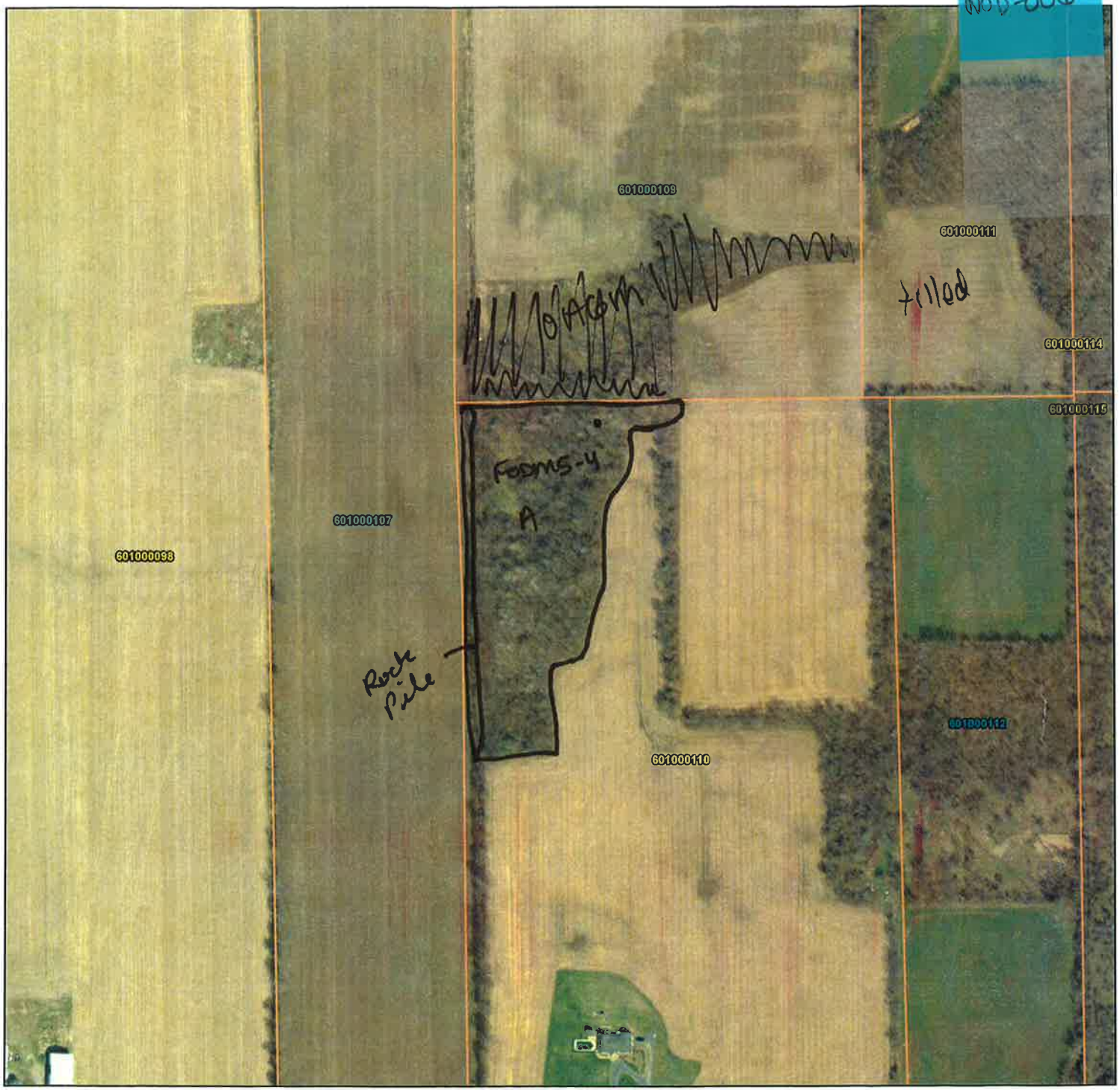
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Swamp - No nest bowls observed
Meadow - Hay. Recently was row crop. most of - fallow field now

may 19 2016
CLH, AB

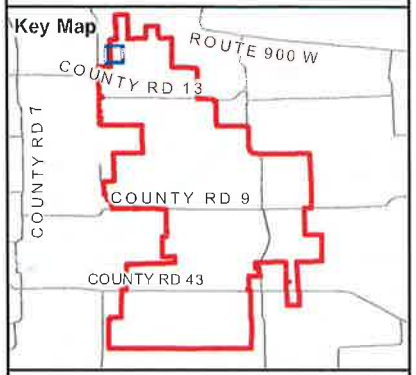
WOD-006



Nation Rise Wind Project

Natural Features Field Map

Area 4



Legend

- Land Parcel
- Parcel with Access
- Parcel without Access

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT WOD-006

Site: NARROW RISE	1756
Polygon: Area 4-A	
UTM:	
Date: May 19 2016	Time: 16:05 - 16:25
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 22°C, Wind 3, 60% CC, No precip	

Community Classification

Vegetation Type:	FOOM5-4 Dry-Fresh Sugar maple-Ironwood Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
[X] Terrestrial	[ ] Organic	[ ] Lacustrine	[ ] Talus	[ ] Lake	[ ] Barren
[ ] Wetland	[X] Mineral Soil	[ ] Riverine	[ ] Crevice/Cave	[ ] Pond	[ ] Meadow
[ ] Aquatic	[ ] Parent Mat	[ ] Bottomland	[ ] Alvar	[ ] River	[ ] Prairie
	[ ] Acidic Bedrock	[ ] Terrace	[ ] Rockland	[ ] Stream	[ ] Thicket
History	[ ] Basic Bedrock	[ ] Valley Slope	[ ] Beach/Bar	[ ] Marsh	[ ] Savannah
[X] Natural	[ ] Carb. Bedrock	[ ] Tableland	[ ] Sand Dune	[ ] Swamp	[ ] Woodland
[ ] Cultural		[X] Roll Upland	[ ] Bluff	[ ] Fen	[X] Forest
	Site	[ ] Cliff		[ ] Bog	[ ] Plantation

Cover		Plant Form		
[ ] Open	[ ] Open Water	[ ] Planktion	[ ] Forb	[ ] Coniferous
[ ] Shrub	[ ] Shallow Water	[ ] Submerged	[ ] Lichen	[ ] Mixed
[X] Treed	[X] Surficial Dep	[ ] Floating-Lvd	[ ] Bryophyte	
	[ ] Bedrock	[ ] Graminoid	[X] Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Sugar maple > White Elm > Basswood
2	Sub-canopy	3	2	sugar maple > Ironwood > white Elm > Pin Cherry
3	Understorey	4		common Buckthorn > Choke Cherry > Pin Cherry > Ribes americanum
4	Groundcover	5		unknown

HT Codes: 1 >25m 2 25-10m 3 10-2m 4 2-1m 5 1-0.5m 6 0.5-0.2m 7 <0.2m

Cover Codes: 0 none 1 0-10% 2 10-25 3 25-60% 4 >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	O	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

unknown

Abundance Codes: N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub canopy 3=understorey 4=ground layer (710 2-10 0.5-2 <0.5)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar maple	A	A			
White Elm	O	O			
Basswood	O	O			
Common Apple		O			
Bitternut Hickory	R	O	O		
Ironwood		O	O		
manitoba maple		R	R		
Staghorn Sumac		R			
Tartarian honeysuckle		R			
Hawthorn sp.		O			
Rhododendron ryhbergii				O	
Ribes americanum			O		
Common Buckthorn		O	O		
Pin Cherry		O	O		
Choke Cherry			O		

Species	Layer 1	2	3	4	Sample
Trout Lily					
Dandelion					
Downy Yellow V.					

Wildlife and Other Notes

Bush has been cleared off of 601000109

Photo 277
Facing E 276°

Wildlife Habitat Field Data Collection WOD-006

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 4

Date: May 19, 2016 **Start Time:** 16:05 **End Time:** 16:25 **Observers:** Amanda Bishop, Christy Humphrey

Weather Conditions: 20°c, 1 wind, no precip, 80% cloud cover

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate)
Vernal Pool		✓	Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic)
Pond		✓	Vegetation species, woody debris/basking logs within water Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation Size of site Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals Frequency and source of disturbance Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age Depth into the ground Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence	✓		Rock size Vegetation present Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance Soil Type Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location Proximity to water and type of water Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs)
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc)
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

SURVEYED FROM PROPERTY LINE.

Characteristics of Identified Wildlife Habitat

Date: May 19, 2016

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 4

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Rock pile.	1	0481258 16m 5005914 0481304 5005829 16m (middle of pile)	276	• small to med. size rocks • 200m long x 2m wide x 1.5m tall at tallest • some parts are old, most is newer • spans almost whole long side of polygon. - too narrow + short - would not provide protection from frost	none

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Song Sparrow	S	3						
B	Chickadee	S	2						
B	killdeer	S	2						
B	Crow	S	2						
B	Azure	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

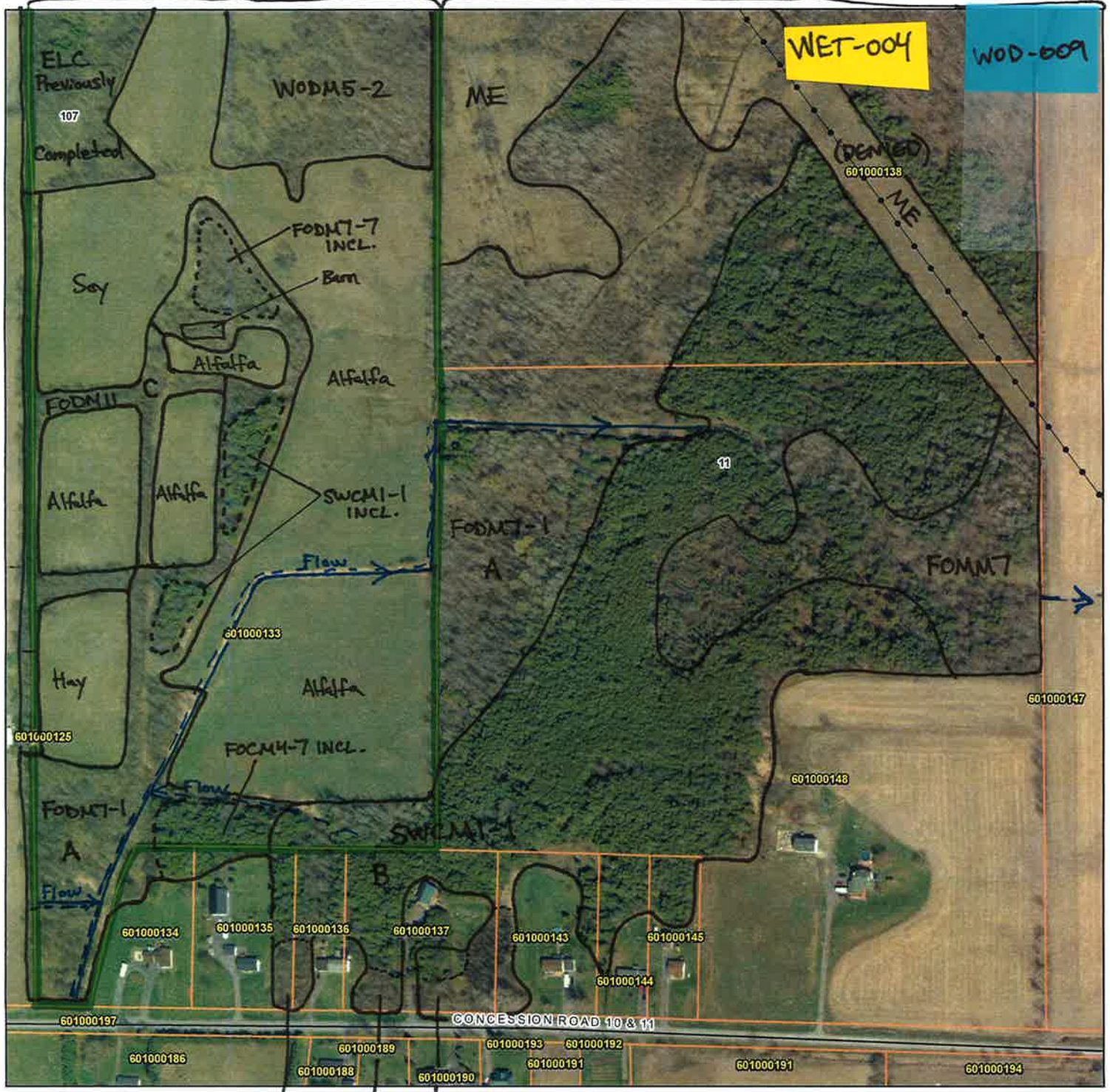
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Access to this parcel

Air photo interpretation / Property line assessment

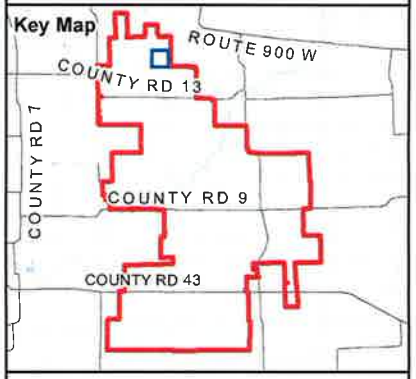
Dec. 6. 2016 PWD



Nation Rise Wind Project

Natural Features Field Map

Area 11



Legend

- Utility Line
- Secondary Road
- Land Parcel

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 3

WOD-009

Site:	1756 Nation Rise Wind Project
Polygon:	11, 601000133, 601000138, 601000148 + Residences on CR 10+11 A
UTM:	
Date: Dec. 6, 2016	**Time:** 0810 - 0905
Surveyor(s):	PWD
Weather:	-2°C, 0% cc, wind 0, no precip.

Community Classification

Vegetation Type:	FODM7-1 F-M White Elm Lowland Dec Forest Type	
X	**Inclusion:**	SWCM1-1 Wh Cedar Min Conif. Swamp Type
X	**Inclusion:**	FOCM4-7 F-M White Cedar Coniferous Forest
X	Inclusion	FODM7-7 F-M Manitoba Maple Lowland Dec. Forest

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	——
1	Canopy	2	4	Am. Elm > Green Ash >> Manitoba Maple
2	Sub-canopy	3	3	Am Elm > Green Ash > Manitoba Maple
3	Understorey	4	2	Green Ash = Black Raspberry = Chokecherry
4	Groundcover	–	–	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall\Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young → Both	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 2 of 3

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	O	O	O		
Am. Elm	A	O	O		
Chokecherry			O		
Black Raspberry			O		
Domestic Apple			O		
Com Buckthorn			O		
Red Osier Dogwood			R		
E. White Cedar		O	O		
Red Raspberry			O		
Alt-lvd Dogwood			O		
Manitoba Maple	R	O	O		

Species	Layer 1	2	3	4	Sample
Reed Canary Grass					

Wildlife and Other Notes

Am. Crow
Snow Goose (Flocks Flying SW ~200 total)
Blue Jay
Bl. capped Chickadee
W.B. Nuthatch

Modified ELC Community Description

Soils	1	2	3
Position:	7		
Aspect:	N/A		
%	0-0.5		
Type:	S		
Class:	A		

Strata: Texture	L		
Depth	22		
Strata: Texture	SiC		
Depth	58		
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture	SiC		
Surface Stoniness	0		
Surface Rockiness	0		
Depth to:			
Mottles	47		
Gley	No		
Bedrock	58		
Water table	No		
Carbonates	No		
Depth of Organics	1		
Pore Size Disc #1	-		
Pore Size Disc #2	-		
Pore Size Disc #3	-		
Moisture Regime	6		

Polygon: 11, 601000133 et. al (FODM7-1)

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total			
Basal Area			
Snags			

NOTES:

Coarse fragments at 45 cm

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-009

Site:	1756 Nation Rise Wind Project
Polygon:	11, 601000133, 601000136 601000148 +Residences on CR 10+11
UTM:	B
Date: Dec, 6, 2016	Time: 0905 - 0958
Surveyor(s):	PWD
Weather:	-2°C, 0% cc wind 0, no precip.

Community Classification

Vegetation Type:	SWCM1-1 Wh Cedar Min Coniferous Swamp Type
Inclusion:	
X Complex:	SWDM4-5 Poplar Mineral Deciduous Swamp

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	X Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	—
1	Canopy	2	4	Wh Cedar » Trem Aspen
2	Sub-canopy	3	2	Wh. Cedar » Trem. Aspen > Green Ash
3	Understorey	4	1	Wh. Cedar
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Wh. Cedar	D	A	O								
Trem Aspen	O	O	R								
Bur Oak	R										
Green Ash		O									

Wildlife and Other Notes

Largely assessed from Property Line
Access only to 601000133

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-004

CS1

Wetland Vegetation Communities

Project Name: Nation Rise Wind Project **Project #:** 1756 **Parcel #:** 11, 601000133

Observer(s): PWD **ELC Code:** SWCM

Date: Dec. 6, 2016 **Time (24h):** 0905 B

Wetland #: WET-004 **Weather:** Precipitation: None Temp (° C): -2

Veg Community #: CS1 Wind Speed & Direction: O Cloud %: O

Wetland Type: S **Site Type:** P **Dominant Form:** C

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: S864, S865

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:80)	White Cedar (100%)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: 60 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
	White-tailed Deer (TK)

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees (>6m); c=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: S=swamp; M=marsh; W=open water marsh; B=bog; F=fen

Site Type: L=lacustrine (lake at least 8ha); P=palustrine; R=riverine; IS=isolated

Features to look for in the field:

- ○ active beaver lodges/dams None.
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  None obs.
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  Wh.-tailed Deer (TK)
- ○ plant species (wild rice, cranberries)
  None obs.
- ☑ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  See field map
- ☑ human related disturbances (fill, docks, houses, etc)
  Shallow drainage ditches at edge likely impact hydrology.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  Tree stand (1) observed.
- ○ locations of seeps or springs, lagg
  None obs.
- ○ iron precipitates, marl deposits
  None obs.
- ☑ winter cover for wildlife
  Yes, suitable winter cover
- ○ ungulate summer habitat, moose aquatic feeding habitat
  Not suitable
- ○ suitability for waterfowl breeding, staging, moulting
  Not suitable
- ○ surrounding topography (flat) rolling, hilly, steep)
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; ☑ utility corridor; ☑ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ☑ crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ☑ fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  None obs.
- ○ invasive species (plant, aquatic)
  None obs.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-009

Site:	1756 Nation Rise Wind Project
Polygon:	11, 601000133/601000125 C
UTM:	
Date: Dec 6, 2016	Time: 0958-1200
Surveyor(s):	PWD
Weather:	-2°C, 0% cc, wind 0, no precip.

Community Classification

Vegetation Type:	FODM11 Naturalized Deciduous Hedgerow
Inclusion:	-
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	4	Am Elm > Trem Aspen >> Manitoba Maple
2	Sub-canopy	3	3	Am Elm > Manitoba Maple = Dom. Apple.
3	Understorey	4	3	Com Buckthorn > Chokecherry > Red Raspberry
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	D	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Green Ash		R									
Manitoba Maple	R	O	O								
Alt. lvd Dogwood			R								
Red Raspberry			O								
Dom. Apple		O	O								
Chokecherry			O								
Am. Elm	O	O									
Com. Buckthorn			O								
Staghorn Sumac			R								
Sugar Maple	R	R									
Am. Prickly-ash			R								
Trem. Aspen	O	O									

Wildlife and Other Notes

W.B Nuthatch
Com. Raven
Snow Goose
Am. Robin

No photos taken.

Modified ELC Community Description

Soils	1	2	3
Position:	7		
Aspect:	N/A		
%	0-0.5		
Type:	S		
Class:	A		

Strata:	Texture	L		
	Depth	29		
Strata:	Texture	SiC		
	Depth	45		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		SiC		
Surface Stoniness		0		
Surface Rockiness		0		
Depth to:				
	Mottles	34		
	Gley	No		
	Bedrock	Unk.		
	Water table	No		
	Carbonates	—		
Depth of Organics		0		
Pore Size Disc #1		—		
Pore Size Disc #2		—		
Pore Size Disc #3		—		
Moisture Regime		5		

Polygon:
11,601000133 et al

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total			
Basal Area			
Snags			

NOTES:

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation River WP	**Project #:** 1756	**Area and/or Polygon ID:** 11, 601000133/601000136+Roadside	
Date: Dec 6, 2016, Dec 8, 2016	**Start Time:** 0905	**End Time:** 1200	**Observers:** PWD
Weather Conditions: See ELC Sheet	Dec 8 +1115	— 1400	

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		√	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		√	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic)
Pond		√	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		√	Presence of fish
Swamp	√		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		√	Height of vegetation. Size of site. Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		√	Evidence of small mammals. Frequency and source of disturbance. Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		√	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography			
Sand or Fine/Loose Gravel		√	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		√	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		√	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		√	Depth of crevices
Cave		√	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		√	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		√	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		√	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		√	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		√	Age. Depth into the ground. Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		√	Rock size. Vegetation present. Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		√	Evidence of Use. Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		√	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		√	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		√	Diameter of entrance. Soil Type. Availability of aquatic vegetation or fish
Medium		√	Ecosite of location. Proximity to water and type of water. Evidence of use, or tracks or digging marks
Large		√	
Log Jams, Old Beaver Lodges		√	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		√	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		√	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		√	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		√	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		√	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		√	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		√	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		√	Soil type and depths.
Red Spruce or White Oak Forest		√	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		√	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		√	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		√	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		√	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		√	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		√	Sources of disturbance (includes presence of exotics)

Characteristics of Identified Wildlife Habitat

Date: Dec. 6, 2016

Project Name: Nation Rise WP Project #: 1756 Area and/or Polygon ID: 11.601000133/601000148 + Residences

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp	1	Entire ELC poly	5864, 5865	No nest bowls present	None obs.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Feb 10/17 KGB, SDRB

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 2

WOD-010

Site:	Area 25
Polygon:	FODM5-3
UTM:	—
Date:	Feb. 10/17
Time:	0855 - 0930
Surveyor(s):	KGB JDRB
Weather:	-17°C, 0% CC wind 3-NW, no precip

Community Classification

	Vegetation Type:	FODM5-3 Sugar Maple/White Ash Mix Dec. Forest
✓	Inclusion:	TAGM1 Conif. Plantation
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
✓ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	✓ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		✓ Roll. Upland	Bluff	Fen	✓ Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
✓ Treed	✓ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	✓ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Sugar Maple > White Ash > White Elm > A. Beech
2	Sub-canopy	3	3	Sugar Maple > White Ash > Scots Pine
3	Understorey	4-5	2	Sugar Maple > White Ash > C. Buckthorn/RO Dogwood
4	Groundcover	6-7	—	—

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	✓	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 2 of 2

PLANT SPECIES LIST

Site:	Area 25
Polygon:	FODM5-3
UTM:	—
Date:	Feb 10/17
Time:	0855 - 0930
Surveyor(s):	KGB JRDB
Weather:	-17°, 0% CC, Wind 3-NW, no precip

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	O	O	O		
Sugar Maple	D	D	O		
Ironwood	O	O			
Bur Oak	O	R	R		
Freeman's Maple	R	R			
White Elm	R	O	O		
Black Cherry	R	R			
Scots Pine		O	O		
Balsam Poplar	R	R			
A. Beech		O			

Species	Layer 1	2	3	4	Sample
Tart. Honeysuckle			O		
Riverbank Grape			R		
RO Dogwood			O		
C. Buckthorn			O		

Wildlife and Other Notes

2269, 2270, 22701, 22702

Wildlife Habitat Field Data Collection

WOD-010

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE **Project #:** 1756-A **Area and/or Polygon ID:** 25 FORM 5-8

Date: FEB / 10 / 17 **Start Time:** 0852 **End Time:** **Observers:** J. GAMBLE K. BUNDLE

Weather Conditions: FULL SUN -6 °C NW 10 K/HR

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		X	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		X	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp		X	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		X	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		X	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		X	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		X	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		X	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest (Mature Forest)		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics). Any cut stumps in the mature/old growth component.
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: FEB 10 / 2017

Project Name: NATIONS RISE Project #: 1756-A Area and/or Polygon ID: 25 FODM 5-8

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Buildings (sugar shack)	2	see map	2701, 2702		

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	HAIRY WOODPECKER	H	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec. 9, 2016

PWD

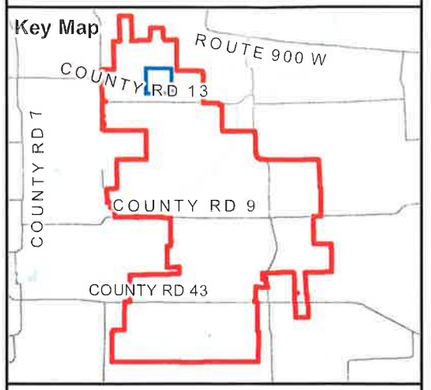
WOD-011

WET-005

Nation Rise Wind Project

Natural Features Field Map

Area 18, 19, 20, & 22



Legend

- Secondary Road
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

Path: X:\1756 Nation Rise Wind Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02.LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-011

Site:	Nelles Rise 1756
Polygon:	18/19/20 60100186 A
UTM:	
Date:	Dec 9, 2016 Time: 0745-0830
Surveyor(s):	PWD
Weather:	-7°C, 5% cc, wind I/NW, no precip.

Community Classification

Vegetation Type:	FODM11 Naturalized Dec. Hedgerow Ecosite
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	3	Wh Ash > Sug Maple > Am Elm
2	Sub-canopy	3	2	Wh Ash > Sugar Maple > Am. Elm
3	Understorey	4	3	Com Buckthorn > Sugar Maple = Wh. Ash
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	D	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	R	> 50

Abundance Codes: *N: None* *R: Rare* *O: Occasional* *A: Abundant*

Community Age	Pioneer	Young	X Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba Maple	R	O			
White Ash	A	O	O		
Am Elm	O	O			
Com. Buckthorn			O		
Am Basswood	O	O			
Juglans sp.	O				
Bur Oak	R				
Sugar Maple	O	O	O		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photos 6006-6009, 6032

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-011

Site:	1756 Nelson Rise
Polygon:	19, 20 601000186 B
UTM:	
Date:	Dec. 9, 2016
Time:	0830 - 0900
Surveyor(s):	PWD
Weather:	-7°C, 5% cc wind l/NW, no precip.

Community Classification

Vegetation Type:	WODMS-2 F-M Elm Dec. Woodland Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	X Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	3	Green Ash >> Am Elm
2	Sub-canopy	3	2	Green Ash > Am Elm > Trem Aspen > Am. Bassw
3	Understorey	4	3	Com. Buckthorn >> Hawthorn sp > Trem. Aspen.
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: * 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Green Ash	A	A	O								
Chokecherry			O								
Am. Basswood		O									
Hop Hornbeam		R	O								
Am. Elm	O	O	O								
Bur Oak	R	O									
Com. Buckthorn			A								
White Pine		R									
Trembling Aspen	R	O	O								
Red Raspberry			O								
Hawthorn sp.			O								
Alt. lvd Dogwood			R								
Red Osier Dogwood			R								

Wildlife and Other Notes

Photos: 6027 - 6029, 6031, 6032, 6050 - 6052

Modified ELC Community Description

(B)

Polygon: 19.20 601000186 WOODS-2

Soils	1	2	3
Position:	2		
Aspect:	280		
%	2-5		
Type:	S		
Class:	C		

Strata:	Texture	SL		
	Depth	12		
Strata:	Texture	L		
	Depth	20		
Strata:	Texture	Si		
	Depth	47		
Strata:	Texture			
	Depth			
Effective Texture		Si		
Surface Stoniness		0		
Surface Rockiness		0		
Depth to:				
	Mottles	35		
	Gley	N/A		
	Bedrock	47		
	Water table	N/A		
	Carbonates	N/A		
Depth of Organics		0		
Pore Size Disc #1		—		
Pore Size Disc #2		—		
Pore Size Disc #3		—		
Moisture Regime		1		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise
Polygon:	19, 601000168 C
UTM:	
Date:	Dec. 9. 2016
Time:	0900 - 0940
Surveyor(s):	PWD
Weather:	-7°C, 5% cc, wind 1/NW, no precip.

Community Classification

Vegetation Type:	THDM4 Dry-Fresh Deciduous Regeneration Thicket
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	—
1	Canopy	3	2	Wh. Ash > White Pine
2	Sub-canopy	–	–	—
3	Understorey	4	3	Com. Buckthorn > Hawthorn sp. > Wh. Ash
4	Groundcover	–	–	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	O		O		
Com. Buckthorn			A		
Hawthorn sp			O		
Bur Oak			R		
White Pine	R				

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photo 6017, 6018, 6023, 6024, 6025, 6026

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 3

WOD-011

Site:	1756 Nation Rise
Polygon:	19, 601000168 D
UTM:	
Date:	Dec. 9. 2016 Time: 0940-1020
Surveyor(s):	PWD
Weather:	-7°C, 6% c.c., wind 1/NW, no precip

Community Classification

Vegetation Type:	FODM7-2 F-M Green Ash Hardwood Lowland Dec. Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	—
1	Canopy	2	4	Green Ash >> Am. Elm = Trem. Aspen
2	Sub-canopy	3	2	Green Ash >> Am. Elm = Trem. Aspen
3	Understorey	4	2	Com. Buckthorn > Green Ash
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

PLANT SPECIES LIST

Site:			
Polygon:			
UTM:			
Date:		Time:	
Surveyor(s):	PWD		
Weather:			

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Green Ash	A	O	O								
Trem. Aspen	O	O									
Am Elm	O	O	R								
Com. Buckthorn			O								

Wildlife and Other Notes

Photo 6019, 6020, 6021, 6022

Modified ELC Community Description

D

Polygon: 19, 601000168 FODM7-2

Soils	1	2	3
Position:	3		
Aspect:	90		
%	0-0.5		
Type:	S		
Class:	B		

Strata: Texture	SiL		
Depth	18		
Strata: Texture	SiC		
Depth	59		
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture	SiC		
Surface Stoniness	0		
Surface Rockiness	0		
Depth to:			
Mottles	48		
Gley	N/A		
Bedrock	59		
Water table	~~55~~		
Carbonates			
Depth of Organics	D		
Pore Size Disc #1	—		
Pore Size Disc #2	—		
Pore Size Disc #3	—		
Moisture Regime	T/R		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total			
Basal Area			
Snags			

NOTES:

water table level with vernal pooling nearby.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 2

PROPERTY LINE ASSESSMENT

Site:	1756 Nodion Rise
Polygon:	20, 601000182 E
UTM:	
Date:	Dec. 9. 2016 Time: 1020 - 1030
Surveyor(s):	PWD
Weather:	-7°C, 5% cc, wind 1/NW, no precip.

Community Classification

Vegetation Type:	THDM2-6 Buckthorn Dec. Shrub Thicket
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
-	Super-canopy	-	-	—
1	Canopy	2	2	Sugar Maple > Trem Aspen
2	Sub-canopy	3	1	" > "
3	Understorey	4	4	Com. Buckthorn > Hawthorn sp > Trem. Aspen
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 2 of 2

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	O	R			
Trem. Aspen	R	R	R		
Hawthorn sp.			S		
Com. Buckthorn			A		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photo: 6036, 6038, 6039
Observed from property line (601000186).

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-011

Site:	1756 Nahren Rise
Polygon:	70, 601000186 F
UTM:	
Date:	Dec. 9. 2016 Time: 1030-1645
Surveyor(s):	PWD
Weather:	-7°C, 57-cc, wind 1/NW no precip.

Community Classification

Vegetation Type:	TAGM1 Coniferous Plantation.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
X Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	X Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	2	4	White Pine
2	Sub-canopy	–	–	None.
3	Understorey	4	1	Hawthorn sp.
4	Groundcover	–	–	Unable to assess / bare

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	P	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
White Pine	D										
Hawthorn sp.			R								

Wildlife and Other Notes

Com. Raven

Photo: 6034, 6037

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-011

Site:	1756 Nation Rise
Polygon:	20, 601000186/601000182 G
UTM:	
Date:	Dec. 9, 2016 Time: 1045-1130
Surveyor(s):	PWD
Weather:	-7°C, 5% cc, wind 1/NW, no precip.

Community Classification

Vegetation Type:	FOOM5-8 D-F Sugar Maple - White Ash Dec. Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	4	Sugar Maple > Trem. Aspen = White Ash
2	Sub-canopy	3	2	Sugar Maple > Am. Basswood > Trem. Aspen.
3	Understorey	4	2	Sugar Maple > Hop Hornbeam.
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	A	25 - 50	R	> 50
Snags	N	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	X Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	A	O	O		
Hop Hornbeam		O	O		
Trem. Aspen	O	O			
Am. Basswood	R	O			
White Ash	O	O			
Am. Beech		R			

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photo: 6040 - 6042

Appears to be mid-age regeneration, few layer trees present. Largely assessed from property line. Some of polygon on accessible property.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-011

Site:	1756 Nelson Rise
Polygon:	2C, 601000186 / 601000182 H
UTM:	
Date:	Dec-9, 2016 Time: 1130-1200
Surveyor(s):	PWD
Weather:	-7°C, Stice, wind 1/NW, no precip

Community Classification

Vegetation Type:	SWMM1-1 Wh Cedar Hardwood Min. Mixed Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	2	4	Trembling Asp > Green Ash > White Cedar
2	Sub-canopy	3	2	Green Ash > Trem. Aspen.
3	Understorey	4	1	Green Ash > Red Osier Dogwood
4	Groundcover	–	–	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth
			X		

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar	O	R			
Green Ash	O	O			
Trembling Aspen	O	O			
Red Osier Dogwood			O		
Yellow Birch		R			

Species	Layer 1	2	3	4	Sample
Reed Canary Grass				R	

Wildlife and Other Notes

No photos.
Largely assessed from property line. Some of polygon on accessible property.
Soil auger indicated mineral substrates

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-005

CS2

Wetland Vegetation Communities

Project Name: Nation Rise WP	**Project #:** 1756	**Parcel #:** 20,601000186/601000182
Observer(s): PWD		**ELC Code:** SWMM 1-1
Date: Dec. 9, 2016	**Time (24h):** 1100	Area 20-H
Wetland #: WET-005	**Weather:** Precipitation: None	Temp (° C): -5°C
Veg Community #: CS2	Wind Speed & Direction: 2/NW	Cloud %: 10
Wetland Type: S	**Site Type:** P	**Dominant Form:** C
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds	
Photos:		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 25)	Trembling Aspen (60%) Green Ash (40%)
c (%: 75)	White Cedar (100%)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SiC Mineral ☒ Organic ☐ Depth of organics: 15 cm Organic Type: F M (H) Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

→ from nearby auger.

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
None observed	Appx. 30 wild Turkeys (foraging, roosting) Ruffed Grouse

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; F=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams None
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  None obs.
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  None obs.
- ○ plant species (wild rice, cranberries)
  None obs.
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----➤)
  See field map.
- ○ human related disturbances (fill, docks, houses, etc)
  None obs.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  None obs.
- ○ locations of seeps or springs, lagg
  None obs.
- ○ iron precipitates, marl deposits
  None obs.
- ☑ winter cover for wildlife
  Yes, provides good cover.
- ○ ungulate summer habitat, moose aquatic feeding habitat
  Not suitable
- ○ suitability for waterfowl breeding, staging, moulting
  Not suitable
- ☑ surrounding topography (flat, (rolling), hilly, steep)
- ☑ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ☑ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ☑ crops; ☑ row crop; O abandoned pit/quarry; ☑ pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ☑ fence rows; ☑ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ☑ vernal pools
  Yes, see field map / SWH form
- ○ invasive species (plant, aquatic)
  None observed

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-011

Site:	1756 Natural Rise
Polygon:	20, 601000186/601600182 — I
UTM:	
Date:	Dec, 9, 2016 — Time: 1206-1230
Surveyor(s):	PWD
Weather:	-7°C, 5%cc, wind 1/NW, no precip.

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	2	4	Green Ash > Trem. Aspen > Red Maple
2	Sub-canopy	3	1	Green Ash > Trem. Aspen
3	Understorey	4	2	N.L. Meadowsweet > Red Osier Dogwood
4	Groundcover	–	–	unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth
			X		

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Green Ash	O	A	O								
Trembling Aspen	O	O									
Red Maple	R										
Red Osier Dogwood			O								
N.L. Meadowsweet			O								

Wildlife and Other Notes

Photo: 6044 - 6048

Vernal pool had approx 20 cm organic soils, but mineral overall.

Wild Turkey

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-005

hS3

Wetland Vegetation Communities

Project Name: Nation Rise WP **Project #:** 1756 **Parcel #:** 20, 601000186 / 601000182

Observer(s): PWD **ELC Code:** SWDM2-2

Date: Dec. 9, 2016 **Time (24h):** 1040 Area 20-T

Wetland #: WET-005 **Weather:** Precipitation: None Temp (° C): -5°

Veg Community #: hS3 Wind Speed & Direction: 2/NW Cloud %: 10

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos:

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
(h)	(%:95) Green Ash (60%) Trembling Aspen (35%) Red Maple (5%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
(ne)	(%:25) Sedges (40%) Grasses (60%)
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: 13 cm Organic Type: F M (H) Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

Appx. 30 Wild Turkey (foraging, roosting)

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: L=lacustrine (lake at least 8ha); P=palustrine; R=riverine; IS=isolated

Features to look for in the field:

- ○ active beaver lodges/dams None.
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  None. obs
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  None obs.
- ○ plant species (wild rice, cranberries)
  None obs.
- ⊘ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  See field map
- ⊘ human related disturbances (fill, docks, houses, etc)
  Linear/channelized swales/ditches in east extent of natural feature (alter hydrology)
- ⊘ evidence of recreational activities (nature appreciation, fishing, hunting)
  Campsite adjacent (in TAGMI inclusion)
- ○ locations of seeps or springs, lagg
  None obs
- ○ iron precipitates, marl deposits
  None obs.
- ⊘ winter cover for wildlife
  Moderate (in conjunction with conifer stands)
- ○ ungulate summer habitat, moose aquatic feeding habitat
  Not suitable
- ○ suitability for waterfowl breeding, staging, moulting
  Not suitable
- ⊘ surrounding topography (flat, rolling, hilly, steep)
- ⊘ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊘ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ⊘ crops; ⊘ row crop; O abandoned pit/quarry; ⊘ pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊘ fence rows; ⊘ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ⊘ vernal pools
  Yes, sizable pooled area, see field map / SWH form
- ○ invasive species (plant, aquatic)
  None obs.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP **Project #:** 1756 **Area and/or Polygon ID:** 19/19/20 601000186

Date: Dec. 9, 2016 **Start Time:** 0745 **End Time:** 1230 **Observers:** PWD

Weather Conditions: -5°C, 10%CC, wind 7/NW, no precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool	✓		
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture	✓		
Meadow		✓	
Thicket, Woodland, Hydro Corridor	✓		
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 9, 2016

Project Name: Nation Rise WP | Project #: 1756 | Area and/or Polygon ID: 18/19/20 601000186

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	4	1. 18T 483922 5005764 2. 18T 483237 5005960 3. 18T 483201 5005809 4. 18T 483181 5005670	6019, 6020 6047, 6048 N/A N/A.	15x20m 20x70m 10x10m 15x15m • all have depth of 10-40cm • 2 with access held water (frozen over) during visit.	• No fish presence. • 2 (large pool) looks very good for amphibian breeding (all 4 are suitable) ✓
Swamp	2 ELC Comm	See field/ELC map.	6044-6048	• No nest boards present	• No nest boards present
Non-rotational Hay	11	See field / ELC map	6009, 6011, 6031, 6032	• Red Clover / Alfalfa fields (small - see map) • Appear to be cut annually	• None observed.
Thicket	2	See field / ELC map.	6017, 6018, 6023-6026 6036, 6038, 6039	Shrubs 1-6m. Likely a notable herbaceous component. Interspersed with mid-age trees (Hemlock)	• None observed.
Old Stone Fence	1	18T 483550 5006017	None	2m high stone/boulder fence in mid-age hedgerow, 125m long, surficial. >120m. ✓	• None observed

TY	Species	EV	#	Notes
B	Wild Turkey	SH	30	
B	W.B. Nuthatch	SH	*	
M	Grey Squirrel	OB	*	
B	Snow Goose	X	350	
B	Hairy Woodpecker	SH	*	
B	Com. Raven	SH	-	

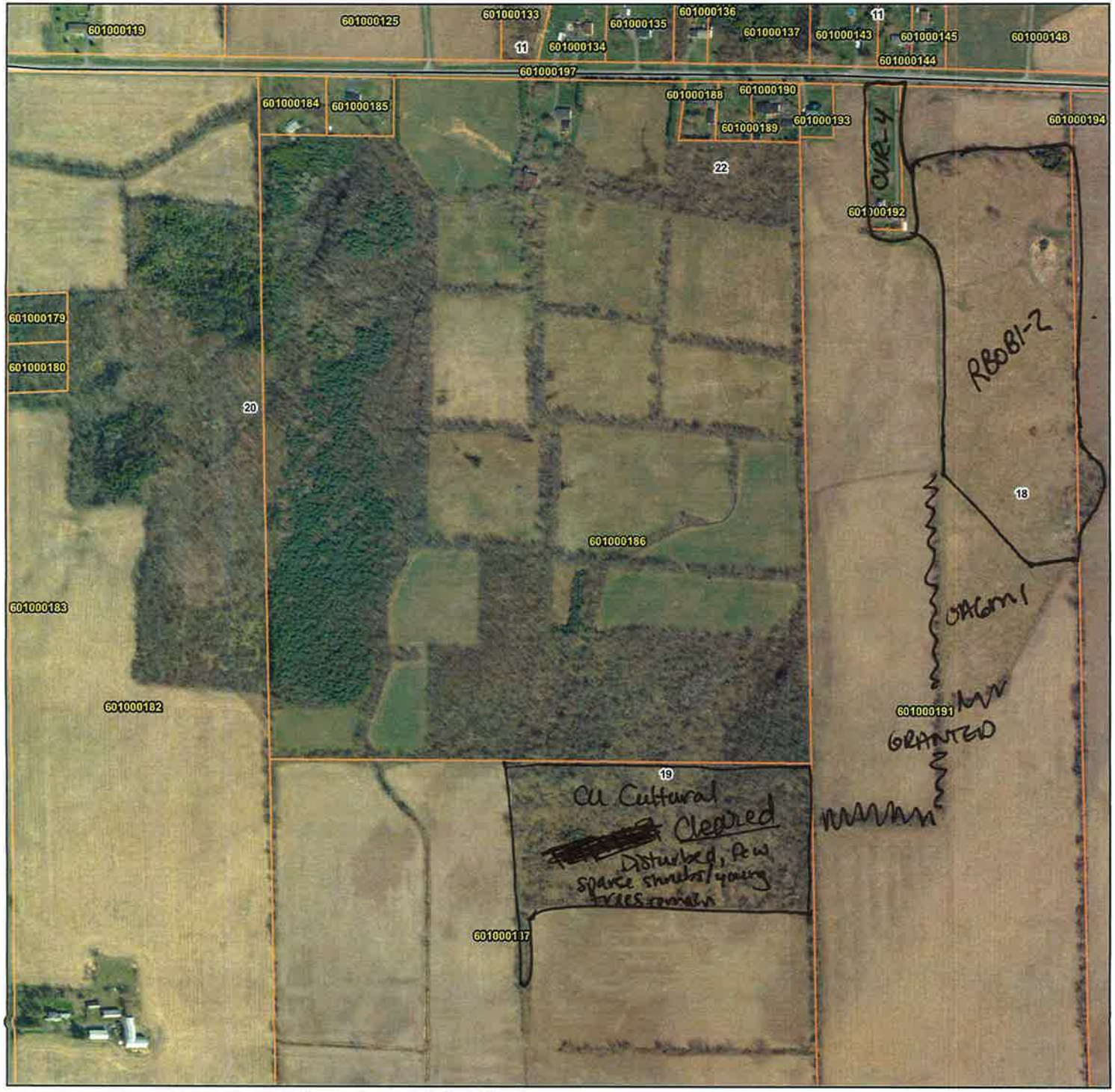
TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

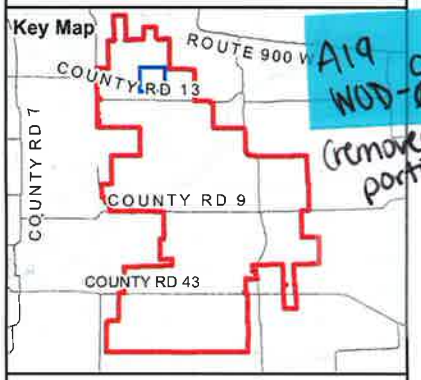
Jan. 31 2017
JBB, AMC



Nation Rise Wind Project

Natural Features Field Map

Area 18, 19, 20, & 22



A19 WOD-011 (removed portion)

Legend

- Secondary Road
- Land Parcel

NATURAL RESOURCE SOLUTIONS INC.
Aquatic Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:5,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: 601cc0187	Area 19
UTM:	
Date: Jan 31, 2017	Time: 11:35 - 11:47
Surveyor(s): JBR	
Weather: -14°C, cc 25%, wO, no precip	

Community Classification

Vegetation Type:	CU - Cultural
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	0	-
2	Sub-canopy	3	0	-
3	Understorey	4-5	1	green ash > white elm > com. buckthorn
4	Groundcover	6-7	1	green ash > white elm

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	O	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X	Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
green ash			O	O							
white elm			O	O							
Hawthorn sp.			O								
european buckthorn			O	O							

Wildlife and Other Notes

Photo #s: 031-032

Likely previously wetland.
Sporadic saplings, nearly all bare soil, roots ripped up.
Landowner says open clearcut last week. No forest remains on parcel
No slash piles remaining, but low shrubs persist

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756 Area 18
Polygon: 601000191	
UTM:	
Date: Jan 31, 2017	Time: 12:00-12:35
Surveyor(s): JRB	
Weather: -11°C, cc 25%, WO, no precip	

Community Classification

Vegetation Type:	RBOB1-2 Calcareous Open Rock Barren Meadow
Inclusion:	Type
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	/ Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	/ Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
Site		Cliff		Bog	Plantation

Cover		Plant Form		
/ Open	Open Water	Plankton	/ Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep	Floating-Lvd	Bryophyte	
	/ Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	17	0	
2	Sub-canopy	3	0	
3	Understorey	4-5	1	common buckthorn
4	Groundcover	0-7	3	forb meadow species (cannot assess accurate abundance)

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
grass-leaved goldenrod				O	
common mullein				O	
common ragweed				O	
common milkweed				O	
tall goldenrod				O	
common buckthorn			O		

Wildlife and Other Notes

Photo #: 033-037

5 cores completed. 4 were bedrock; immediately under snow. 1 was 16cm S.C over bedrock. Snow covered whole polygon, ground cover/bedrock cover difficult to assess

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 601000191, Area 18	
Date: Jan 31, 2017	**Start Time:** 12:00	**End Time:** 15:35	**Observers:** JBB
Weather Conditions: -14°C, cc 25%, w 0, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water.
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices.
Cave		✓	Depth of cave, bedrock type.
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Jan 31, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 601000191, Area 18

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow	1	see ELC map	034	5 cores: 4 immediately bedrock Potential Karst? no soil -1 @ 16cm SIC	none
Old rock pile	1	see map	034, 037	-high, large rock pile with some vegetation. ✓ -~20-25 cm rocks and wood - rodent tracks observed - exposed slopes south and west 7120m	rodent tracks observed

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Jan 30 2017 JBB, AMC

jan 30 2017 JBB, dmc

WOD-012

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-012

★PROPERTY LINE ASSESSMENT★

Site: NATION RISE	FT56
Polygon: A	AREA 12)
UTM:	
Date: Jan 30, 2017	Time: 16:30 - 17:00
Surveyor(s): JPB, AMC	
Weather: -12°C, cc 75%, WD, no precip	

Community Classification

	Vegetation Type:	TAGM1 Coniferous Plantation (whitespruce)
	Inclusion:	
X	Complex:	SWD Deciduous Swamp.

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	4	White Spruce >> White Ash
2	Sub-canopy	3	3	White Spruce
3	Understorey	1.5	1	Common Buckthorn > White Ash
4	Groundcover	0.7	1	Snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	C	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	/ Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Spruce	D	D	O		
White Ash	R		O		
Common Buckthorn		O	O		

Species	Layer 1	2	3	4	Sample
Tall Goldenrod				O	
Common Burdock				O	
Wild Carrot				O	

Wildlife and Other Notes

- Property line assessed
- significant snow cover - cannot assess soil, topography, and ground cover

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-012

Site: NATION RISE	1756
Polygon: B	AREA 121
UTM:	
Date: Jan 31, 2017	Time: 0815 - 8:27
Surveyor(s): JB B, AMC	
Weather: -23°C, cc 0%, w 0, no precip	

Community Classification

Vegetation Type:	TAGM1 Coniferous Plantation (White Pine)
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	White Pine >> White Elm > White Ash
2	Sub-canopy	3	3	White Pine > White Elm > White Ash
3	Understorey	4-5	1	White Pine > Riverbank Grape
4	Groundcover	6-7	1	Snow Covered - Cannot Assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	M	> 50
Snags	O	< 10	R	10 - 24	R	25 - 50	M	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	M	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	D	O	O		
White Elm	O	O	O		
White Ash	O	O	O		
Am. Beech			O		
Riverbank Grape			O	O	

Species	Layer 1	2	3	4	Sample
Tall Goldenrod				O	

Wildlife and Other Notes

Photo#: 011

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

★ PROPERTY LINE ASSESSMENT ★ WOD-012

Site: NATION RISE	1756
Polygon: C	Area 12.1
UTM:	
Date: Jan 30, 2017	Time: 1650 - 1705
Surveyor(s): TBB, AMC	
Weather: -12°C, cc 20%, w 0, no precip	

Community Classification

Vegetation Type:	SWMM3-2 Poplar-Conifer Mineral Mixed Swamp.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	/	Surficial Dep	Submerged	Lichen	Mixed
/ Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Tremb. Aspen > Green Ash > White Cedar
2	Sub-canopy	3	3	Tremb. Aspen > Green Ash > White Cedar
3	Understorey	4/5	2	White Cedar > Buckthorn > Tremb. Aspen
4	Groundcover	6-7	/	snow covered - cannot assess.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Birch		O	O		
Green Ash	O	O	O	O	
Sugar Maple		R			
White Cedar		O	O		
White Elm	O	O	O		
Trembling Aspen	A	A	O		
Sandbar Willow					
Alt.-leaved dogwood			O		
Staghorn Sumac		R			
Riverbank Grape		O	O		
Common Buckthorn		O	O	O	

Species	Layer 1	2	3	4	Sample
Wild Carrot				O	
Smooth brome				O	

Wildlife and Other Notes

- Property line assessed.
- significant snow cover - cannot assess soil, topography, and ground cover.

Photo#: 009

★ PROPERTY LINE ASSESSMENT ★

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID:

Wetland Vegetation Communities

Project Name: NATION RISE	**Project #:** 17560	**Parcel #:** Area 121
Observer(s): JBB, AMC		**ELC Code:** SWMM3-2
Date: Jan. 31, 2017	**Time (24h):** 08:52 - 09:03	
Wetland #:	**Weather:** Precipitation: NONE	Temp (° C): -19°C
Veg Community #:	Wind Speed & Direction: Ø	Cloud %: Ø%
Wetland Type:	**Site Type:**	**Dominant Form:** h
Permanent Open Water: ○ %	**Check one:** ○ central area ○ spread out in ponds	
Photos: 611		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 70)	trembling aspen > green ash
c (%: 25)	white cedar
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☐ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:
Cannot assess soil, ground cover, potentially open water/flow, snow covered
- white-breasted nuthatch

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
- ⊗ human related disturbances (fill, docks, houses, etc)
  houses across street
- ◯ evidence of recreational activities (nature appreciation, fishing, hunting)
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ◯ winter cover for wildlife
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ✓ surrounding topography (flat, (rolling) hilly, steep)
- ✓ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); ✓ conif. forest; O mixed forest; O crops; ✗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
  coniferous forest is plantation (White Pine, White Spruce)
- ✓ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ◯ vernal pools (cannot assess)
- ◯ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

~~PROPERTY LINE ASSESSMENT~~

Site: NATION RISE	1756
Polygon: D	
UTM:	
Date: Jan 30, 2017	Time: 17:07 - 17:30
Surveyor(s): JBB, AMC	
Weather: -13°C, cc 0%, w 0, no precip	

Community Classification

Vegetation Type:	MAMM1-2 Cattail Graminoid Mineral Meadow Marsh Type
Inclusion:	
Complex:	

Polygon Description

System		Substrate		Topo Feature			Community			
	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
/	Wetland		Mineral Soil		Riverine		Crevice/Cave		Pond	/	Meadow
	Aquatic		Parent Min	/	Bottomland		Alvar		River		Prairie
			Acidic Bedrock		Terrace		Rockland		Stream		Thicket
History			Basic Bedrock		Valley Slope		Beach/Bar	/	Marsh		Savannah
/	Natural		Carb. Bedrock		Tableland		Sand Dune		Swamp		Woodland
	Cultural				Roll. Upland		Bluff		Fen		Forest
		Site			Cliff				Bog		Plantation

Cover		Open Water	Plant Form			
/	Open	Shallow Water	Plankton	Forb	Coniferous	
	Shrub	Surficial Dep	Submerged	Lichen	Mixed	
	Treed	Bedrock	Floating-Lvd	Bryophyte		
			/ Graminoid	Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	42	O	
2	Sub-canopy	3	1	White Elm
3	Understorey	4	2	Broad leaved cattail > sandbar willow
4	Groundcover	67	4	Broad Leaved Cattail.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		O	< 10		R	10 - 24		N	25 - 50		N	> 50
Snags		O	< 10		R	10 - 24		N	25 - 50		N	> 50
Deadfall/Logs		O	< 10		R	10 - 24		N	25 - 50		N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	/	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm		O	O		
Peach Willow		O	O		
Sandbar Willow		O	O		

Species	Layer 1	2	3	4	Sample
Broad leaved cattail			D	D	
Canada Goldenrod				O	

Wildlife and Other Notes

- Cannot assess soil, potential to be MAMM1-2.
- property Unassessed.
- Snow covered ground - cannot assess soil, topography and groundcover.

Photo#: 008-010

Property Line Assessment

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID:

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** Area 121
Observer(s): JBB, AMC **ELC Code:** MAMM1-2
Date: Jan 31, 2017 **Time (24h):** 08:48 - 08 55
Wetland #: **Weather:** Precipitation: none Temp (° C): -20°C
Veg Community #: Wind Speed & Direction: Ø Cloud %: Ø%
Wetland Type: M **Site Type:** **Dominant Form:** ne.
Permanent Open Water: 25 % **Check one:** ○ central area ⊗ spread out in ponds
Photos: 008 - 010

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%: 75)	broad-leaved cattail
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☐ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:
Cannot Assess stream flow, aquatic veg under snow
Cannot Assess soil/organics/depth

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees (>6m); c=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: S=swamp; M=marsh; W=open water marsh; B=bog; F=fen

Site Type: L=lacustrine (lake at least 8ha); P=palustrine; R=riverine; IS=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
- ☒ human related disturbances (fill, docks, houses, etc)
  houses across street, man made drainage ditch (photo#)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ☑ surrounding topography (flat, (rolling), hilly, steep)
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); ☒ conif. forest; O mixed forest; O crops; ☒ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop coniferous forest is plantation (wh. pine / wh. spruce)
- ☒ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
- ○ invasive species (plant, aquatic)
  None observed

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

~~PROPERTY LINE ASSESSMENT~~ WOD-012

Site: NATION RISE	1756
Polygon: E	AREA (2)
UTM:	
Date: Jan. 31, 2017	Time: 08:30 - 9:00
Surveyor(s): JBB, AMC	
Weather: -20°C, cc 0%, w0, no precipitation	

Community Classification

Vegetation Type:	SWDM3-1 Red Maple Mineral Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Red Maple >> white Birch > white Elm
2	Sub-canopy	3	3	Red Maple >> White Birch > white Elm
3	Understorey	4-5	2	Red Maple >> white Birch > white Elm
4	Groundcover	6-7	/	Snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Red Maple	A	A	O		
White Birch		O	O		
White Elm		O	O		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

- PHOTOS: 012
- community ~50m from road
- assessed from road

★ PROPERTY LINE ASSESSMENT ★

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID:

Wetland Vegetation Communities

Project Name: NATION RISE	**Project #:** 17516	**Parcel #:** Area 121
Observer(s): JBR, AMC		**ELC Code:** SWDM3-1
Date: Jan 31, 2017	**Time (24h):** 905	
Wetland #:	**Weather:** Precipitation: NONE	Temp (° C): -19°C.
Veg Community #:	Wind Speed & Direction: Ø	Cloud %: 0%
Wetland Type:	**Site Type:**	**Dominant Form:** h.
Permanent Open Water: ◯ %	**Check one:** ◯ central area ◯ spread out in ponds	
Photos:		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Red Maple >> White Birch > White Elm
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☐ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:
Cannot assess soil, ground cover, potentially open water/flow, snow covered.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----→)
- ☒ human related disturbances (fill, docks, houses, etc)
  houses across the street
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ✓ surrounding topography (flat, rolling, hilly, steep)
- ✓ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; Ø row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ☒ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools (cannot assess
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

WOD-012

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE **Project #:** 1756 **Area and/or Polygon ID:** AREA 121

Date: Jan 31, 2019 **Start Time:** 08:15 **End Time:** 08:55 **Observers:** JBB, AMC

Weather Conditions: -23°C, cc 0%, wO, no precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond Pooling in meadow marsh	✓	✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water	✓		Presence of fish
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Jan. 31, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: AREA 121

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Open water	3			~50x50m -surrounded by cattail - snow covered cannot assess.	-NO access
Meadow Marsh	1	see ELC sheet (Polygon D)		-see ELC map - snow covered cannot assess -cattail dominated	
Swamp	2	See ELC sheet (Polygon Cand E)		-see ELC map - snow covered cannot assess - assessed from Road no stick nests observed.	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	White-breasted nuthatch	OB	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

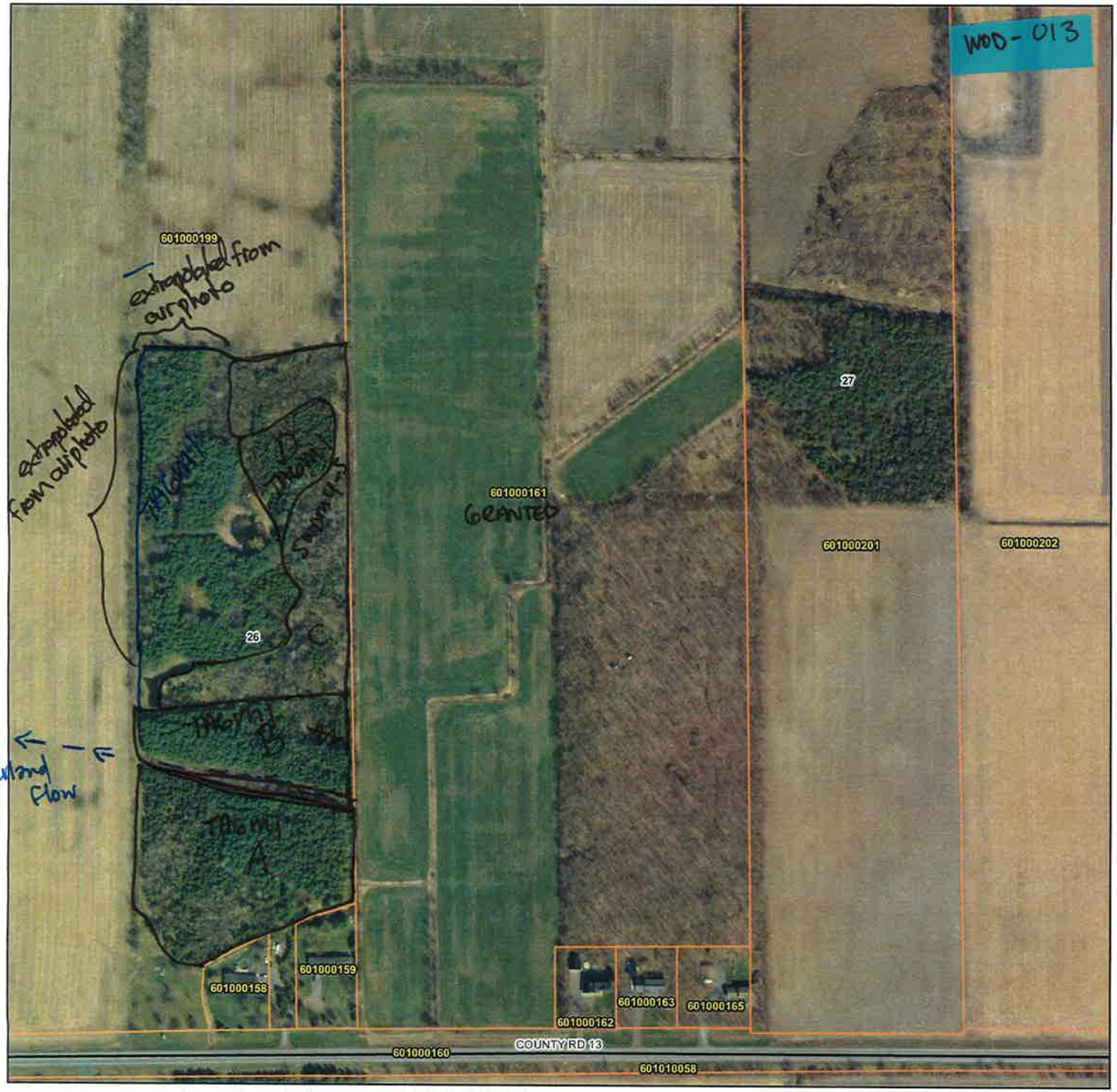
Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

PROPERTY LINE ASSESSMENT

Jan. 31 2017
JBB

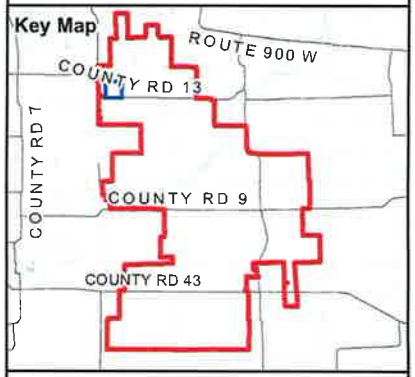
WOD-013



Nation Rise Wind Project

Natural Features Field Map

Area 26 [redacted]



Legend

- Primary Road
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756	NAD83 - UTM Zone 18
Date: November 2, 2016	Size: 8.5 x 11"
	1:4,000

0 50 100 150 Meters

N

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Modified ELC Community Description Page __ of __

★PROPERTY LINE ASSESSMENT★ WOD-013

Site: Nation Rise	1756
Polygon: 60100019 Assessed from 60100016	Area 26m
UTM:	
Date: Jan 31, 2017	Time: 13:30-13:42
Surveyor(s): JBB	
Weather: -9°C, cc 25%, w 0, no precip	

Community Classification

Vegetation Type:	TAGM1 Mineral Plantation, Coniferous
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	V2	O	/
2	Sub-canopy	3	4	white pine >> white cedar > white ash
3	Understorey	1-3	4	white cedar > white pine > common buckthorn
4	Groundcover	6-7	?	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
white pine		D			
white cedar		A	O		
white ash		O	A		
white elm		O	O		
riverbank grape			O		
common buckthorn			O		

Species	Layer 1	2	3	4	Sample
smooth brome				O	

Wildlife and Other Notes

Assessed by property line, snow covered ground layer, cannot assess below.

Photos: 038-040

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

Property Line Assessment WOD-013

Site: Nation Rise	1756
Polygon: EO100031199 Assessed from 601000161	Area 2.6b
UTM:	
Date: Jan 31, 2017	Time: 13:43-13:47
Surveyor(s): JBB	
Weather: -9°C, cc25%, w0, no precip	

Community Classification

Vegetation Type:	TAGM1 Coniferous Mineral Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	/ Coniferous
Shrub		/ Surficial Dep	Submerged	Lichen	Mixed
/ Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	O	
2	Sub-canopy	3	4	Jackpine > white cedar > white elm
3	Understorey	4-5	4	white cedar > Jackpine > white elm
4	Groundcover	6-7	?	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	M	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes N None R Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
jackpine		D	O		
white elm		O	O		
white cedar		O	O		
white pine			R		
riverbank grape			O		
common buckthorn			O		

Species	Layer 1	2	3	4	Sample
tall goldenrod				O	
smooth brome				O	
Galium sp.				R	

Wildlife and Other Notes

Photos: 041, 042

Assessed by property line, snow covered ground layer, cannot assess below

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-013

Site: Nation Rise	1756
Polygon: 601000199 Assessed from 601000161	Area 2.6c
UTM:	
Date: Jan 31, 2017	Time: 13:48 - 13:53
Surveyor(s): JBB	
Weather: -9°C, cr 25%, w Ø, no precip	

Community Classification

Vegetation Type:	SWD1M4-5 Poplar Mineral Deciduous Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	/	Surficial Dep	Submerged	Lichen	Mixed
/ Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	O	/
2	Sub-canopy	3	4	trembling aspen? white cedar? greenash
3	Understorey	4-5	2	trembling aspen? white cedar? greenash
4	Groundcover	6-7		snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0 none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	C	10 - 24	R	25 - 50	M	> 50
Snags	O	< 10	O	10 - 24	M	25 - 50	M	> 50
Deadfall/Logs	O	< 10	O	10 - 24	M	25 - 50	M	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
trembling aspen		A			
white cedar		O	O		
white elm		O	O		
green ash		O			
american bass. wood		O			
salix sp.			R		
grey dogwood			R		
riverbank grape			O		
common buckthorn			O		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photos: 043-045
Assessed from property line, snow covered ground layer, cannot assess below. Soils not observed.

Ø PROPERTY LINE ASSESSMENT Ø

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-006

Wetland Vegetation Communities

Area 26

Project Name: Nation Rise **Project #:** 17510 **Parcel #:** 60100099 assessed from 60100161

Observer(s): JBB **ELC Code:** SWDM4-5

Date: Jan 31, 2017 **Time (24h):** 13:48-13:53

Wetland #: WET-006 **Weather:** Precipitation: None Temp (° C): -9

Veg Community #: Wind Speed & Direction: Ø Cloud %: 25

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: Ø % **Check one:** ○ central area ○ spread out in ponds

Photos: 43-45

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h	(%:55) trembling aspen >> green ash
c	(%:)
≥10% dc	(%:)
≥10% dh	(%: 60) trembling aspen
ds	(%:)
ts	(%: 25) trembling aspen
ls	(%:)
gc	(%:)
ne	(%:)
be	(%:)
re	(%:)
≥10% ff	(%:)
≥10% f	(%:)
≥10% su	(%:)
m	(%:)
u	(%:)

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: ? cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) 100m - Matthews + Richards 1954

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):
None Observed

Wildlife Notes:
Assessed from property line, snow covered ground layer, cannot assess below. Soil not observed.

Common raven flying over, canine tracks (fox or coyote)

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  no flowing water can be observed
- ⊗ human related disturbances (fill, docks, houses, etc)
  shack present just outside, path through feature
- ◯ evidence of recreational activities (nature appreciation, fishing, hunting)
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ⊗ winter cover for wildlife
  white cedar areas provide winter cover
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ◯ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ⊗ crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
  adjacent to annual row crop field, surrounded by coniferous plantations
- ◯ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  not believed to have permanent standing water
- ⊗ vernal pools
  potential for vernal pools
- ⊗ invasive species (plant, aquatic)
  common buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

★ ASSESSED FROM PROPERTY LINE ★ WOD-013

Site: Nation Rise	1756
Polygon: 60/CC0199 Assessed from 60/CC0161	Area 26d
UTM:	
Date: Jan 31 2017	Time: 13:55 - 14:11
Surveyor(s): JBB	
Weather: -9°C, cc 25%, w Ø, no precip	

Community Classification

Vegetation Type:	TAGM1 Coniferous Mineral Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	/ Coniferous
Shrub		/ Surficial Dep	Submerged	Lichen	Mixed
/ Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	O	/
2	Sub-canopy	3	4	white spruce > green ash
3	Understorey	4-5	3	white spruce > green ash > common buckthorn
4	Groundcover	<1	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
white spruce		D			
green ash			O		
red osier dogwood			O		
common buckthorn			O		

Species	Layer 1	2	3	4	Sample
tall goldenrod				O	

Wildlife and Other Notes

Photos 046

Assessed from property line, snow covered ground layer, cannot assess below. Soils not observed.

Common raven

PROPERTY LINE ASSESSMENT WOD-013

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Notion Rise | Project #: 1756 | Area and/or Polygon ID: Area 26 / 601000199 Assessed from 601000161

Date: Jan 31, 2017 | Start Time: 13:30 | End Time: 14:11 | Observers: JBB

Weather Conditions: -9°C, cc75%, WF, no precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth) Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool	✓		
Pond	✓		
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation Evidence of small mammals. Size of site Frequency and source of disturbance Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters) Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age, Rock size, Evidence of Use, Depth into the ground, Vegetation present, Amount of sun exposure (or direction the slope faces), Substrate composition (or bedrock type), Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance, Ecosite of location, Soil Type, Proximity to water and type of water, Availability of aquatic vegetation or fish, Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Jan 31, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 601000199 Assessed from 601000161

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	None		None	Suspected habitat, however not able to assess with snow cover	None
Pond	2		Could not access	Not visible from property line, 2 ponds visible from air photo	None
Swamp	1	see Map	043-045	No heron nests. Paths and small shack present.	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Common raven	OB	1						
M	Coyote / Fox	TR	1	from plantations to field					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

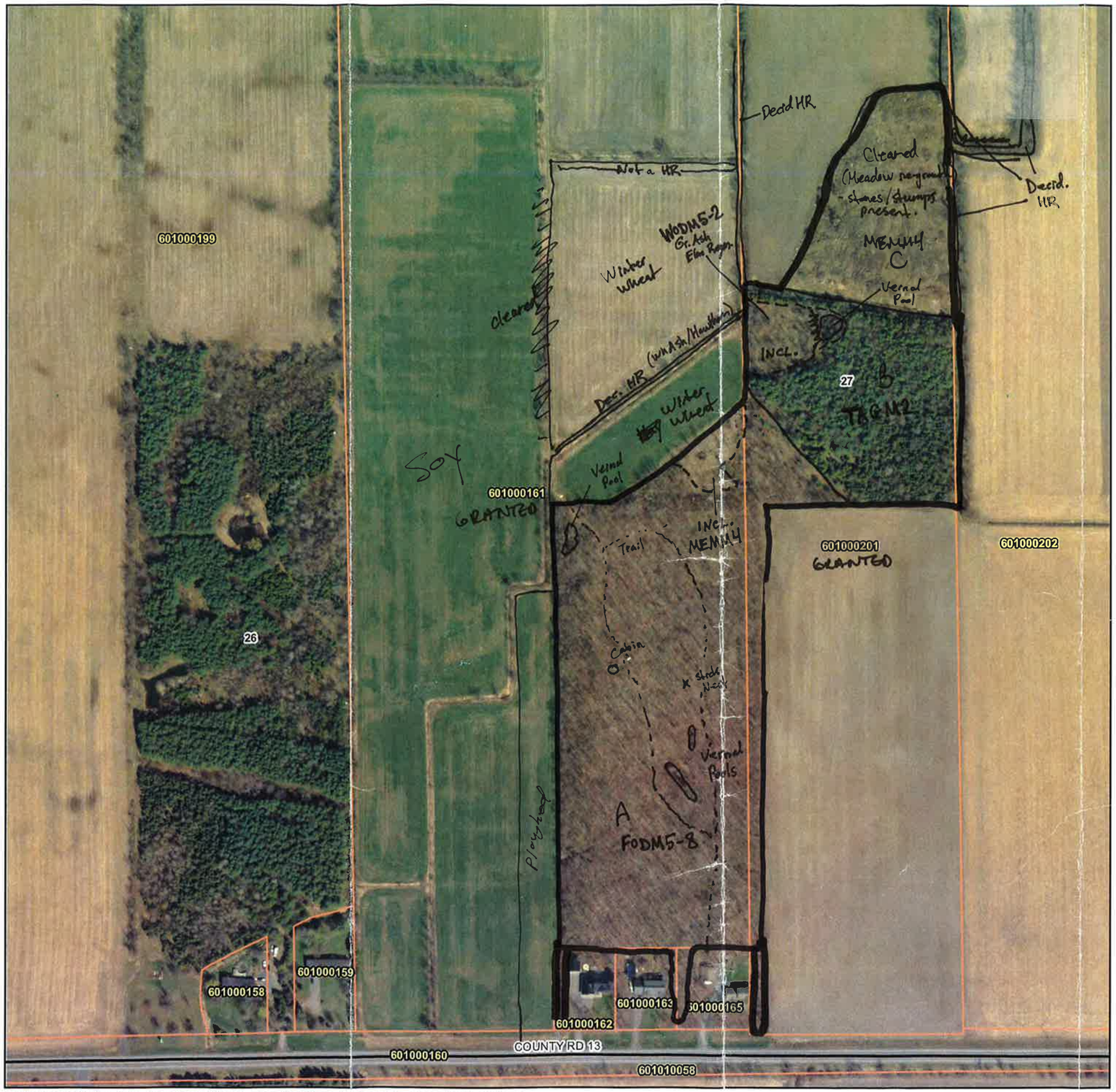
Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

WOD- 014

Dec. 6, 2016
(27)

PWD

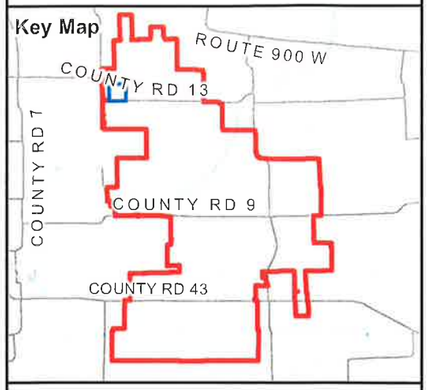


Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

Nation Rise Wind Project

Natural Features Field Map

Area ~~26 &~~ 27



Legend

- Primary Road
- Land Parcel

601000161 Granted
601000201 Granted

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-014

Site:	1756 Nation Rise Wind Project
Polygon:	27, 601000161, 601000201 A
UTM:	
Date:	Dec. 6, 2016 Time: 1315-1355, 1440-1610
Surveyor(s):	PWD
Weather:	3°C, 10% cc, wind 1/S, no precip.

Community Classification

	Vegetation Type:	FODMS-8 D-F Sugar Maple-Wh Ash Dec Forest Type
X	**Inclusion:**	MEMM4 F-M Mixed Meadow Ecosite
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	—
1	Canopy	2	4	Sugar Maple > Wh. Ash = Am. Basswood > Am Elm
2	Sub-canopy	3	2	Sugar Maple > Am. Basswood > Wh. Ash
3	Understorey	4	2	White Ash > Hop Hornbeam = Sugar Maple
4	Groundcover	-	-	Unable to assess (snow)

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Am. Basswood	O	O			
Am. Elm	O	O			
Green Ash	R	R			
Sugar Maple	A	O	C		
Am. Beech		R	R		
Wh. Ash	C	O	O		
Hop Hornbeam		O	O		
Yellow Birch		R			
Bitternut Hickory		O	O		
Trembling Aspen	R	R			
Alt lvd Dogwood			O		
Riverbank Grape			R		

Species	Layer 1	2	3	4	Sample
Cohosh sp.					
Plantain lvd Sedge					
False Sol. Seal					
Orchard Grass				O	
W.L.D. Carrot				O	
Goldenrod sp.				O	
Chicory				O	

MEMM4 INCL

Wildlife and Other Notes

Hairy Woodpecker
W.B. Nuthatch
Bl Capped Chickadee

Photos: 5907-5915, 5928

Modified ELC Community Description

Soils	1	2	3
Position:	7		
Aspect:	N/A		
%	0-0.5		
Type:	S		
Class:	A		

A

Polygon: 27, 601000161 FODM5-8

Strata: Texture	L (4)		
Depth	29		
Strata: Texture	SiC (5)		
Depth	64		
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture	SiC		
Surface Stoniness	0		
Surface Rockiness	0		
Depth to:			
Mottles	39		
Gley	No		
Bedrock	64		
Water table	No		
Carbonates	32		
Depth of Organics	0		
Pore Size Disc #1	-		
Pore Size Disc #2	-		
Pore Size Disc #3	-		
Moisture Regime	3		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

Coarse fragments 55-64 cm, bedrock at 64 cm.

WOD-014

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 27,601000161 FODMS-8	
Date: Dec 6, 2016	**Start Time:** 1315	**End Time:** 1355	**Observers:** PWD
Weather Conditions: See ELC sheet	+1440	1610	

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool	✓		
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters)
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Depth into the ground. Amount of sun exposure (or direction the slope faces). Rock size. Vegetation present. Substrate composition (or bedrock type). Evidence of Use. Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)	✓		Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exctics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 6, 2016

Project Name: Nation Rise WP Project #: 1756 Area and/or Polygon ID: 27, 601000161, FODMS-8

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	3	18T 482344 5004164 (A) 18T 482344 5004192 (B) 18T 482166 5004304 (C)	5910 No photo No photo	All contained 10-30cm of water. (A) 20x10m (B) 5x10m (C) 10x10m	All may support amphibian breeding.
Stick Nest (Raptor)	1	18T 482314 5004226	5913 5914	Sugar Maple 30DBH	Not in use (outside of season)
Meadow	1	See field map	5918 5919	Meadow is small (0.2ha) and contains early successional trees.	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Hairy Woodpecker	SH	1						
B	Bl Capped Chickadee	SH	2						
B	W.B. Nuthatch	SH	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-014

Site:	1756 Nation Rise Wind Project
Polygon:	27, 601000201 b
UTM:	
Date:	Dec. 6 2016 Time: 1355 - 1405
Surveyor(s):	PWD
Weather:	2°C, 10% cc, wind 1/5, no precip.

Community Classification

	Vegetation Type:	TAGM2 Mixed Plantation
X	Inclusion:	WODUS-2 F-M Elm Deciduous Woodland
	Complex:	

Polygon Description

System		Substrate		Topo Feature			Community			
X	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
	Wetland	X	Mineral Soil		Riverine		Crevice/Cave		Pond		Meadow
	Aquatic		Parent Min		Bottomland		Alvar		River		Prairie
			Acidic Bedrock		Terrace		Rockland		Stream		Thicket
History			Basic Bedrock		Valley Slope		Beach/Bar		Marsh		Savannah
	Natural		Carb Bedrock	X	Tableland		Sand Dune		Swamp		Woodland
	Cultural				Roll Upland		Bluff		Fen		Forest
		Site			Cliff				Bog	X	Plantation

Cover		Site	Plant Form					
	Open		Open Water		Plankton		Forb		Coniferous
	Shrub	X	Shallow Water		Submerged		Lichen	X	Mixed
X	Treed		Surficial Dep		Floating-Lvd		Bryophyte		
			Bedrock		Graminoid		Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	4	White Pine >> Wh. Ash >> Am. Elm
2	Sub-canopy	3	1	Wh. Pine > Am. Elm
3	Understorey	4	1	Com Buckthorn > Am. Elm > Wh. Ash
4	Groundcover	6	1	Goldenrod sp. > Lance-lvd Aster

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24		25 - 50	N	> 50
Snags	O	< 10	O	10 - 24		25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	D				
Am. Elm	R	O	O		
Red Osier Dogwood			R		
Com. Buckthorn			O		
White Cedar			R		
Hawthorn sp.			R		
White Ash	O	O	R		

Species	Layer 1	2	3	4	Sample
Lance-lvd Aster				R	
Goldenrod sp.				R	

Wildlife and Other Notes

Blue Jay
White-tailed Deer (TK)
Vernal pool within inclusion (East end)
Ash declining due to density of Wh. Pines.

Photos: 5917, 5919, 5924
5925, 5926, 5927

Modified ELC Community Description

B

Polygon: 27, 601000201, TAGM2

Soils	1	2	3
Position:	T		
Aspect:	N/A		
%	0-0.5		
Type:	S		
Class:	A		

Strata:	Texture	L (1)		
	Depth	19		
Strata:	Texture	S:C(S)		
	Depth	57		
Strata:	Texture	S:C(S)		
	Depth	68		
Strata:	Texture			
	Depth			
Effective Texture		S:CL		
Surface Stoniness		0		
Surface Rockiness		0		
Depth to:				
	Mottles	36		
	Gley	No		
	Bedrock	61		
	Water table	No		
	Carbonates	28		
Depth of Organics		3		
Pore Size Disc #1		-		
Pore Size Disc #2		-		
Pore Size Disc #3		-		
Moisture Regime		3		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

WOD-014

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 27, 601000201, TAGM2	
Date: Dec 6, 2016	**Start Time:** 1355	**End Time:** 1405	**Observers:** PWD
Weather Conditions: See ELC sheet			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool	✓		
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water.
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices.
Cave		✓	Depth of cave, bedrock type.
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 6, 2016

Project Name: Nation Rise WF Project #: 1756 Area and/or Polygon ID: 27, 601000201, TAGH2

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	1	18T 482279 5004517		10x10m pool, appx 15cm deep (centre)	None observed.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Blue Jay	A	4						
M	Wh-tailed Deer	TK							

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	27_601000201 C
UTM:	
Date:	Dec. 6. 2016 **Time:** 1405 - 1430
Surveyor(s):	PWD
Weather:	2°C 10% c.c. wind 1/S no precip.

Community Classification

Vegetation Type:	MEMM4 F-M Mixed Meadow Ecosite
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
X Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	-	-	-
2	Sub-canopy	-	-	-
3	Understorey	-	-	-
4	Groundcover	5	4	Goldenrod sp. > Green Foxtail = Reed Canary Grass = Asters

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
No trees or shrubs					

Species	Layer 1	2	3	4	Sample
Goldenrod sp.				A	
Green Foxtail				O	
Wild Carrot				O	
Reed Canary Grass				O	
Large lvd Aster				O	

Wildlife and Other Notes

Soil profile has been disturbed (ruts, ploughing, stump holes)

Photos: 5922, 5923

Modified ELC Community Description

C

Soils	1	2	3
Position:	T		
Aspect:	N/A		
%	0-0.5		
Type:	S		
Class:	A		

Polygon: 27, 60100020 |, MEMM4

Strata: Texture	L (4)		
Depth	20		
Strata: Texture	SiC (5)		
Depth	59		
Strata: Texture	SimS		
Depth	65(1)		
Strata: Texture			
Depth			
Effective Texture	SiC		
Surface Stoniness	0		
Surface Rockiness	0		
Depth to:			
Mottles	32		
Gley	No		
Bedrock	65		
Water table	No		
Carbonates	22		
Depth of Organics	0		
Pore Size Disc #1	59		
Pore Size Disc #2	-		
Pore Size Disc #3	-		
Moisture Regime	4		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

Area has had soil profile disturbance (grubbing, ploughing, stump holes). Auger taken at edge in less disturbed area.

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nolan Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 27,601000201, MEMM4	
Date: Dec. 6, 2016	**Start Time:** 1405	**End Time:** 1430	**Observers:** PWD
Weather Conditions: See ELC sheet.			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate)
Vernal Pool		✓	Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	✓		Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 6, 2016

Project Name: Nation Rise WP | Project #: 1756 | Area and/or Polygon ID: 27.601000201, HEMM4

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow	1	See ELC/field map.		Meadow is 1.3ha in size Contains stumps/boulders Pioneer species, dense growth. Cleared recently	None observed.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
	None								

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

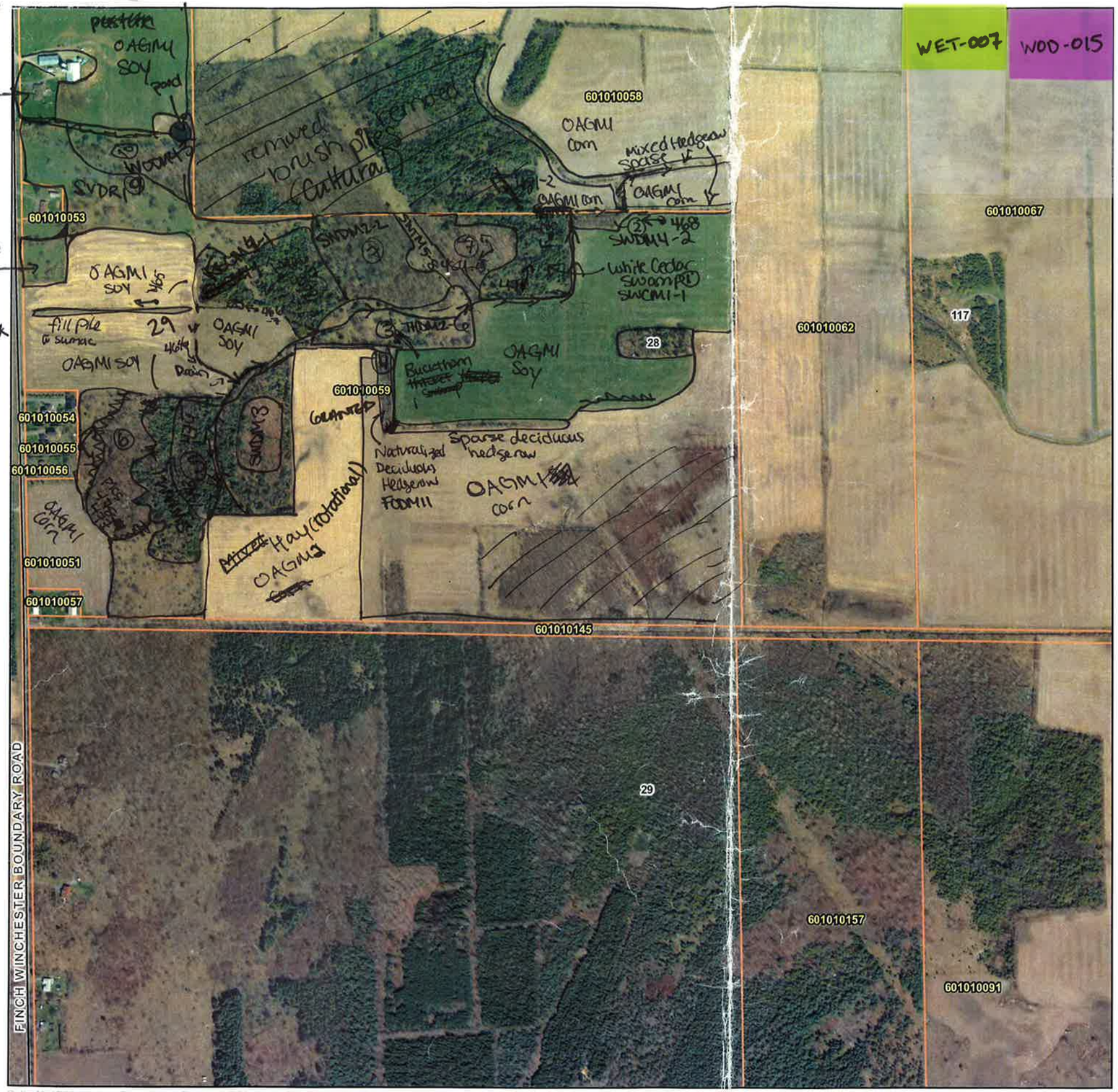
Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec 8-9 2016 EMB KLB

cattle pasture

old apple orchard?

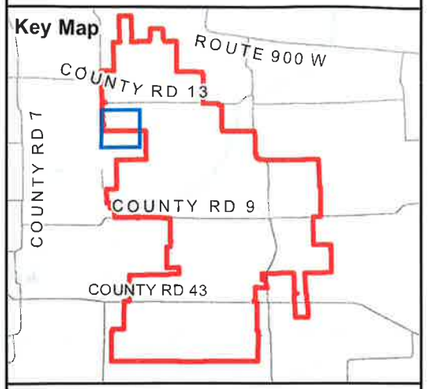
rockpile = X



Nation Rise Wind Project

Natural Features Field Map

Area 29



Legend

- Secondary Road
- Land Parcel

601010059 - Granted.

601010062 - Granted (needed for WB access)
Should I need to access this parcel though

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:9,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_11-0_FieldMaps_NatFeatures_2016_11_02_LEN.mxd

Dec 8+9 2016
EMB KLB

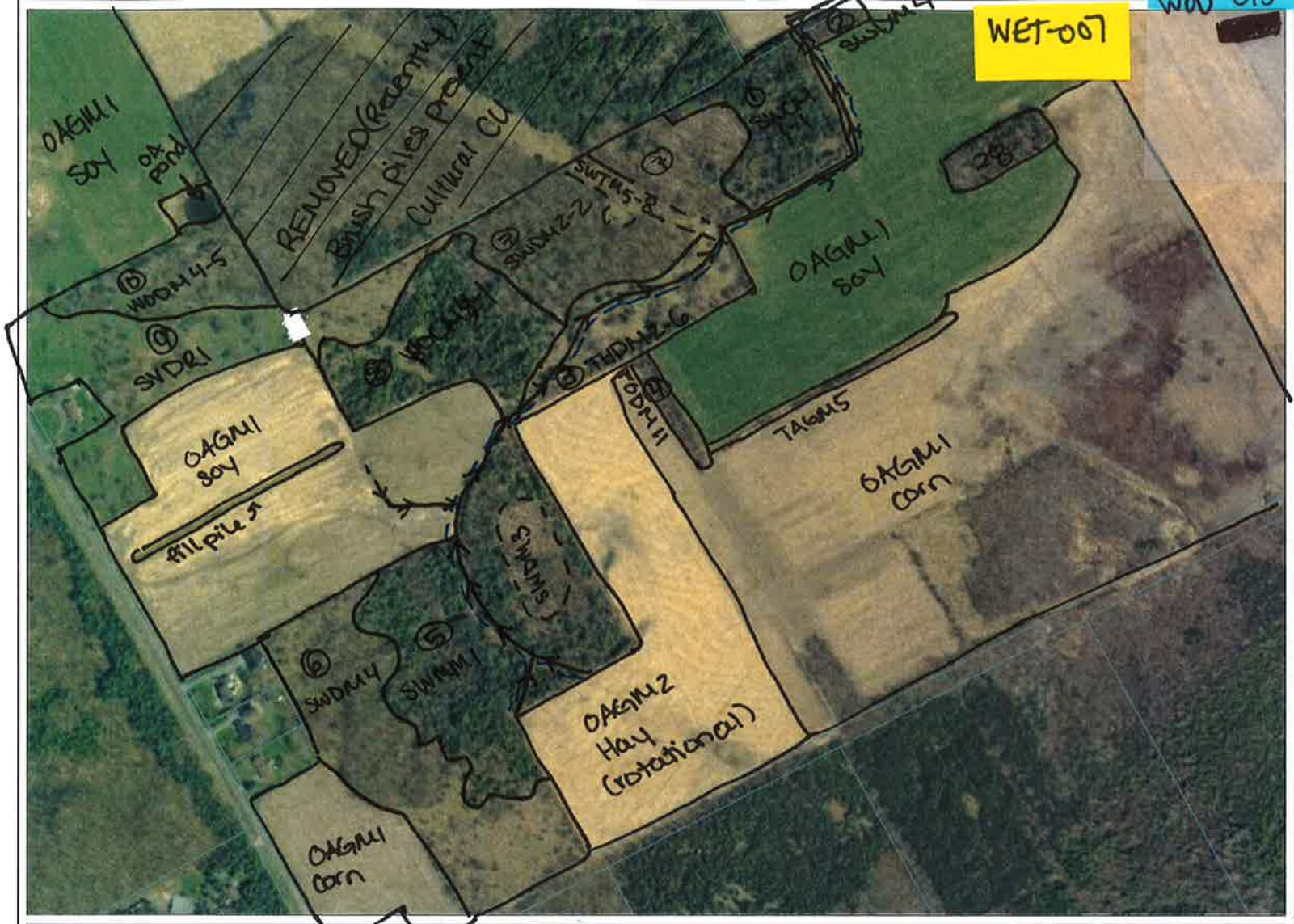
MINISTRY OF NATURAL RESOURCES AND FORESTRY

Ontario

Make a Topographic Map

Notes:

1756 Nation Rise - Area 29



Legend

- Building as Symbol
- Building to Scale
- Airport
- Heliport \ Hospital Heliport
- Seaplane Base
- Ferry Route
- Trail Head \ Trail
- Railway \ Train Station
- Railway with Bridge
- Railway with Tunnel
- Road (Major — Minor)
- Winter Road
- Road with Bridge
- Road with Tunnel
- Primary, Kings or 400 Series Highway
- Secondary Highway
- Tertiary Highway
- District, County, Regional or Municipal Road
- Toll Highway
- One Way Road
- Road with Permanent Blocked Passage
- Road with Address Ranges
- Hydro Line, Communication Line or Unknown Transmission Line
- Natural Gas Pipeline, Water Pipeline or Unknown Pipeline
- Spot Height
- Index Contour
- Contour
- Wooded Area
- Wetland
- Waterbody
- Waterbody Elevation
- Watercourse
- Falls
- Rapids
- Rapids \ Falls
- Rapids
- Rocks
- Lock Gate
- Dam \ Hydro Wall
- Dam \ Hydro Wall
- Provincial \ State Boundary
- International Boundary
- Upper Tier \ District Municipal Boundary
- Lower Tier \ Single Tier Municipal Boundary
- Lot Line
- Indian Reserve
- Provincial Park
- National Park
- Conservation Reserve
- Military Lands

0 0.3 km

Projection: Web Mercator

N

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NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-015

Site:	Nation Rise 7516
Polygon:	Area 29 (1) 600100S?
UTM:	
Date:	Dec 9 2016 Time: 7:45-9:40
Surveyor(s):	~~PWD~~ EMB KLR
Weather:	-8°C Wind 2 L1 Precip: None CC: 10%

Community Classification

Vegetation Type:	SWCM1-1 White Cedar Mineral Coniferous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	White cedar >> Green Ash > White Elm
2	Sub-canopy	3	2	White cedar >> Green Ash > E. Buckthorn
3	Understorey	5	2	E. Buckthorn > White cedar
4	Groundcover	7	1	MOSS SP.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	O	10 - 24	A	25 - 50	R	> 50
Snags	R	< 10	O	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	N	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	X Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	~~PWD~~
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White cedar	D	O	R		
Green Ash	R	R			
White Elm	R				
Juglans sp.	R				
E. Buckthorn		R	O		
Crab Apple		R			

Species	Layer 1	2	3	4	Sample
moss sp.				D	
wild carrot			R		
tall goldenrod			R		
Riverbank Grape			R		

Wildlife and Other Notes

squirrel (grey)
deer (TK)
red squirrel

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-007

CS1

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601010059	
Observer(s): EMB KLB		**ELC Code:** SWCM 1-1 cedar swamp	
Date: Dec 9 2016	**Time (24h):** 0745-0840	Area 29 (1)	
Wetland #: WET-007	**Weather:** Precipitation: None	Temp (° C): -8	
Veg Community #: CS1	Wind Speed & Direction: SW	Cloud %: 10%	
Wetland Type: Swamp	**Site Type:** P	**Dominant Form:** C	
Permanent Open Water: 0 %	**Check one:** ☒ central area ○ spread out in ponds		
Photos: 483 480 479			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%: 85)	White cedar (100%)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: 2 cm Organic Type: F M H Depth to bedrock: 100 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

grey squirrel - OB
red squirrel - OB
turkey (tracks) - TK
white-tailed deer - TK, scat, browse

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ⊗ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ⊗ winter cover for wildlife
  dense cover, open underneath, deer tracks (prominent use)
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊗ dec. forest; ⊗ recent cutover or clearcut (<5yr); ⊗ conif. forest; ⊗ mixed forest; ⊗ crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊗ fence rows; ⊗ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ⊗ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  Permanent swamp.
- ⊗ vernal pools
  see SWH form
- ⊗ invasive species (plant, aquatic)
  E. Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-015

Site:	1756 Nation Rise Wind Project
Polygon:	(2) Area 29 — 600101059
UTM:	
Date:	Dec 8 2021 — Time: 13:15 - 14:20
Surveyor(s):	~~PWD~~ EMB KLB
Weather:	2°C Wind 2W cc: 95% No precip.

Community Classification

Vegetation Type:	SWDM1-2 White Elm Mineral deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	NA	NA
1	Canopy	2	4	White Elm > Manitoba Maple > Green Ash
2	Sub-canopy	3	3	Manitoba Maple > E. Buckthorn > White Elm
3	Understorey	4	4	E. Buckthorn > Green Ash > Choke cherry
4	Groundcover	6	2	red raspberry > rose sp > moss sp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	C	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	N	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
crabapple		R			
White elm	D	O			
Manitoba Maple	O	O			
E. Buckthorn		O	O		
Green Ash	R	R	R		

Species	Layer 1	2	3	4	Sample
tall goldenrod				R	
common burdock				R	
Riverbank Grape			R	R	
Black raspberry			R	R	
moss sp.				R	
reed canarygrass				R	
rose sp.				R	
red raspberry				O	

Wildlife and Other Notes

Deer tracks throughout
photo 468

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-007

hS3

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1752	**Parcel #:** 60101 0059 (2)
Observer(s): EMB KLB		**ELC Code:** SWDM4-2
Date: Dec 8 2016	**Time (24h):** 13:15 - 14:20	Area 29 (1)
Wetland #: WET-007	**Weather:** Precipitation: None	Temp (° C): 2
Veg Community #: hS3	Wind Speed & Direction: SW	Cloud %: 95
Wetland Type: swamp	**Site Type:** P	**Dominant Form:** h
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds	
Photos: 468 → 470		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 75)	White Elm (60%) Manitoba Maple (30%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%: 40)	red raspberry (25%), riverbank grape (10%), green ash (25%)
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%: 15)	moss sp
u (%:)	

Soil type: Cl Mineral ☒ Organic ☐ Depth of organics: 1 cm Organic Type: F M H Depth to bedrock: 100+ cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:
white-tailed deer & wild turkey tracks throughout

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ⊗ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  see map
- ○ human related disturbances (fill, docks, houses, etc)
- ⊗ evidence of recreational activities (nature appreciation, fishing, hunting)
  hunting blind adjacent
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ⊗ winter cover for wildlife
  likely → deer + wild turkey tracks throughout
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; ⊗ utility corridor; ⊗ dec. forest; O recent cutover or clearcut (<5yr); ⊗ conif. forest; ⊗ mixed forest; O crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ⊗ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  permanent swamp
- ○ vernal pools
- ⊗ invasive species (plant, aquatic)
  E. Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: NationRise Project #: 1756

Start Time 13:15 End Time 14:20

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

SWOM4-2

Date: Dec 8 2016 Observer(s): EMP KLB

Project Manager Use Only:
Woodland Number :

Property or Area ID (Area 29 60060059 (2)) Weather Conditions: 2°C Wind 2W CC: 95% No precip.

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	Ø	*	* checked all trees for bat cavity trees due to narrow shape of the feature
Plot 2			
Plot 3			
Plot 4			
Plot 5			Ø identified.
Plot 6			
Plot 7			
Plot 8			
Plot 9			
Plot 10			
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 0 **> or = 10/ha? Yes / No** If >10/ha: BMA- ____

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	Area 29 60101005 9 (3)
UTM:	
Date:	Dec 9 2016 Time: 14:40 - 15:10
Surveyor(s):	PWD EMB KLB
Weather:	2°C wind 2W @ 95% No precip

Community Classification

Vegetation Type:	THDM2-6 Buckthorn deciduous shrub thicket
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
X Shrub		X Surficial Dep	Submerged	Lichen	Mixed
Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	2	Manitoba Maple > White Elm > Green Ash
2	Sub-canopy	3	3	Green Ash > manitoba maple > Buckthorn
3	Understorey	4	3	Buckthorn > Green Ash
4	Groundcover	10	2	Grass sp > black raspberry

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
E buckthorn		R	A		
Manitoba maple	R	R			
white cedar		R			
White Elm	R				
Green Ash	R				
Crab apple		R			

Species	Layer 1	2	3	4	Sample
grass sp.				D	
black raspberry				O	
bedstraw sp.				R	
riverbank grape				R	
Common Milkweed				R	

Wildlife and Other Notes

located @ higher elevation than surrounding
some clay
exposed rock

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	Area 29 (601010059) (H)
UTM:	
Date:	Dec 8 — Time: 15:10 - 15:30
Surveyor(s):	~~PWD~~ FMB KLB
Weather:	2°C Wind 2W CC: 95% NO Precip

Community Classification

Vegetation Type:	FODM11 Naturalized Deciduous Hedgerow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	X Woodland
X Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	3	Basswood > White Ash > White Elm
2	Sub-canopy	3	2	F. Buckthorn > White Ash > W. Elm
3	Understorey	4	2	F. Buckthorn > White Ash
4	Groundcover	6	2	rose sp > garlic Mustard

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	M	25 - 50	N	> 50
Deadfall/Logs	N	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Tuliar sp.	R	R			
Basswood	O				
White Elm	O	R			
White Ash	O	R	R		
E. Buckthorn		D	D		
Sugar Maple		R			

Species	Layer 1	2	3	4	Sample
Rose sp.				O	
Riverbank Grape				R	
Tall goldenrod				R	
Black raspberry				R	
Garlic Mustard				O	

Wildlife and Other Notes

pics 472 - 471
wide naturalized hedgerow

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-015

Site:	1756 Nation Rise Wind Project
Polygon:	Area 29 60101059 (5)
UTM:	
Date:	DEC 22/21 **Time:** 15:30 - 16:10
Surveyor(s):	~~EMD~~ EMB KLB
Weather:	2°C Wind 2W CC 95%. No Precip.

Community Classification

	Vegetation Type:	SWMM1 White cedar Mineral Mixed Swamp
X	**Inclusion:**	SWDM3 Maple Mineral Deciduous Swamp
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	White cedar > Sugar maple ? Green ash
2	Sub-canopy	3	2	White cedar > Sugar maple ? Green Ash
3	Understorey	4	2	white cedar > green ash > sugar maple
4	Groundcover	7	2	Grass sp. ? moss sp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O < 10	A 10 - 24	R 25 - 50	R > 50
Snags	R < 10	O 10 - 24	R 25 - 50	N > 50
Deadfall/Logs	R < 10	O 10 - 24	R 25 - 50	N > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	X Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	~~EMD~~
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
WhiteCedar	O	D	O		
E.Buckthorn		R	R		
Crab Apple		R			
Juglans sp.		R			
Sugar Maple	O	O	R		
Bitternutthickory		R	R		
GreenAsh	O	O	R		
Hawthorn sp.			R		
Inclusion					
Sugar Maple	D	O	R		
Green Ash	O	O			
White Cedar			R		
Blackash		R			
E.Buckthorn		R	R		

Species	Layer 1	2	3	4	Sample
moss sp.				O	
tallgoldenrod			R		
grass sp.				O	
Fragaria vesca				R	
rose sp.			R		
moss sp.				O	

Wildlife and Other Notes

American Robin
Wood turkey tracks throughout → White tailed deer
Snowmobile path
Exposed rock
Photos 473-4

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-007

CS4

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 17560 **Parcel #:** 601010059

Observer(s): EDB KLB **ELC Code:** SWMM1

Date: Dec 8 2016 **Time (24h):** 15:30 - 16:10 Area 29 (5)

Wetland #: WET-007 **Weather:** Precipitation: None Temp (° C): 2

Veg Community #: CS4 Wind Speed & Direction: 2 /W Cloud %: 95

Wetland Type: Swamp **Site Type:** P **Dominant Form:** C

Permanent Open Water: 5 % **Check one:** ○ central area ○ spread out in ponds

Photos: 468-474

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 20)	Sugar Maple (60%) Green Ash (40%)
c (%: 60)	White Cedar (100%)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 10)	F. Buckthorn (100%)
ls (%:)	
gc (%:)	
ne (%: 25)	Grass sp (80%)
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%: 10)	moss sp.
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: 2 cm Organic Type: F M H Depth to bedrock: 30 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:
wild turkey & white-tailed deer tracks throughout

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ⊗ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map
- ⊗ human related disturbances (fill, docks, houses, etc)
  snow mobile trail
- ⊗ evidence of recreational activities (nature appreciation, fishing, hunting)
  hunting blinds
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ◯ winter cover for wildlife
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊗ dec. forest; ⊗ recent cutover or clearcut (<5yr); ⊗ conif. forest; ⊗ mixed forest; ⊗ crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊗ fence rows; ⊗ fence row with deep cover or shelterbelt; O open lake or deep river; ⊗ creek floodplain; O rock outcrop
- ⊗ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  permanent swamp
- ⊗ vernal pools
  see significant wildlife habitat form, vernal pooling throughout
- ⊗ invasive species (plant, aquatic)
  E. Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-015

Site:	1756 Nation Rise Wind Project
Polygon:	Area 29 — 601010059 (6)
UTM:	
Date:	Dec 8 2016 — **Time:** 10:10-16:30
Surveyor(s):	~~PWD~~ EMR KLB
Weather:	2°C Wind 2W CC: 95% No Precip

Community Classification

Vegetation Type:	SWDM4 Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy		NA	NA
1	Canopy	2	4	Hophornbeam > Green ash > Sugar maple
2	Sub-canopy	3	2	Green ash > Hop hornbeam > Sugar maple
3	Understorey	4	1	rose sp
4	Groundcover	0	1	grass sp. > moss sp

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	M	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	~~PWD~~
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Hophornbeam	O	O	R		
White Birch	R	R			
Green Ash	O	O	R		
Sugar Maple	O	O	R		
E. Buckthorn			O		
Bitternut Hickory			R		
White cedar		R	R		
American Beech			R		
Trembling Aspen		R	D		

Species	Layer 1	2	3	4	Sample
rose sp.			O		
grass sp.				O	
moss sp.				R	

Wildlife and Other Notes

Wild turkey observed
White-tailed deer tracks
Photos 477-8
Very wet community → moss presence on tufts, succeed high water + ponded water throughout

dominated by Hop Hornbeam + Green Ash

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-007

hS2-B

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 17576 **Parcel #:** 160101005?

Observer(s): EMB KLB **ELC Code:** SWDM4

Date: Dec 8 2016 **Time (24h):** 16:10 - 16:30 Area 29 (6)

Wetland #: WET-007 **Weather:** Precipitation: None Temp (° C): 2°C

Veg Community #: hS2-B Wind Speed & Direction: 2W Cloud %: 95%

Wetland Type: Swamp **Site Type:** P **Dominant Form:** deciduous trees

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 477-478

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 70)	Hop Hornbeam (60%) Green ash (20%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: 2 cm Organic Type: F M H Depth to bedrock: 50 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

Wild turkey observed (1)

white-tailed deer tracks observed.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ⊗ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  see map
- ○ human related disturbances (fill, docks, houses, etc)
- ⊗ evidence of recreational activities (nature appreciation, fishing, hunting)
  hunting blind
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ⊗ winter cover for wildlife
  white-tailed deer tracks throughout; wild turkey observed
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊗ dec. forest; ⊗ recent cutover or clearcut (<5yr); ⊗ conif. forest; ⊗ mixed forest; ⊗ crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊗ fence rows; ⊗ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ⊗ vernal pools
  Yes - vernal pools present throughout feature
- ⊗ invasive species (plant, aquatic)
  European Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

WOD-015

Site:	1750 Main St
Polygon:	Area 2? 601010059 (3)
UTM:	
Date:	Dec 9 2021 Time: 8:40-9:30
Surveyor(s):	~~PWD~~ FMB KLB
Weather:	-8°C wind 2W ND precip 10% CC

Community Classification

	Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp? Thicket Swamp
X	Inclusion:	SWTM5-8 Non-Native Mineral Deciduous
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	1	4	Green Ash > Sugar Maple > White Elm
2	Sub-canopy	3	2	Green Ash > Sugar Maple > White Elm
3	Understorey	4	2	Am. Beech > White Cedar > Moss sp.
4	Groundcover	7	2	sedge sp. > moss sp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Snags	N	< 10	O	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	N	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	~~PWD~~
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Birch	R	R			
~~Red~~ Hickory	R	R			
Sugar Maple	O	D			
Green Ash	O	O			
White Cedar		R	R		
White Elm	R	R			
Am. Beech		R	O		
Hop Hornbeam	R	R			
Hemlock	R				
Juglans sp.	R	R			
Inclusion					
White Cedar		R			
Green Ash		R			
Black Maple		R			
F. Buckthorn		D	D		
2.0 Dogwood			R		

Species	Layer 1	2	3	4	Sample
moss sp.				O	
rose sp.			O		
sedge sp.				O	
tall boulder rock			R		
moss sp.				O	
sedge sp.				O	

Wildlife and Other Notes

White tailed deer tracks throughout
pics 485, 454,
Exposed rock

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-007

hS2-A

Wetland Vegetation Communities

Project Name: Nation Rise Wind Project **Project #:** 1756 **Parcel #:** 600101059

Observer(s): EMB, KLB **ELC Code:** SWDM2-2

Date: December 9/16 **Time (24h):** 8:40 - 9:30 Area 29 (7)

Wetland #: WET-007 **Weather:** Precipitation: None Temp (° C): -8°C

Veg Community #: hS2-A Wind Speed & Direction: 2W Cloud %: 10%

Wetland Type: Swamp **Site Type:** R **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 484-485

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%90)	Green Ash (40%) Sugar maple (30%) White elm (10%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: \ cm Organic Type: F M H Depth to bedrock: 60 cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

see SWH form

white-tailed deer tracks throughout

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: L=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ⊗ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; Ø dec. forest; Ø recent cutover or clearcut (<5yr); Ø conif. forest; Ø mixed forest; Ø crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; Ø fence rows; Ø fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ⊗ vernal pools
  present throughout feature (3m x 2m → 10-15 cm depth)
- ⊗ invasive species (plant, aquatic)
  European Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of _

WOD-015

Site:	1756 Nation Rise Wind Project
Polygon:	Area 29 60101059 (8)
UTM:	
Date:	Dec 8 2016 Time: 9:30-10:00
Surveyor(s):	PWD EMB KLB
Weather:	-8°C Wind: 2W Precip: None CC: 10%

Community Classification

Vegetation Type:	FOCM4-1 Fresh-Moist White Cedar Coniferous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	X Woodland
Cultural		X Boll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	white cedar >> Sugar maple
2	Sub-canopy	3	2	White cedar >> Sugar Maple
3	Understorey	4	2	E. Buckthorn >> Hawthorn sp.
4	Groundcover	7	1	moss sp

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O < 10	A 10 - 24	N 25 - 50	N > 50
Snags	R < 10	R 10 - 24	N 25 - 50	N > 50
Deadfall/Logs	R < 10	R 10 - 24	V 25 - 50	N > 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Whitecedar	D	D			
Hawthorn sp.			O		
E. Buckthorn			O		
Sugar Maple	R	R			

Species	Layer 1	2	3	4	Sample
prickly ash			R		
moss sp				O	

Wildlife and Other Notes

PCS 486-487

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site:	1756 Nation Rise Wind Project
Polygon:	Area 29 (9) 601010059
UTM:	
Date:	December 9/16 Time: 10:30-11:00
Surveyor(s):	~~PWD~~ EMB, KLB
Weather:	-8°C Wind 2W Precip: None CC: 10%

Community Classification

Vegetation Type:	SWDR1 – Dry-Fresh Calcareous Bedrock Savanna
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	X Savannah
X Natural	X Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	2	Sugar Maple >> White Elm >> Am. Beech
2	Sub-canopy	3	2	Sugar Maple >> White Elm >> Am. Beech
3	Understorey	4	2	Crab apple / E Buckthorn
4	Groundcover	6	4	Grass sp >> sedge sp >> tall goldenrod

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R < 10	R 10 - 24	D 25 - 50	R > 50
Snags	N < 10	N 10 - 24	N 25 - 50	N > 50
Deadfall/Logs	N < 10	R 10 - 24	N 25 - 50	N > 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Crab apple			O		
Domestic apple			R		
Sugar Maple	D	D			
E. Buckthorn			O		
Am. Beech	R	R	R		
White Elm	R	R			

Species	Layer 1	2	3	4	Sample
tall goldenrod				R	
Grass sp.				O	
Sedge sp.				O	
Bl. Raspberry				R	

Wildlife and Other Notes

photos 488:89
exposed rocks

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	Area 2a 601010059 (19)
UTM:	
Date:	December 9/16 Time: 10:00-10:30
Surveyor(s):	~~PWD~~ FMR KLR
Weather:	-8°C Wind: 2W Precip: None CC: 10%

Community Classification

Vegetation Type:	WODM4-3 Sugar Maple Deciduous woodland
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	X Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	NA	NA
1	Canopy	2	3	Sugar Maple >> Hop hornbeam > White Ash
2	Sub-canopy	3	2	Sugar Maple > Hop hornbeam > White Ash
3	Understorey	4	1	E. Buckthorn > Crab apple > Am. beech
4	Groundcover	6	3	Grass sp. > Sedge sp. > tall goldenrod

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R < 10	R 10 - 24	O 25 - 50	R > 50
Snags	N < 10	R 10 - 24	N 25 - 50	N > 50
Deadfall/Logs	N < 10	R 10 - 24	N 25 - 50	N > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Hop Hornbeam	R	R			
Am. Beech		R	R		
Sugar Maple	D	R			
White Ash	R	R			
E. Buckthorn		R	O		
Bitternut Hickory	R	R			
White Elm	R	R			
Crab apple			R		

Species	Layer 1	2	3	4	Sample
Grass sp.				O	
Sedge sp.				O	
tall goldenrod				R	

Wildlife and Other Notes

photos 490 - 91

Adjacent to open water pond w/ cattail - leaved cattail pics 492-3

Wildlife Habitat Field Data Collection

WOD-015

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** Area 29

Date: Dec 8-9 2016 **Start Time:** 13:15 (9th 7:45) **End Time:** 16:30 (9th 11:00) **Observers:** PWD EMB KLB

Weather Conditions: 20C, wind 2W 0C, 95%. NO PRECIP

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool	X		Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic)
Pond	X		Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp	X		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		X	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	X		Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst	X		Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		X	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence	X		Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		X	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		X	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat	X		Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah	X		Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec 8-9 2016

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 29

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Rock Pile	1	0458413 5008013	466-67	rocks 7-40cm diametre 2m x 20m → surficial, newer	None
Vernal Pool	10+	0458406 5008424	475-76, 483	~15cm deep, 5x5m various pools throughout area	None
Pond	1	0458396 5008226	492-93	40m x 30m • No woody debris • narrow-leaved cattail dominant	None
Swamp	5 ecosites	see map	479, 480, 468, 473, 474, 477, 478, 484, 485	SEE ELC FORMS FOR DETAILS of these communities (5)	White-tailed deer + wild turkey tracks
Thicket	1	see map	471	• No suitable raptor perches • THDM2-6 Buckthorn deciduous Shrub Thicket	None
Woodland	2	see map	486-487 490-491	• possible raptor perches • WOCM2- Fresh-Moist Coniferous Woodland • NODM4-3 Sugar Maple Deciduous Woodland	None None None
Hydro corridor	1	see map	N/A	• No suitable raptor perches. SWTM5-8 Buckthorn Mineral deciduous thicket swamp	White-tailed deer tracks throughout
Karst	4	see map	488-89 473-474 484-485	SWDR1- Dry Fresh Calcareous Bedrock Savanna THDM2-6 Buckthorn Deciduous Shrub Thicket SWMM1 White cedar mineral mixed swamp SWDM2-2 Green Ash mineral Decid Swamp	>120m Wild turkey + white-tailed deer tracks

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Turkey Vulture	OB	10						
B	Am. Robin	OB	1						
M	White-tailed Deer	TK	NA	Also Scat, Browse.					
M	Red Squirrel	OB	1						
B	Snow Goose	OB	35	Flying Overhead					
B	Wild turkey	TK	NA						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

→ continued

Continued

WOD-015

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1750	**Area and/or Polygon ID:** Area 24	
Date: Dec 8 - 9 2016	**Start Time:** 13:15 (9m 7.45)	**End Time:** 1630 (9m - 11:00)	**Observers:** FMK KLB
Weather Conditions: 20C 10 km/h W cc 95% No Precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field			Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool			Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic).
Pond			Vegetation species, woody debris/basking logs within water Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water			Presence of fish
Swamp			**All Swamps**. Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture			Height of vegetation Size of site Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow			Evidence of small mammals Frequency and source of disturbance Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor			Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel			Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles			Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs			Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst			Depth of crevices
Cave			Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes			Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters)
Exposed Unvegetated Lake/River/Wetland Edge			Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs			Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water			Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft			Age Depth into the ground Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence			Rock size Vegetation present Substrate composition (or bedrock type)
Abandoned Road or Rail Bed			Evidence of Use Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well			**Abandoned Wells Only:** Presence and type of capping
Old Foundation			**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake			Diameter of entrance Soil Type Availability of aquatic vegetation or fish
Medium			Ecosite of location Proximity to water and type of water Evidence of use, or tracks or digging marks
Large			
Log Jams, Old Beaver Lodges			Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)			Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat			Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)			Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest			Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah			Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog			Soil type and depths.
Red Spruce or White Oak Forest			Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)			Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges			Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren			Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar			Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)			Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community			Sources of disturbance (includes presence of exotics).

continued

Characteristics of Identified Wildlife Habitat

Date: Dec 8-9 2016

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: Area 29

NATURAL RESOURCE SOLUTIONS INC.
Aquatic Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Extensive Browse & ungulate scat	1	see map	479-480	SWCM1-1 - White Cedar Mineral Coniferous Swamp • Hunting blinds nearby = 3 • White cedar + crab apple browsed • tracks crossing creek = no barrier • No seeps/springs observed	Deer Browse + tracks + scat located throughout
Savannah	1	see map	488-9	SVDR1 - Dry-Fresh Calcareous Bedrock Savannah 20% tree cover; 75% grass cover Partially fenced off for unknown purpose (electric fence - 1 wire)	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

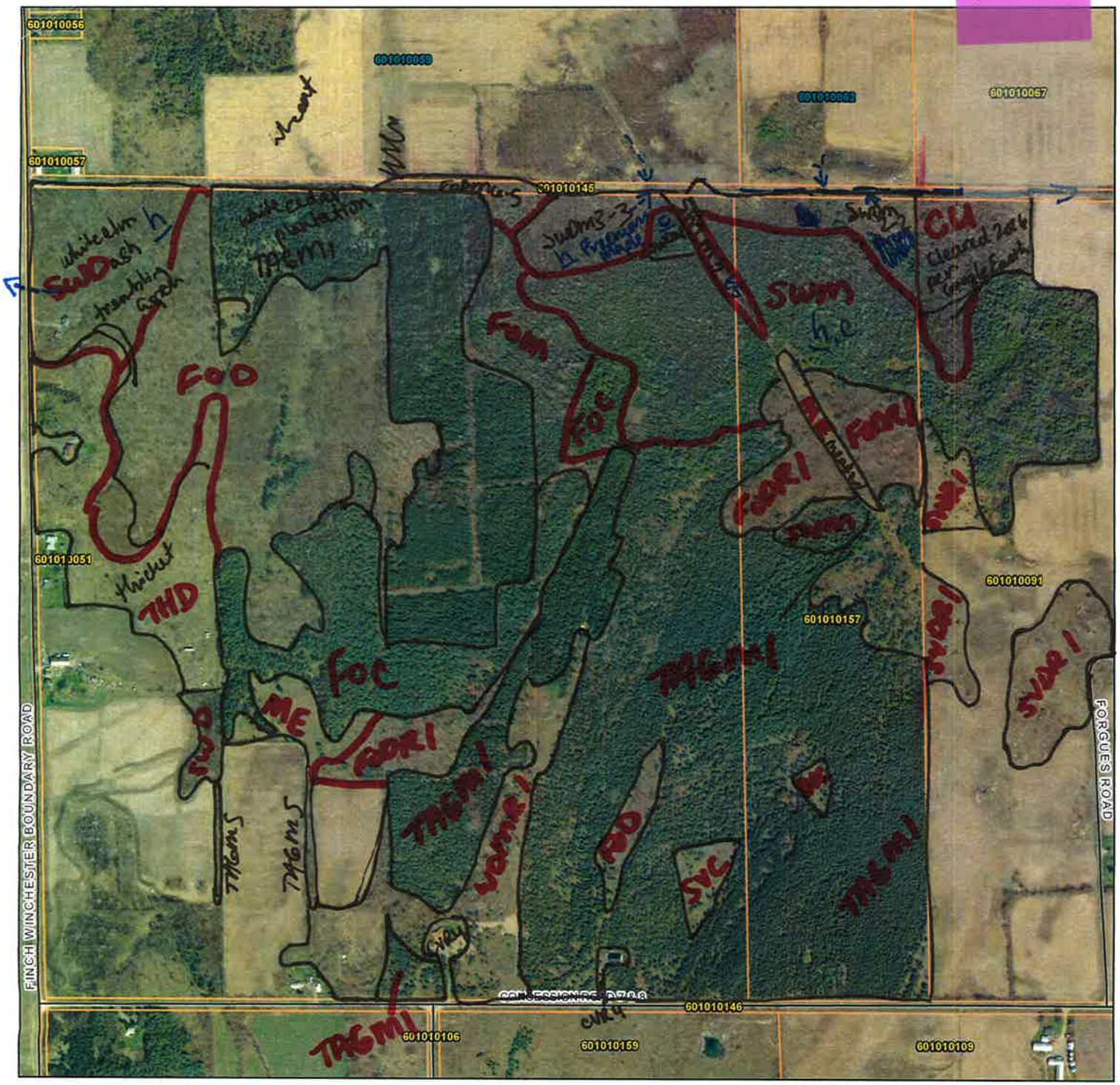
Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

WOD-015

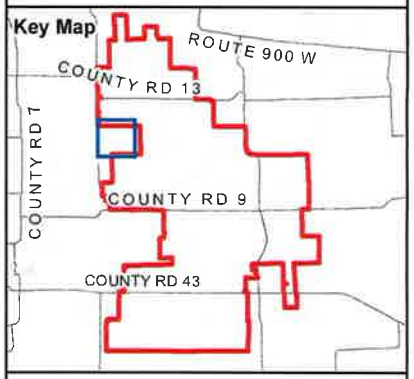
WET-007
WET-008



Nation Rise Wind Project

Natural Features Field Map

Area 29



Legend

- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

airphoto interpret –

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Aquatic, Terrestrial and Wetland Biologists

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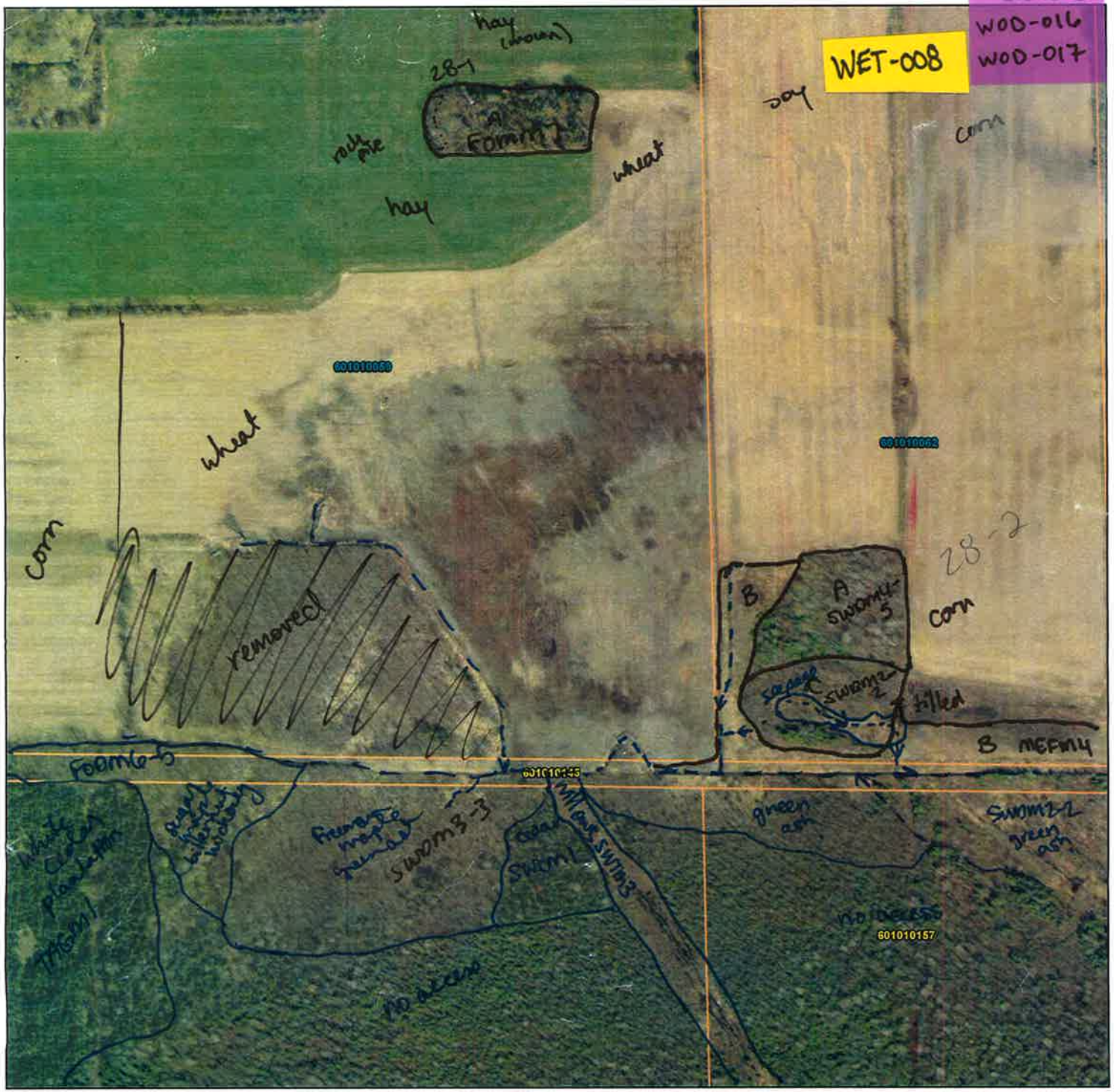
Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:9,000

0 50 100 150 Meters

N

Christy Humphrey, Carlene Perkin
June 6 2016

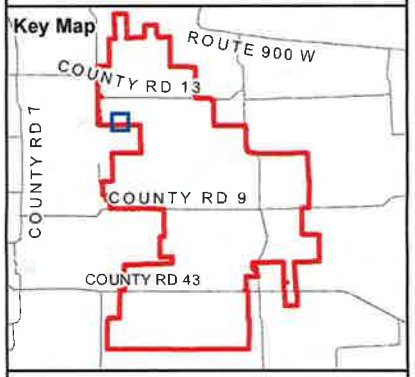
WET-008
WOD-016
WOD-017



Nation Rise Wind Project

Natural Features Field Map

Area 28 + 29



Legend

- Land Parcel
- Parcel with Access
- Parcel without Access

(air photo interpret →)

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Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-016

Site:	Nation Rise 1756
Polygon:	Area 28-1 A (0010100059)
UTM:	
Date:	June 16 2016 Time: 0945 - 1135
Surveyor(s):	Christy Humphrey, Carlene Perkin
Weather:	15°C, Wind 3, EC 20% No precip

Community Classification

Vegetation Type:	FOMMY Fresh-Moist White Cedar-Hardwood Mixed Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Peat/Muck	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
	Super-canopy	1	0	—
1	Canopy	2	2	Green Ash > White Elm > White Cedar
2	Sub-canopy	3	4	White Cedar > Common Buckthorn > Green Ash > Tatarian Honeysuckle
3	Understorey	4/5	3	Common Buckthorn > Purple Flowering Raspberry > Thimbleberry
4	Groundcover	4/5	4	Sweet Cicely > Sanicula odorata > Spreading Dogbane > Burdock

HT Codes: 1 >25m 2 25 - 10m 3 10 - 2m 4 2 - 1m 5 1 - 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 - 10% 2 10 - 25 3 25 - 60% 4 >60%

Size Class Analysis									
	N	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	A	< 10	A	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N None R Rare O Occasional A Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar		A			
White Elm	O				
Green Ash	O	O			
Black Walnut		R			
Sweet Cherry	R				
Bur oak	R				
Sugar Maple	R				
Basswood			R		
White Snakeroot				R	
Turkey-foot cranesbill				R	
Purple-stemmed Aster				R	
Carex spp.				R	
Honeysuckle			O		
Bittersweet nightshade				R	
Riverbank Grape			R		
Tartarian Honeysuckle		O			
Red Elderberry			O		
Prickly Gooseberry			O		
Virgin's Creeper			O	O	
Common Buckthorn		O			
Purple Flowering Raspberry			O		
Red Osier			R		
Red Raspberry			O		
Crataegus sp.					

Species	Layer 1	2	3	4	Sample
Burdock				O	
Spreading Dogbane				O	
Daisy Fleabane				O	
Lesser lvd Aster				O	
Goldenrod sp.			O		
Galium triflorum				O	
Dandelion				O	
Avens sp.				O	
Enemion biternatum				O	
Symph. obliqua				O	
Sanicula odorata				O	
Black-eyed Susan				O	
Bracken				R	
Fragaria virginiana				O	
Galium mollugo				O	
Sarsaparilla				O	
Sweet Cicely				O	
Lonicera dioica				O	
Baneberry sp.				O	
Common Blue-eyed Grass				R	
Red Clover				O	
Sensitive Fern				O	
Lady Fern				R	
Carex deweyana				R	
Carex arctata				R	
Aralia racemosa				R	

Wildlife and Other Notes

Photos 350 - 353

Common Apple R

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	C		
Aspect:	—		
%	—		
Type:	Simple		
Class:	A		

Polygon: 28-1 A

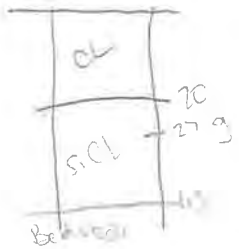
Strata:	Texture	CL		
	Depth	20		
Strata:	Texture	SiCL		
	Depth	45		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		NA		
Surface Stoniness		0		
Surface Rockiness		0		
Depth to:				
	Mottles	27		
	Gley	—		
	Bedrock	45		
	Water table	—		
	Carbonates	15		
Depth of Organics		NA		
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		2		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

Soil surface heavily disturbed from past clearing activities



Wildlife Habitat Field Data Collection

WOD-016

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation R.sc WD	**Project #:** 1756	**Area and/or Polygon ID:** BS-1	
Date: [illegible]	**Start Time:** [illegible]	**End Time:** [illegible]	**Observers:** CEP, CLH
Weather Conditions: [illegible]			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Project Name:	Project #:	Area and/or Polygon ID:	Date:
Nation Rec WP	1756	28-1	06/06/2016

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Old road pile	1	15T 0493006 5003273 9m	354 - 358	Sarsaparilla coverage on topof feature ~1 m high x 25 m long Not deep enough for snake hibernation	none.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Song Sparrow	S	1		M	White-tailed deer	FE	1	
B	American Robin	S	1						
B	Dark-eyed Junco	OB	1						
B	Black-capped Chickadee	FS	1						
	Ruffed Grouse								
B	Song Sparrow	NE	1	continued UTM: 15T 0493073 5003					
B	American Robin	S	1						
B	Savannah Sparrow	S	3						
B	Catbird	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: NutonRoostR Project #: 1756

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Project Manager Use Only:
Woodland Number:

Start Time 9:45 End Time 11:35 Date: 05/04/2016 Observer(s): CFP CLH

Polygon or Area ID (28-1) Weather Conditions: 15°C, Wind 4SW, cc 25%, Precip 0

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 17T)	Comments
Plot 1	All trees >25cm dbh inspected - no cavity trees found		young woodlot, not many trees over 25cm dbh
Plot 2			
Plot 3			
Plot 4			
Plot 5			
Plot 6			
Plot 7			
Plot 8			
Plot 9			
Plot 10			
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 0 **> or = 10/ha? Yes / No** If >10/ha: BMA-

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Modified ELC Community Description

Page __ of __

WOD-017

Site: Nation Rise	1756
Polygon: Area 28-2 A	6001001de2
UTM:	
Date: June 6 2016	Time: 12:00-12:45, 13:25-14:50
Surveyor(s): Christy Hemphreys, Carlene Perkin	
Weather: 18°C, Windy, cc 100%	

Community Classification

Vegetation Type:	SWDM4-5 Poplar Mineral Deciduous Swamp Type
X Inclusion:	SWCM1-1 White Cedar Mineral Coniferous Swamp
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Trembling Aspen > White Elm > Green Ash > White Birch
2	Sub-canopy	3	3	Common Buckthorn > White Cedar > Green Ash > Hawthorn sp.
3	Understorey	4 5	2	Common Buckthorn > Green Ash > Trembling Aspen > Choke Cherry
4	Groundcover	6	4	Common Buckthorn > Dandelion > Toronto Hawkweed > Virginia Creeper

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 0-0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Balsam Poplar		R			
E. Cottonwood			R		
Green Ash	O				
Red Pine		O			
White Birch	O				
Trembling Aspen	A		O		
White Cedar		R		O	
White Elm	O	O			
White Spruce			O	R	
Basswood				O	
Red maple		R			
Staghorn Sumac		R			
Manitoba Maple		R			
Speckled Alder		R			
Nanny berry			R		
Hawthorn sp.		O	O		
Eastern Cottonwood				D	
Red Osier Dogwood				O	
Choke Cherry			O		
Swamp Raspberry				O	
Common Buckthorn		A	A	A	
Red Osier				R	
Virginia Creeper				O	

Species	Layer 1	2	3	4	Sample
Dandelion				O	
Toronto Hawkweed				O	
Goldenrod sp.				O	
Bonesetsp sp.				O	
Woodland Sunflower				R	
Aster sp.				R	
Ox-eye Daisy			O		
Lanceleaf Goldenrod			O		
Wild Sarsaparilla				O	
Fragaria virginiana				O	
Symphyotrichum				R	
Daisy Fleabane				O	
Ox-eye Daisy				R	
Virgin's Bower				O	
Vaccinium angustifolium				O	
Poa pratensis				R	
Wild Parsnip				R	
Goldenrod sp.				O	
Spreading Dogbane				O	
Alsike Clover				O	
Smooth Brome			R		
Carex intumescens				R	
N. Prickly-Ash		R			
Common Apple		R			
Alder-leaved Buckthorn				O	

Wildlife and Other Notes

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	4		
Aspect:	SE		
%	2		
Type:	Complex		
Class:	D		

Polygon: 28-2 A

		1	2	3
Strata:	Texture	SCL		
	Depth	25		
Strata:	Texture	CL		
	Depth	56		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		N/A		
Surface Stoniness		1		
Surface Rockiness		0		
Depth to:				
	Mottles	26		
	Gley	39		
	Bedrock	56		
	Water table	—		
	Carbonates	22		
Depth of Organics		—		
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		6		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

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(Office use only) Community ID: WET-008

wSS

Area 28-2-A

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60010/00162

Observer(s): Christy Humphrey, Charline Perkin **ELC Code:** SWDM 4-5

Date: June 6/2016 **Time (24h):** 12:00-12:49, 13:25-14:50

Wetland #: WET-008 **Weather:** Precipitation: — Temp (° C): 18

Veg Community #: wSS Wind Speed & Direction: 4 Cloud %: 100

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: O % **Check one:** ○ central area ○ spread out in ponds

Photos:

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 80)	Trembling Aspen (60%) > White Elm, Green Ash, White Birch
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 40)	Common Buckthorn (70%) > White Elm, Green Ash, Hawthorne, etc.
ls (%: 70)	Common Buckthorn (70%) > Green Ash, Trembling Aspen, etc.
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: — cm Organic Type: F M H Depth to bedrock: 56 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- Ø locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- Ø wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- Ø plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----->
  see map
- ○ human related disturbances (fill, docks, houses, etc)
  old shack → raccoons etc use this
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- Ø locations of seeps or springs, lagg
- Ø iron precipitates, marl deposits
- ○ winter cover for wildlife
  small white cedar incl
- Ø ungulate summer habitat, moose aquatic feeding habitat
  deer
- Ø suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; Ø dec. forest; Ø recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; Ø row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- Ø vernal pools
- ○ invasive species (plant, aquatic)
  Common Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

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Modified ELC Community Description

Page __ of __

WOD-017

Site:	1756
Polygon:	Green 79-2 C 6010/6062
UTM:	
Date: June 6, 2016	Time: 1300 - 1525
Surveyor(s):	Christa Pennington, Carlene Perlin
Weather:	18°C, wind 4, CC 30 - 100%, No precip

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Cultural Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			—
1	Canopy	2	3	Green Ash > White Elm
2	Sub-canopy	3	4	Speckled Alder > Green Ash > White Elm > Willow sp.
3	Understorey	4	4	Golden rod > Lady's thumb > Common Sp. > Bittersweet > Tartarian Honeysuckle
4	Groundcover	5	3	Spotted Jewelweed > Lemon > Fragaria > Reed Canary Grass

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	D	O	O		
Black Ash		O			
White Birch		R			
White Cedar		R			
White Elm	O	O			

Species	Layer 1	2	3	4	Sample
Parasol Mushroom				O	
Purple stemmed Aster				O	
Spotted Jewelweed				A	
Carex sp. (Wood Land Hay?)					
Larix laricina				O	
Carex stricta			R		
Fragaria virginiana				O	
Urtica dioica				O	
Reed Canary			R		
Trillium erectum				O	
Solidago sp.			O		
Virginia Creeper				O	
Sensitive Fern				O	
Water Horehound				O	
Carex sp.				O	
Cultivated Rye Weed			R		
Horsetail				O	
Lycopus americanus				O	

Wildlife and Other Notes

Seepage Area h, s, re, gc

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-008

hS6

Wetland Vegetation Communities

Project Name: NaCion Rise	**Project #:** 1756	**Parcel #:** Area 28-2 C	
Observer(s): Christy Humphrey, Charlene Perkin		**ELC Code:** SWDM2-2	
Date: June 6/2016	**Time (24h):** 13:00 - 13:25		
Wetland #: WET-008	**Weather:** Precipitation: —	Temp (° C): 18	
Veg Community #: hS6	Wind Speed & Direction: 4	Cloud %: 30-100	
Wetland Type: S	**Site Type:** P	**Dominant Form:** h	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos:			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 50)	Green Ash (50) > White Elm (40)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 80)	Speckled Alder (40) > Green Ash (20) etc
ls (%:)	
gc (%: 70)	Spotted Jewelweed (30) = Goldenrod sp. (30)
ne (%: 40)	lakebank sedge (40) > Leersia oryzoides (20) etc.
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☑ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- Ø plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----->
  see map
- Ø human related disturbances (fill, docks, houses, etc)
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
  seepage area
- Ø iron precipitates, marl deposits
- Ø winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  none observed
- Ø invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site:	NATION RISE	1756.
Polygon:	area 28-2	3 (0101006 2
UTM:		
Date:	June 6 2016	Time: 12 48 - 1300
Surveyor(s):	Christy Humphrey, Carlene Dyken	
Weather:	18°C, wind 4 CC 50-100 Nopreciy.	

Community Classification

Vegetation Type:	MEFM4 Fresh-Moist Forb Meadow Ecosite
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
X Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	X Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	0	—
3	Understorey	1 2 3 4	4	Goldenrod > Wild Parsnip > Tufted Vetch >
4	Groundcover	1 2 3 4	1	Gallium mollugo > Virginia Creeper > Canada thistle

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	O	10 - 24	A	25 - 50	D	> 50
Snags	R	< 10	O	10 - 24	A	25 - 50	D	> 50
Deadfall/Logs	R	< 10	O	10 - 24	A	25 - 50	D	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5 2 10.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash			R		
Virginia Creeper				O	
Red Raspberry				O	
Riverbank Grape				O	

Species	Layer 1	2	3	4	Sample
Wild Parsnip			A		
Goldenrod sp.			A		
Tufted Vetch			O		
Gallium mollugo			O	O	
Virgin's Bower				O	
Sow thistle				O	
Canada thistle				O	

Wildlife and Other Notes

WOD-015

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic Terrestrial and Wetland Biologists

Project Name: New Rse WP **Project #:** 1752 **Area and/or Polygon ID:** ~~ISA~~ 29

Date: [illegible] **Start Time:** [illegible] **End Time:** [illegible] **Observers:** CE RC LS

Weather Conditions: [illegible]

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor			Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		—	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		—	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs)
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc)
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		—	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics)

Characteristics of Identified Wildlife Habitat

Project Name:	Project #:	Date:	Area and/or Polygon ID:
Nature Reserve	1756	06/06/2016	25-2

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Song sparrow	S	1			Black-throated sparrow	S	1	
M	raccoon	SC				Alder flycatcher	S	1	
M	white-tailed deer	TK				Swallow sp.	CR	1	
B	Red-winged blackbird	S	1			Killdeer	S	1	
B	Black-capped chickadee	S	1			red-eared slider	S	1	
B	Blue jay	S	1						
B	American robin	S	1						
B	American crow	S	1						
B	Common yellowthroat	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

NATURAL RESOURCE SOLUTIONS INC.
Aquatic Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Project Name: Watson Rec LP Project #: 1756

Start Time 12:00 End Time 14:50 Date: 06/06/2016 Observer(s): CEP, CLH

Area # 29 Parcel Numbers ~~[illegible]~~ 60101006? Weather Conditions: T:21°C Wind 4SW CC:95% Precip:0

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	* young woodlot = few trees ≥ 25cm dbh Comments
Plot 1	0	0483457 5031210 ±8m	
Plot 2	0	0483480 5031084 ±11m	
Plot 3	0	0483440 5031054 ±8m	
Plot 4	0	0483434 5031079 ±9m	
Plot 5	1	0483460 5031083 ±10m	
Plot 6	0	0483481 5031046 ±11m	no trees ≥25cm dbh
Plot 7	0	0483482 5031092 ±9m	
Plot 8	0	0483426 5031041 ±13m	
Plot 9	0	0483480 5031037 ±7m	no trees ≥25 cm dbh
Plot 10	0	0483409 5031999 ±6m	no trees ≥25cm dbh
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots)
Plots = 0.05ha or 12.6m radius
Select plots randomly

Identification of Suitable Candidate Wildlife Trees for Evaluation of Significance

Identify the best candidate wildlife trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 25

Tree #	Species	# of Cavities	DBH (cm)	UTM 18T	Photo Number(s)
1	dead Populus tremuloides	1	30	0483449 5032397 ±9m	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

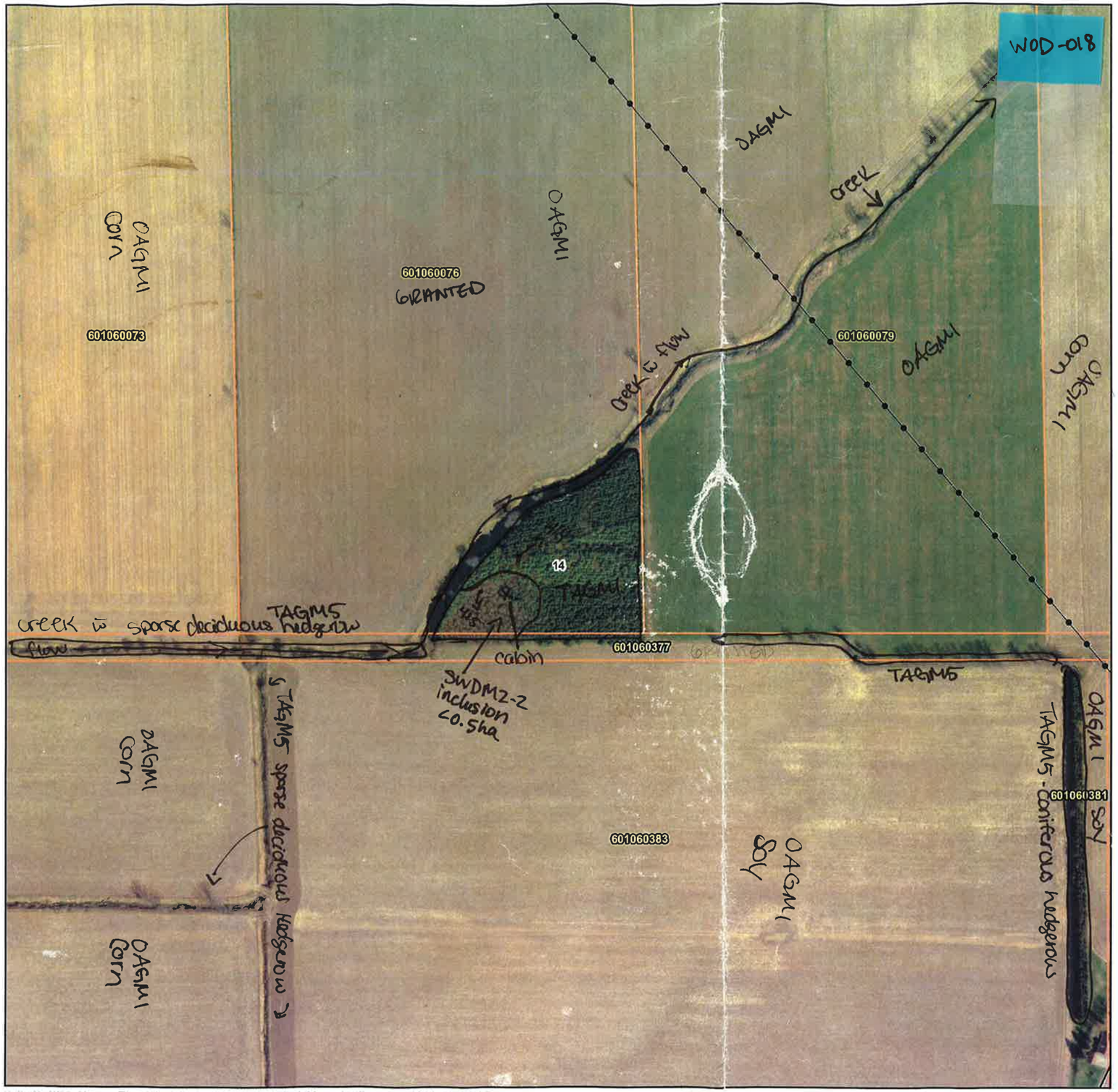
This Section Project Manager Use Only

Formula: Total # Candidate Trees / (# Plots x 0.05ha)

Final Wodland Tally = 1/(10×0.05) = 1/0.5 = 2.0 > or = 10/ha? Yes / No

If >10/ha: BMA-

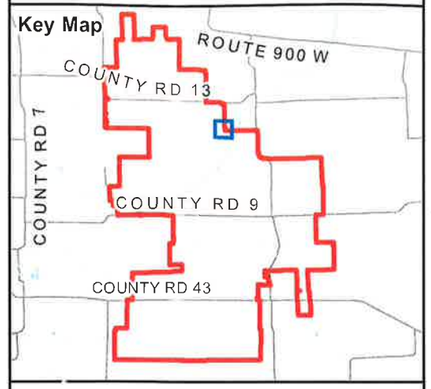
Dec 7 2016
EMB RLB



Nation Rise Wind Project

Natural Features Field Map

Area 14



Legend

- Utility Line
- Secondary Road
- Land Parcel

601060377 - Public Row
601060076 - Granted

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

Path: X:\1756_Nation Rise Wind Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEn.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-018

Site:	1756 Nation Rise Wind Project
Polygon:	600106007C6 - Area 14
UTM:	
Date: Dec 7 2016	Time: 7:30-8:50
Surveyor(s): ~~PWD~~ FMR KLB	
Weather: -4 °C, wind 2E, cc: 100%, precip: Snow	

Community Classification

Vegetation Type:	TAGM1 - Coniferous Plantation	
X	Inclusion:	SWDM2-2 - Green Ash Mineral Deciduous Swamp
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
X Cultural		X Roll Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	White Pine = White Spruce
2	Sub-canopy	3	1	White Pine = White Spruce
3	Understorey	5	.1	Riverbank grape
4	Groundcover	-	NA	NA

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	~~PWD~~
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Spruce	D	D			
White Pine	D	D			
Hawthorn Sp.		R			
Sugar Maple		R			
Green Ash		R			
* Inclusion					
green ash		D	D		
white pine		R	R		
white spruce		R	R		

Species	Layer 1	2	3	4	Sample
riverbank grape			R		

Wildlife and Other Notes

see wildlife form
very dense - photo 4/14
Soils vfSCL dry, depth = 75 cm mottles @ 50cm
green ash inclusion - pin flags 4/5

*no vernal pools or nest boxes observed.

WOD-018

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nottawasaga **Project #:** 1796 **Area and/or Polygon ID:** Area 14 6016b6c5f6

Date: Dec 7 2016 **Start Time:** 7:30 **End Time:** 9:00 **Observers:** PWD EMB KLB

Weather Conditions: -1°C wind 2E precip snow 60-100%

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate)
Vernal Pool		X	Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		X	Vegetation species, woody debris/basking logs within water Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp	X		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation Size of site Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		X	Evidence of small mammals Frequency and source of disturbance Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		X	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		X	Age Depth into the ground Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size Vegetation present Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		X	Diameter of entrance Soil Type Availability of aquatic vegetation or fish
Medium		X	Ecosite of location Proximity to water and type of water Evidence of use, or tracks or digging marks
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs)
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Project Name:	Project #:	Date:	Area and/or Polygon ID:
NationRise	1750	Dec 7 2016	Area 14

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp	1	see map	415	SWDM2-2 Green Ash Mineral Deciduous Swamp	None
* (No vernal pools or nest bowls observed)					

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
M	Fasicn Cottontail	TK	N/A						
B	American Crow	S	2						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

may 20, 2016
Christy Humphrey Amanda Bischel 0935-0945

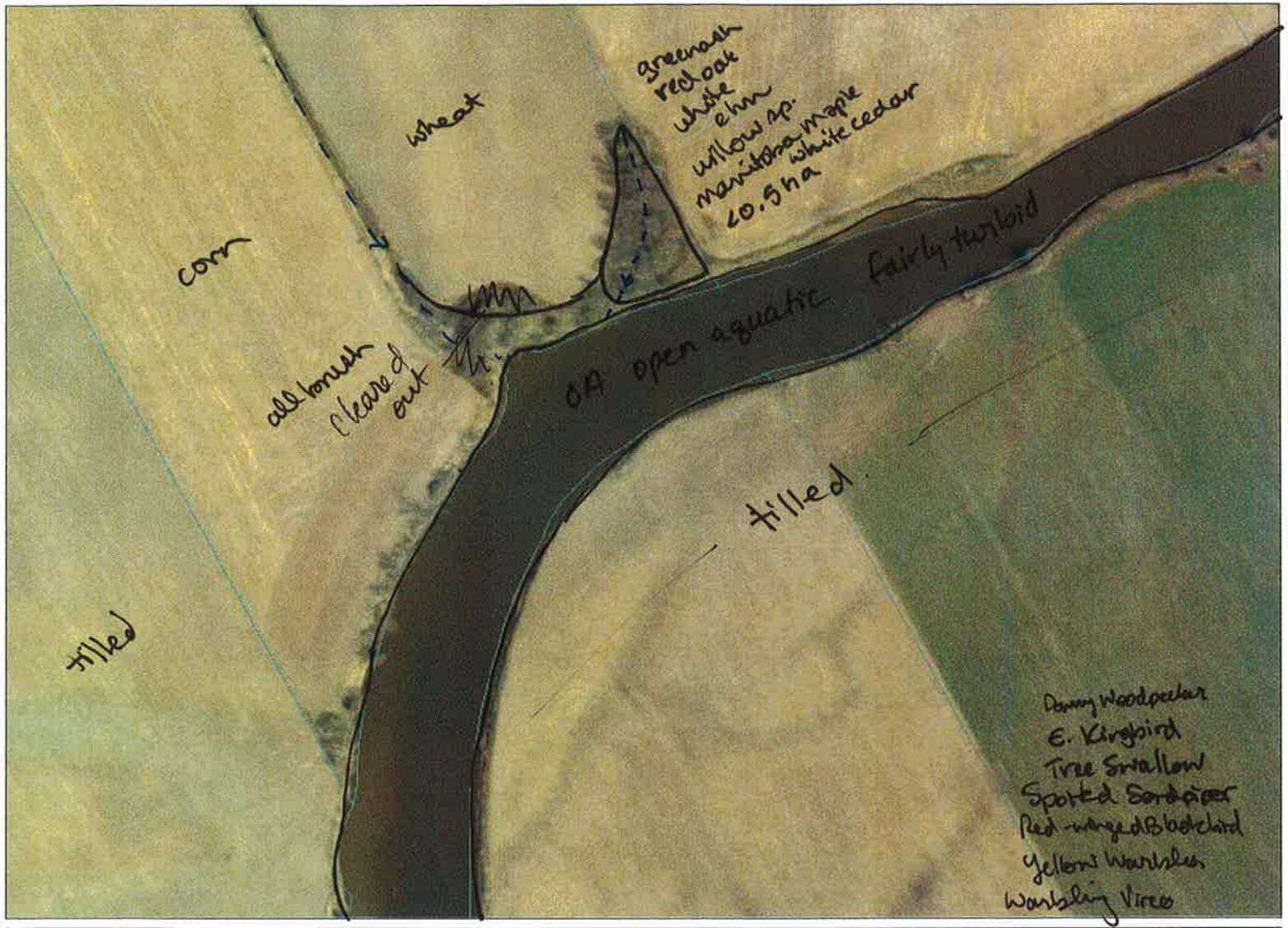
MINISTRY OF NATURAL RESOURCES AND FORESTRY

Ontario

Make a Topographic Map

Nation Rise WB Potential Crossing 2

Notes:



Legend

- Building as Symbol
- Building to Scale
- Airport
- Heliport \ Hospital Heliport
- Seaplane Base
- Ferry Route
- Trail Head \ Trail
- Railway \ Train Station
- Railway with Bridge
- Railway with Tunnel
- Road (Major → Minor)
- Winter Road
- Road with Bridge
- Road with Tunnel
- Primary, Kings or 400 Series Highway
- Secondary Highway
- Tertiary Highway
- District, County, Regional or Municipal Road
- Toll Highway
- One Way Road
- Road with Permanent Blocked Passage
- Road with Address Ranges
- Hydro Line, Communication Line or Unknown Transmission Line
- Natural Gas Pipeline, Water Pipeline or Unknown Pipeline
- Spot Height
- Index Contour
- Contour
- Wooded Area
- Wetland
- Waterbody
- Waterbody Elevation
- Watercourse
- Falls
- Rapids
- Rapids \ Falls
- Rapids
- Rocks
- Lock Gate
- Dam \ Hydro Wall
- Dam \ Hydro Wall
- Provincial \ State Boundary
- International Boundary
- Upper Tier \ District Municipal Boundary
- Lower Tier \ Single Tier Municipal Boundary
- Lot Line
- Indian Reserve
- Provincial Park
- National Park
- Conservation Reserve
- Military Lands

0 0.2 km

Projection: Web Mercator

The Ontario Ministry of Natural Resources and Forestry shall not be liable in any way for the use of, or reliance upon, this map or any information on this map. This map should not be used for: navigation, a plan of survey, routes, nor locations.

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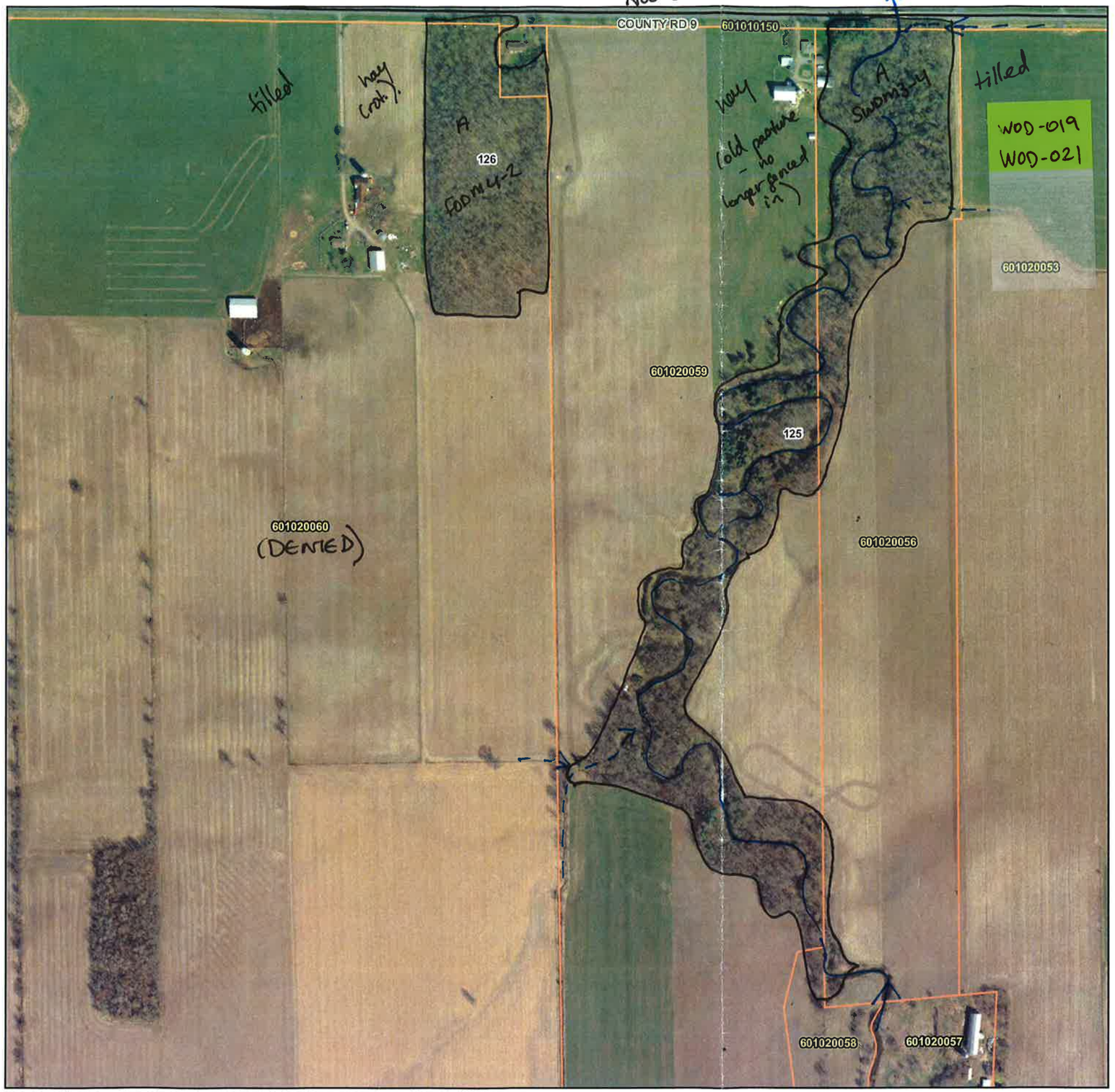
PROPERTY LINE ASSESSMENT

Dec. 7 2016

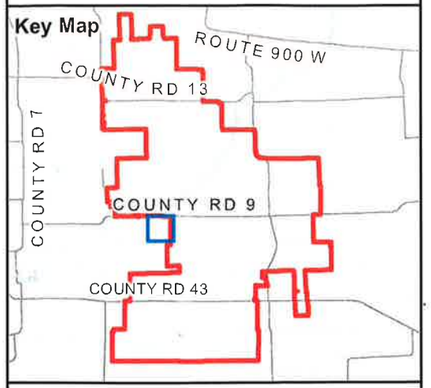


WGT-009

Nation Rise Wind Project

Natural Features Field Map

Area 125 & 126



Legend

- Primary Road
- Land Parcel

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_20[illegible]_11_02_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-019

Site: Nation Rise	1756
Polygon: 601020060 - A	Area 126
UTM:	
Date: Dec. 7, 2016	Time: 08:35 - 08:55
Surveyor(s): Christy Humphrey, Christina Carter	
Weather: 0°C, 100% CC, Wind 1, Mist Rain	

Community Classification

	Vegetation Type:	FODM4-2 Dry-Fresh White Ash - Hardwood Deciduous
	Inclusion:	(/FOD4)
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	O	—
1	Canopy	2	4	White Ash > White Elm > Shagbark Hickory > Bitternut Hickory
2	Sub-canopy	3	3	Bitternut Hickory > Ironwood > White Ash > Alt-lvd Dogwood
3	Understorey	3	3	Alt-lvd Dogwood, Bitternut Hickory, Ironwood
4	Groundcover	4		Not visible

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		< 10		10 - 24		25 - 50		> 50
	O		A		O		R	
Snags		< 10		10 - 24		25 - 50		> 50
Deadfall/Logs	O	< 10	O	10 - 24		25 - 50		> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5 (1=canopy 2=sub-canopy 3=understorey 4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm	O	O			
Yellow Birch		R			
Shagbark Hickory	D				
White Ash	D	O			
Bitternut Hickory	O	O	O		
Norway Spruce		R			
Sugar Maple	R				
Ironwood		O	O		
Alt-lvd Dogwood		O	O		

Species	Layer 1	2	3	4	Sample
Solidago sp					

Wildlife and Other Notes

Photo 487, 488
Surveyed from roadside

WOD-019

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1786	**Area and/or Polygon ID:** Area 126	601020060
Date: Dec. 7/16	**Start Time:** 8:38	**End Time:** 08:55	**Observers:** CH, CC
Weather Conditions: 0°C, 100% cc, wind 1, misting rain/snow			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic)
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7/16

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 126 601020060

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	American Crow	S	2						
B	Snow Geese	OB	~1,000	flying over towards ESE					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-021

Site: Nation Rise	1756
Polygon: 601020056 - A	Area 125
UTM:	
Date: Dec. 7 2016	Time: 0922 - 0937
Surveyor(s): Christy Humphrey, Christina Carter	
Weather: 0°C 100% cc, Wind 1, No precip	

Community Classification

Vegetation Type:	SWDM3-4 Manitoba Maple Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	3	Green Ash > Basswood > White Elm
2	Sub-canopy	3	4	Manitoba Maple >> Willow sp. > White Cedar
3	Understorey	4/5		Staghorn Sumac
4	Groundcover	4/5		Not visible

HT Codes: 1 >25m 2: 25 - 10m 3 10 - 2m 4 2 - 1m 5 1 - 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 10% 2 10 - 25 3 25 - 60% 4 >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags		< 10		10 - 24		25 - 50		> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 7to 2-10 0.5-7 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine (planted)	O				
Basswood	O				
Manitoba Maple	R	D			
White Cedar		R			
White Elm	O	O			
Green Ash	D				
Trembling Aspen	R				
Staghorn Sumac			R		
Riverbank grape	2	6			

Species	Layer 1	2	3	4	Sample
Solidago sp.					
Reed Canary					

Wildlife and Other Notes

Surveyed from Roadside (Cty Rd 9)
Photos 492-494, 496, 497
hits

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-009

hSI-B

Area 125-A

Wetland Vegetation Communities

Project Name: NATION RISE	**Project #:** 1756	**Parcel #:** 601020056	
Observer(s): Christy Humphrey, Christina Carter		**ELC Code:** SWDM3-4	
Date: Dec. 7 2016	**Time (24h):** 0922-0932		
Wetland #: WET-009	**Weather:** Precipitation: —	Temp (° C): 0	
Veg Community #: hSI-B	Wind Speed & Direction:	Cloud %: 100	
Wetland Type: S	**Site Type:** R	**Dominant Form:** h	
Permanent Open Water: 10 %	**Check one:** ⊗ central area ○ spread out in ponds	rivers	
Photos: 492-494, 496, 497			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 80)	Manitoba maple (40) > Green Ash (30) > Basswood
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 25)	Manitoba Maple (70) > white cedar > others
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- Ø wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- Ø plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----->
  See map. R.
- Ø human related disturbances (fill, docks, houses, etc)
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- Ø locations of seeps or springs, lagg
- Ø iron precipitates, marl deposits
- Ø winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- Ø suitability for waterfowl breeding, staging, moulting
  mallard breeding.
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; Ø dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; Ø row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; Ø open lake or deep river; Ø creek floodplain; O rock outcrop
- ○ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  low marsh (river) - veg: minimal/nil. Seasonal swamp.
- Ø vernal pools
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

Property Line Assessment

WOD-021

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Dutton Rise	**Project #:** 1756	**Area and/or Polygon ID:** Area 125	601020056
Date: Dec. 7/16	**Start Time:** 9:22	**End Time:** 9:30	**Observers:** CH, CSC
Weather Conditions:			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation. Size of site. Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals. Frequency and source of disturbance. Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age. Depth into the ground. Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size. Vegetation present. Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use. Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance. Soil Type. Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location. Proximity to water and type of water. Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date:	Dec. 7/16

Project Name:	Nation Rise	Project #:	1754	Area and/or Polygon ID:	Area 123	6010200S6

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	American Crow	A	8						
B	Snow Geese	OB	~600	flying over towards N, stopped around a flew towards S					
B	Downy Woodpecker	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

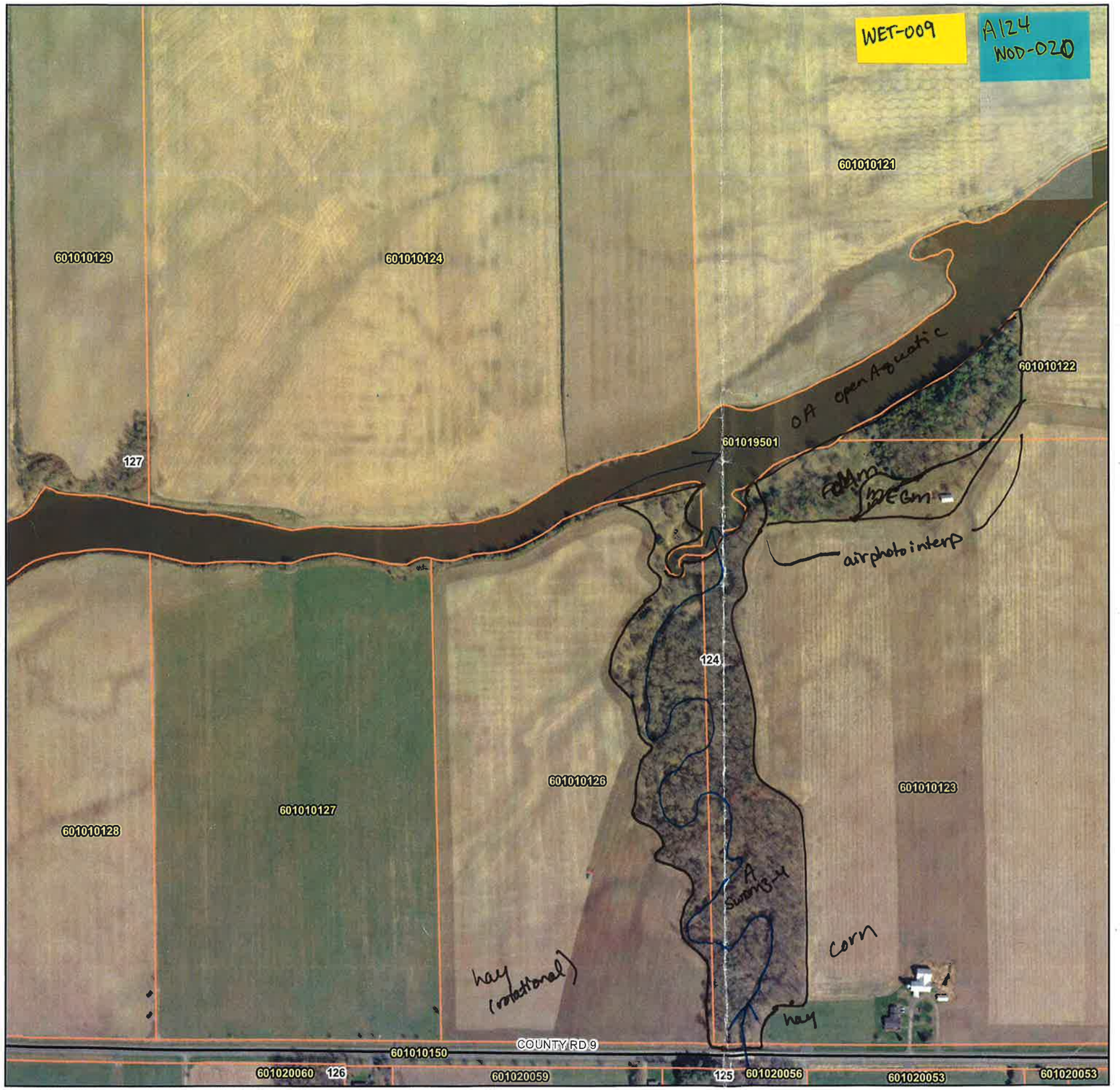
Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

PROPERTY LINE ASSESSMENT

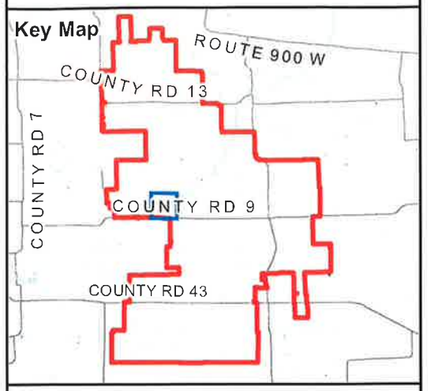
Dec. 7 2016 CLH, CJC



Nation Rise Wind Project

Natural Features Field Map

Area 124 [redacted]



Legend

- Primary Road
- Land Parcel

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

Path: X:\1756_Nation Rise Wind Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOO-020

Site: Nation Rise	1756
Polygon: 60/010123-A	Area 124
UTM:	
Date: Dec. 7 2016	Time: 0905 - 0922
Surveyor(s): Christy Humphrey, Christina Carter	
Weather: 0°C, 100% CC, Wind 1, No precipitation	

Community Classification

Vegetation Type:	SWDM3-4 Manitoba Maple Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mn	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
	Super-canopy	1	0	—
1	Canopy	2	2	Basswood > Green Ash > White Ash
2	Sub-canopy	3	4	Manitoba Maple >> Green Ash > White Spruce
3	Understorey	4 5		Manitoba Maple > Reed Canary
4	Groundcover	6 7		Not visible.

HT Codes: 1 >25m 2 25 - 10m 3 10 - 2m 4 2 - 1m 5 1 - 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 - 10% 2 10 - 25 3 25 - 60% 4 >60%

Size Class Analysis		< 10		10 - 24	O	25 - 50	R	> 50
Snags		< 10		10 - 24		25 - 50		> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer — 7-10 2-10 0.5-2 <0.2

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba Maple		D	D		
Green Ash	O	O			
White Spruce		R			
Basswood	D				
White Ash	R				
Common Apple			R		
Riverbank Grape					

Species	Layer 1	2	3	4	Sample
Reed Canary			O		
Motherwort					
Wild Parsnip					

Wildlife and Other Notes

Surveyed from Roadside

Photos 489-491, 495

h, es.

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-009

hSI-A

Wetland Vegetation Communities

Area 124-A

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601010123	
Observer(s): Christy Humphrey, Christine Carter		**ELC Code:** SWDM3-4	
Date: Dec. 7 2016	**Time (24h):** 0905-0922		
Wetland #: WET-009	**Weather:** Precipitation: —	Temp (° C): 0	
Veg Community #: hSI-A	Wind Speed & Direction: /	Cloud %: 100	
Wetland Type: S	**Site Type:** R	**Dominant Form:** h	
Permanent Open Water: 7 %	**Check one:** ⊗ central area ○ spread out in ponds	river	
Photos: 489-491, 495			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Green Ash (35) > Basswood (20) > others
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 25)	Manitoba Maple (75)
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  see map Riv. →
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- ○ suitability for waterfowl breeding, staging, moulting
  mallards breeding
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ~~O dec.~~ forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; ~~O~~ row crop; O abandoned pit/quarry; ~~O~~ pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; ~~O~~ open lake or deep river; ~~O~~ creek floodplain; O rock outcrop
- ○ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  low marsh (watercourse) - seasonally flooded swamp (floodplain) & relatively unvegetated (silty).
- ○ vernal pools
  unknown
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

Property Line Assessment WOD-020

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation River	**Project #:** 17560	**Area and/or Polygon ID:** Area 124 60101012 3	
Date: Dec. 7/16	**Start Time:** 9:04	**End Time:** 9:22	**Observers:** CH, COC
Weather Conditions: 0°C, 100% cc, Wind 1, misty rain/snow			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec 7/16

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: Area 124 601010123

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	American Crow	P	2	perched in woodlot					

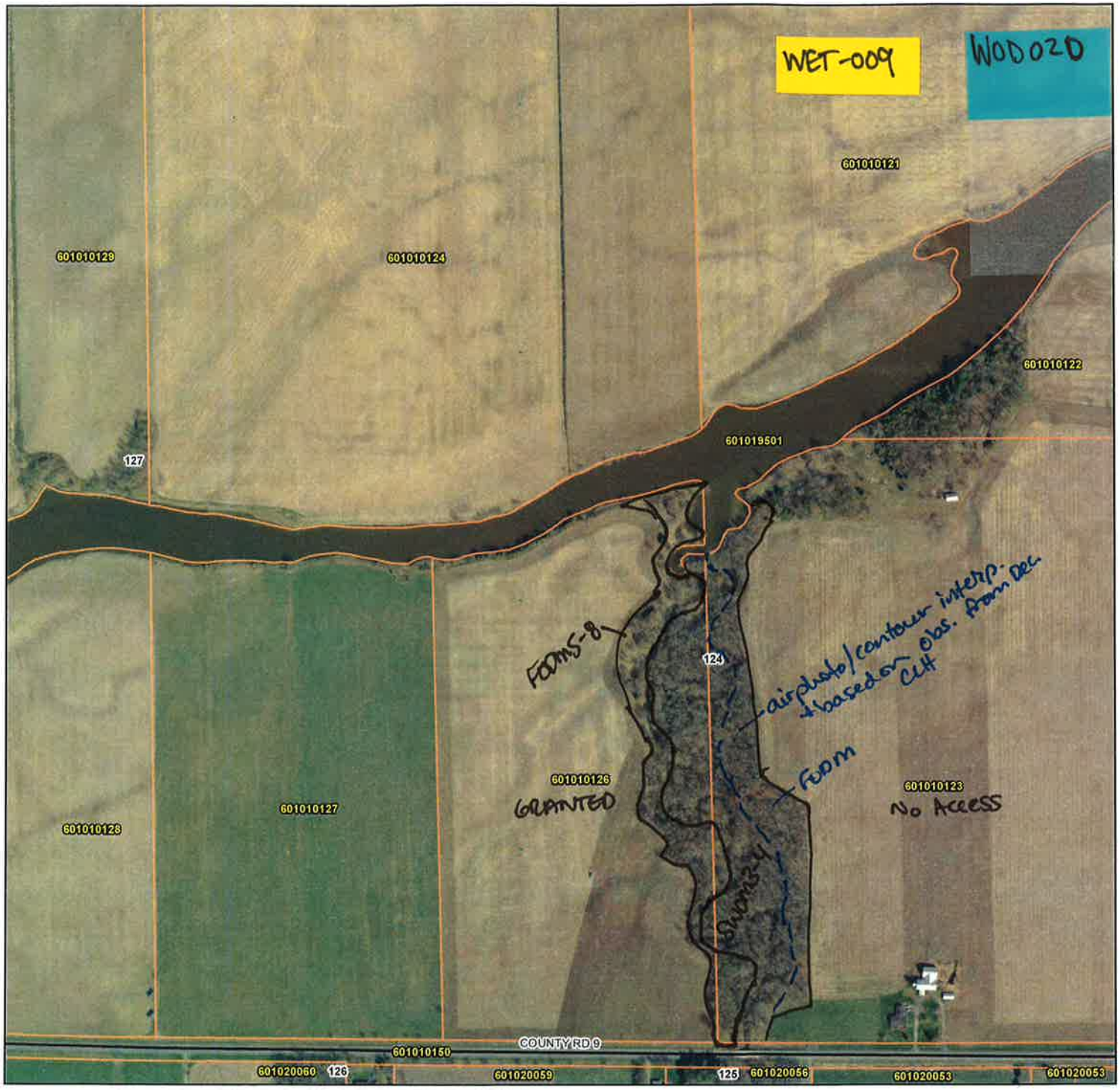
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

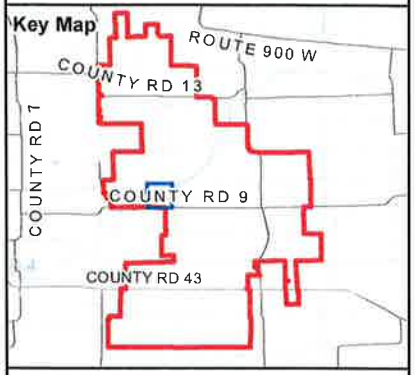
Feb 1 2017 JBB



Nation Rise Wind Project

Natural Features Field Map

Area 124



Legend

- Primary Road
- Land Parcel

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:5,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-020

Site: Nation River	1756
Polygon: 601010126	Area 124
UTM:	
Date: Feb 1, 2017	Time: 16:10 - 17:00
Surveyor(s): JBB	
Weather: -9°C, ~70%, wind, no precip	

Community Classification

Vegetation Type:	FODM5-8 Dry-fresh Sugar Maple-White Ash Deciduous Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	/ Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	sugar maple > white ash > am. basswood
2	Sub-canopy	3	3	sugar maple > white ash > am. basswood
3	Understorey	4-5	1	sugar maple > white ash
4	Groundcover	6-7	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	S	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	0	< 10	0	10 - 24	0	25 - 50	N	> 50
Deadfall/Logs	0	< 10	0	10 - 24	0	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
green ash	O				
manitoba maple	O	O			
sugar maple	A	A	A		
american basswood	O	O			
blue beech			R		
red maple		R			
shrubs sp.	O	O			
white cedar		O			
white ash	O	O			
hop hornbeam		O			
american beech		O			
red oak	O	O			
hawthorn sp.			O		
tartarian honeysuckle			O		
poison ivy				O	
black raspberry			O		

Species	Layer 1	2	3	4	Sample
smooth brome				O	

Wildlife and Other Notes

Photos: 127 - 134

Very steep slope to river. Cannot cross river to east side, assessed from west side. West side distinctly higher, wet species typical to riparian zone. Snow covers ground layer, cannot assess below. Coyotes howling in western woodlot

WOD-020

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nalon Rise	**Project #:** 1756	**Area and/or Polygon ID:** 601/0126 Area 124	
Date: Feb 1, 2017	**Start Time:** 16:10	**End Time:** 17:00	**Observers:** JTB
Weather Conditions: -9°C, cc 70%, wind, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges	✓		Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 1, 2017

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 60101026 Area 124

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Small Log Jam	1	See map	130	stream ~4 m wide with small logs blocking. No marked height difference observed below	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	black-capped chickadee	OB	2						
B	white-breasted nuthatch	OB	1						
M	coyote park howling	VO	~6+	west of wood lot, ~1km away					

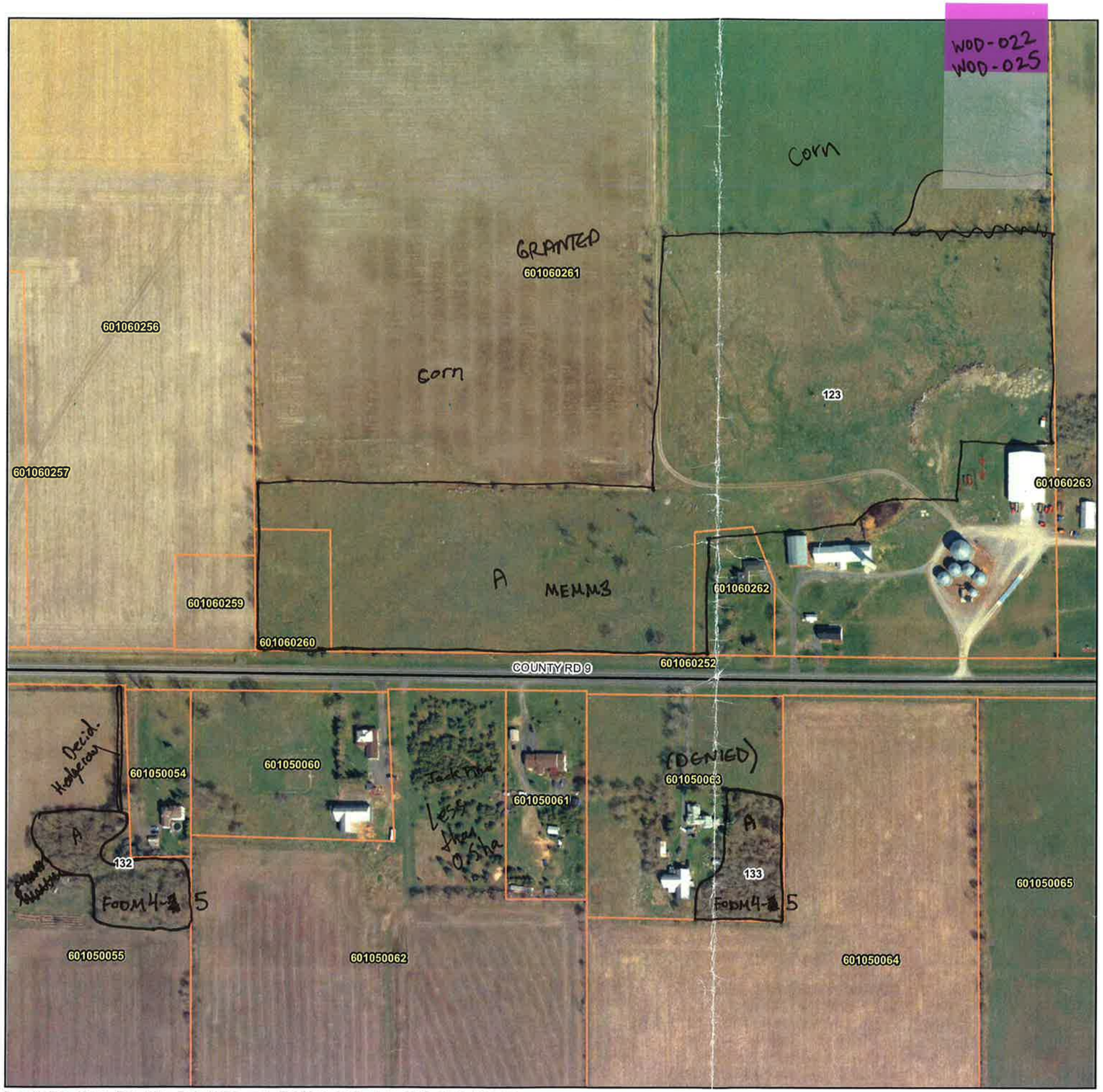
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec. 7, 2016

PWD



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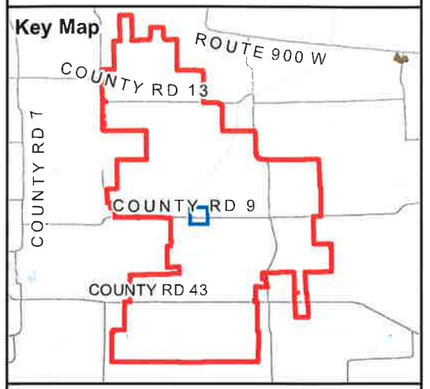
Nation Rise Wind Project

Natural Features Field Map

Area 123, 132, & 133



Legend

- Primary Road
- Land Parcel

601060201

123 - Granted

132 - Property Line Assessment

133 - Denied, Property Line Assessment

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Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	123, 601060261 A
UTM:	
Date:	Dec. 7, 2016 **Time:** 0955 — 1030
Surveyor(s):	PWD
Weather:	0°C, 100% cc, wind 0, no precip.

Community Classification

	Vegetation Type:	MEMM3 D-F Mixed Meadow Ecosite
	Inclusion:	
	Complex:	

Polygon Description

System		Substrate		Topo Feature			Community	
X	Terrestrial		Organic		Lacustrine		Lake	Barren
	Wetland	X	Mineral Soil		Riverine		Pond	X Meadow
	Aquatic		Parent Min		Bottomland		River	Prairie
			Acidic Bedrock		Terrace		Stream	Thicket
History			Basic Bedrock		Valley Slope		Marsh	Savannah
	Natural		Carb. Bedrock		Tableland		Swamp	Woodland
X	Cultural			X	Roll Upland		Fen	Forest
		Site			Cliff		Bog	Plantation

Cover		Plant Form		
X	Open	Plankton	Forb	Coniferous
	Shrub	Submerged	Lichen	X Mixed
	Treed	Floating-Lvd	Bryophyte	
		Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	3	1	Sugar Maple
2	Sub-canopy	-	-	-
3	Understorey	4	1	Com. Buckthorn
4	Groundcover	5	4	Smooth Brome > Asters

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Com. Buckthorn			R		
Sugar Maple	R				
E Red Cedar			R		
White Ash			R		

Species	Layer 1	2	3	4	Sample
New England Aster				O	
Smooth Brome				O	
Heath Aster				O	
Wild Carrot				O	
Com Mullein				R	
Bull Thistle				R	
Com Burdock.				O	
Com. Milkweed				R	

Wildlife and Other Notes

Fenced, farm keeps livestock, appears to be weakly grazed pasture / meadow.
Photos 5947, 5948, 5949

WOD-022

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 123, 601060261	
Date: Dec. 7, 2016	**Start Time:** 0955	**End Time:** 1030	**Observers:** PWD
Weather Conditions: See ELC sheet			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth) Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		√	
Vernal Pool		√	
Pond		√	
Shallow Marsh (MAS) or Open Water		√	
Swamp		√	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture	√		
Meadow	√		
Thicket, Woodland, Hydro Corridor		√	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		√	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		√	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		√	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		√	Depth of crevices
Cave		√	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		√	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		√	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		√	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types
Islands or Peninsulas in Open Water		√	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		√	
Old Rock or Debris Pile, Old Stone Fence		√	
Abandoned Road or Rail Bed		√	
Abandoned Well		√	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		√	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		√	
Medium		√	
Large		√	
Log Jams, Old Beaver Lodges		√	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		√	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		√	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		√	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		√	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		√	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		√	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		√	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		√	Soil type and depths.
Red Spruce or White Oak Forest		√	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		√	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		√	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		√	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		√	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		√	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		√	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7. 2016

Project Name: Nation Rise WP | Project #: 1756 | Area and/or Polygon ID: 123, 601060261

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Weakly grazed pasture/ meadow	1	See map Entire ELC polygon	5947, 5948, 5949	Short vegetation (10-20cm), rocks throughout	None observed

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
	None observed								

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young

FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PROPERTY LINE ASSESSMENT WOD-025

Site:	1756 Nation Rise Wind Project
Polygon:	133, 601050063 (Roadside assessment) A
UTM:	
Date:	Dec. 7, 2016 **Time:** 1100 - 1115
Surveyor(s):	PWD
Weather:	0°C, 60% c.c, wind 0, no precip.

Community Classification

Vegetation Type:	FODM4-5 D-F Manitoba Maple Dec. forest Type.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—	—	—
1	Canopy	2	1	Poplar sp
2	Sub-canopy	3	3	Manitoba Maple
3	Understorey	4	1	Manitoba Maple
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	A	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba Maple		A	O		
Poplar sp.	R				

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Limited understorey, possible grazing (horses, goats, etc),
Photos: 5956, 5957

Surveyed from Roadside.

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name:	Nation Rise WP	**Project #:**	1756	**Area and/or Polygon ID:**	133, 6010500G3
Date:	Dec. 7, 2016	**Start Time:**	1100	**End Time:**	1115
Observers:	PWD				
Weather Conditions:	See ELC sheet				

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	

Fields	Yes	No	Applicable to All: Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All: Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		?	
Old Foundation		✓	

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens: Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake	?		
Medium	?		
Large	?		
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).

Unable to assess

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7. 2016

Project Name: Nation Rise WP Project #: 1756 Area and/or Polygon ID: 133, 601050063

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
None observed					

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
	None observed								

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

WOD-022

Feb 3 2017
JBB

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-022

Site: Nation Rise	1756
Polygon: 601050055	Area 132
UTM:	
Date: Feb 3 2017	Time: 10:00 - 10:40
Surveyor(s): JBB	
Weather: -8°C, cc 20%, wØ, no precip	

Community Classification

Vegetation Type:	FODM4-3 Dry-Fresh Manitoba Maple Dec. Forest Type
Inclusion:	MEMM3
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Open Water	Plant Form		
Open	Shallow Water	Plankton	Forb	Coniferous
Shrub	/ Surficial Dep	Submerged	Lichen	Mixed
/ Treed	Bedrock	Floating-Lvd	Bryophyte	
		Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Manitoba maple.
2	Sub-canopy	3	3	Manitoba maple 77 sugar maple
3	Understorey	4-5	1	common buckthorn & tartarian honeysuckle
4	Groundcover	(5-7)	✓	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	R	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba maple	D	D	A		
sugar maple	R	O	O		
white elderberry					
tartarian honeysuckle					
common buckthorn					
glossy buckthorn					
red raspberry					

Species	Layer 1	2	3	4	Sample
Avens sp.					

Wildlife and Other Notes

WB nuthatch

Photos:

Modified ELC Community Description

Page __ of __

Parcel 60105055 Area 132

Soils	1	2	3
Position:			
Aspect:			
%			
Type:			
Class:			

Polygon: FOD4-5

Strata:	Texture	vFSL		
	Depth	62cm		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture				
Surface Stoniness		/		
Surface Rockiness		/		
Depth to:				
	Mottles	999		
	Gley	999		
	Bedrock	62cm		
	Water table	99		
	Carbonates			
Depth of Organics				
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		M-W		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

No mottles, no gley, believed bedrock at 62cm. Cannot assess surface rockiness/stoniness due to snow cover. Dominated by manitoba maple. No horizons observed. Leaf litter buildup observed.

WOD-022

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 601855055 Area 132	
Date: Feb 3, 2017	**Start Time:** 10:00	**End Time:** 10:40	**Observers:** JTB
Weather Conditions: -8°C, cc 20%, w 0, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth) Vegetation species, woody debris/basking logs within water Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation; Evidence of small mammals; Size of site; Frequency and source of disturbance; Location and abundance of raptor perches (scattered trees, snags, fenceposts); Abundance of nectar-producing plants (e.g. goldenrods and asters); Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water.
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age; Rock size; Evidence of Use; Depth into the ground; Vegetation present; Amount of sun exposure (or direction the slope faces); Substrate composition (or bedrock type); Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft	✓		
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation	✓		
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance; Ecosite of location; Soil Type; Proximity to water and type of water; Availability of aquatic vegetation or fish; Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 3, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 601050055

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
old rockor debris pile	1	See map (~5m forest edge, north of corn)	101716601	large ~30cm boulders likely pulled from adjacent corn field. ~1-1.5m high, difficult to assess if the rocks go deep enough for SWH due to snow cover	None
old foundation	1	see map	100803288 100008507	within Manitoba maple feature, limited sun. Difficult to assess depth/cracks due to snow - Bricks both ~ 120 m from access road	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	white-breasted nuthatch	OB	2	dead Manitoba maples likely provide food					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

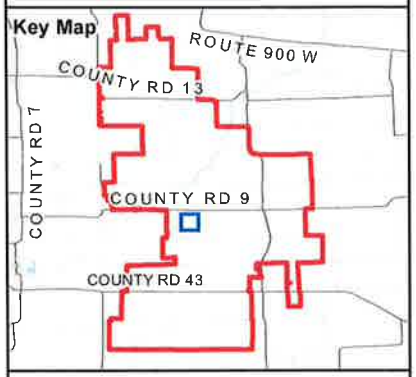
Feb. 1 2017
JBB

WOD-023

Nation Rise Wind Project

Natural Features Field Map

Area ~~139~~ 138



Legend

- Land Parcel
- [redacted]
- [redacted]

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Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-023

Site: Nation Rise	1756
Polygon: 601050058, 601050059, 601050055	Area 138
UTM:	
Date: Feb 1, 2017	Time: 15:18 - 15:55
Surveyor(s): JRB	
Weather: -9°C, cc 30%, wd, no precip	

Community Classification

Vegetation Type:	FODM5-8 Dry, Fresh Sugar Maple - White Ash Dec. Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
* Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy		4	white ash > sugar maple > american basswood
2	Sub-canopy		2	sugar maple > white ash > american basswood
3	Understorey		3	chokecherry > bitternut > red raspberry
4	Groundcover		/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
white ash	A	O	R		
trembling aspen	O	O			
white elm	O	O			
apple		R			
bur oak	O	O			
american basswood	O	O			
bitternut hickory		O	O		
sugar maple	O	A			
white cedar			R		
tartarian honeysuckle			O		
common buckthorn			O		
chokecherry			A		
red osier dogwood			O		
red raspberry			O		

Species	Layer 1	2	3	4	Sample
tall goldenrod					

Wildlife and Other Notes

Photos: 170-126

Perhaps transitioning as Ash dies. High abundance of bitternut saplings

black-capped chickadee

WOD-023

Wildlife Habitat Field Data Collection

Area 138

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 601050058, 601050059, 601050055	
Date: Feb 1, 2017	**Start Time:** 15:18	**End Time:** 15:35	**Observers:** JBB
Weather Conditions: -9°C, ~30%, w Ø, no Precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	✓			Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 1, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 601050058, 601050059, 601050055 Area 138

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Hydro corridor	1		121-122	small wooden telephone wire corridor south of forest with hawthorn hedgeline below.	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	black-capped chickadee	S	2						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

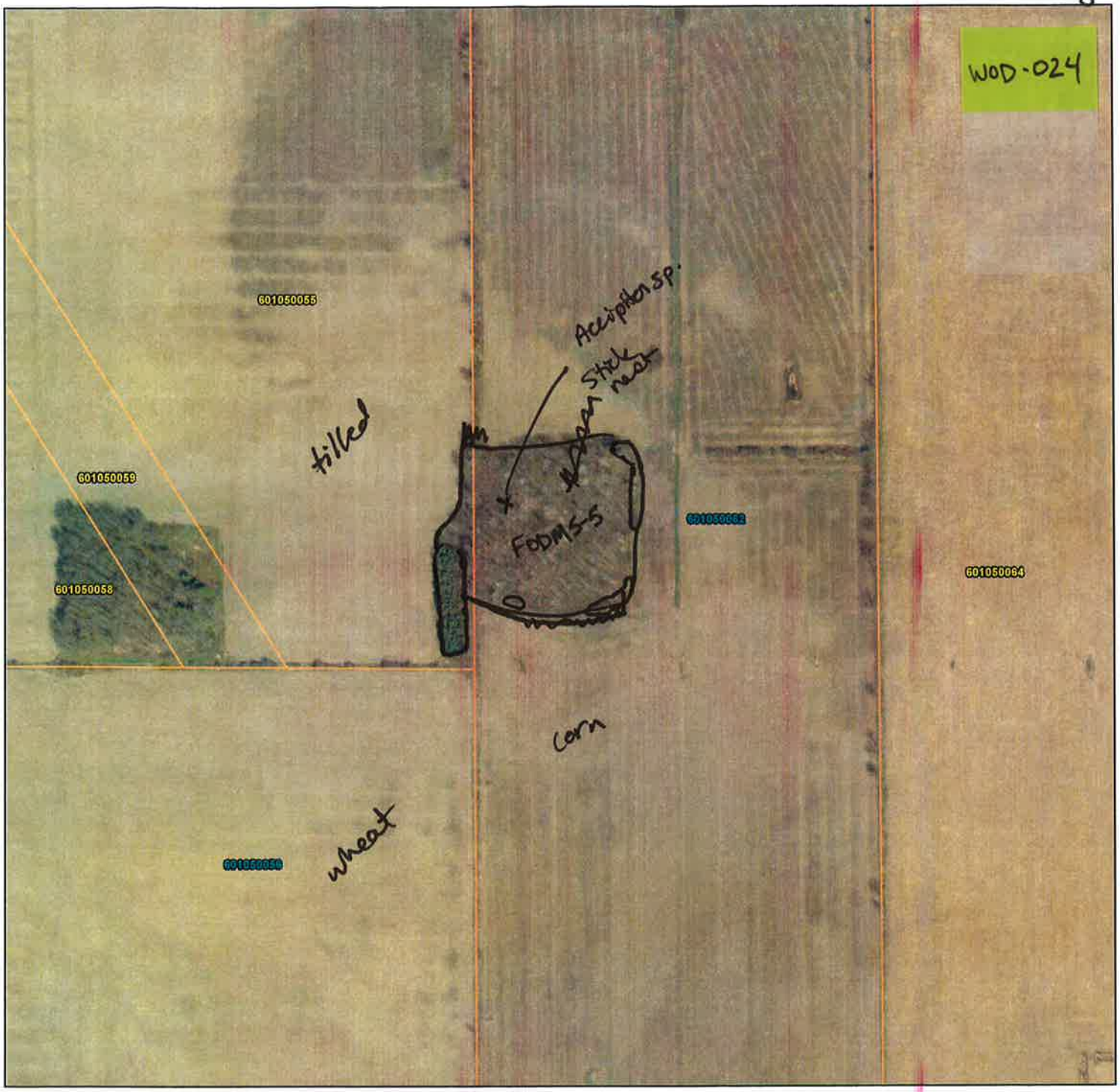
Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

May 20, 2016
Christy Humphrey, Amanda Bichel

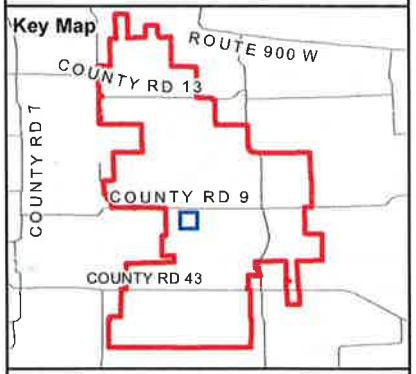
WOD-024



Nation Rise Wind Project

Natural Features Field Map

Area 109



Legend

- Land Parcel
- Parcel with Access
- Parcel without Access

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-024

Site: Nation Rise	1756
Polygon: Area 109-A	
UTM:	
Date: May 20, 2016	Time: 10:35 - 12:55
Surveyor(s): Christy Humphrey, Amanda Bickell	
Weather: 20°C, Wind 0, 50% cc, No precip	

Community Classification

Vegetation Type:	FOMS5-5 Dry-Fresh Sugar Maple-Hickory Deciduous Forest
X Inclusion:	TAGM1 Coniferous Plantation
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Cliff/Cave	Pond	Meadow
Aquatic	Parent Mat	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Black Maple > Bitternut Hickory > White Ash > Basswood
2	Sub-canopy	3	4	Black Maple > Bitternut Hickory > Ironwood > Basswood
3	Understorey	VC	2	Black maple > Choke Cherry > Ribes cynosbati > White Ash
4	Groundcover	VC	4	Trout Lily > Fragaria virginiana > Downy Yellow Violet > Enchanter's Nightshade

HT Codes: 1 >25m 2 25 10m 3 10 2m 4 2 1m 5 1 0.5m 6 0.5 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 10% 2 10 25 3 25 60% 4 >60%

Size Class Analysis	A	< 10	A	10 - 24	A	25 - 50	O	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young		Mid-age	X	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____ of ____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 0.05
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Basswood	O	O	O	O	
Sugar maple	R		R		
White Ash	O	O	O	O	
White Elm	O	O			
Black maple	A	A	O	O	
Bitternut Hickory	O	O	O	O	
American Beech	O				
Ironwood		O			
White Spruce		O			
Carpinus caroliniana		R			
Alt-leaved Dogwood		R			
Ribes cynosbati			O		
Choke Cherry			O		
Hawthorn sp.		R			
Red Raspberry			O		

Species	Layer 1	2	3	4	Sample
Trout Lily				O	
Downy Yellow Violet				O	
Blue Cohosh				O	
common Blue Violet				O	
Fragaria virginiana				O	
Dutchman's Breeches				R	
Virginia Waterleaf				R	
Canada Mayflower				R	
Enchanter's Nightshade				O	
Ostrich Fern				O	
Red Trillium				R	
Jack-in-the-Pulpit				R	
Wild Leek				R	

Wildlife and Other Notes

many large DBH trees
all plants are dry species except Black maple — perhaps these are hybrids? Leaves rounded and hairy underneath like black maple, large DBH trees have bark like black maple.

many spring ephemerals out but no toothwort observed.

Wildlife Habitat Field Data Collection

WOD-024

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 109

Date: May 02, 2016 **Start Time:** 10:35am **End Time:** 12:45 **Observers:** Amanda Bichel, Christy Humphrey

Weather Conditions: 50% cloud, 10°, 20°c, 0 wind, no precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence	X		Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)	X		Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag	X		Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	X		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Project Name:	Project #:	Area and/or Polygon ID:	Date:

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Rock pile.	3	0488485 ±8m 5000179	326	• not very old • med sized rocks • 10m long x 2m wide x 1m tall.	– too shallow. – too new.
		0488558 ±4m 5000205	328	• similar to ↑ • 1.5m x 2m x 1.5m	– rocks too new, older part too shallow
		0488536 ± 7m 5000284	329-330	• 1.5m long x 2m wide x 1m tall	– too shallow
Stick nest	2.	0488466 ±6m 5000240	331-332	• smaller than Red-tailed Hawk nest, accipitor • ~15m from ground • diameter ~75cm	Accipiter sp. OB.
		0488470 ±7m 5000194	333-334	• might be old nest and abandoned	
		0488516 5000225 ±5m.	335	• very small, does not look like it is currently being used.	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Song Sparrow	S	1		B	Northern Flicker	S	1	
B	Chipping sparrow	S	1		B	Downy Woodpecker	OB	1	
B	Am. Goldfinch	S	1		B	Hairy Woodpecker	OB	1	
B	Baltimore Oriole	OB	1		M	Groundhog	OB	1	
B	Blue Jay	S	1		B	Accipiter sp.	✓	1	
B	Crow	S	1						
B	White-br. Nuthatch	S	1						
B	Chickadee	S	1						
M	Red Squirrel	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: Nation Rise Project #: 1756

NATURAL RESOURCE SOLUTIONS INC.
Aquatic Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Start Time 10:35 End Time 12:45 Date: May 20, 2016 Observer(s): Amanda Bichel, Christy Humphrey

Polygon or Area ID (109) Weather Conditions:

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 17T)	Comments
Plot 1	2	0488489, 5000190 ± 5m	
Plot 2	1	0488522 5000196 ± 7m	
Plot 3	1	0488541, 5000218 ± 6m	
Plot 4	1	0488548, 5000239 ± 7m	
Plot 5	1	0488524, 5000289 ± 8m	
Plot 6	0	0488491, 5000270 ± 9m	
Plot 7	1	0488489, 5000229 ± 6m	
Plot 8	0	0488470, 5000238 ± 6m	
Plot 9	1	0488468, 5000198 ± 6m	
Plot 10	1	0488516, 5000225 ± 5m	
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) (14) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 14/(10 x 0.05) = 14/0.5 = 28 **> or = 10/ha? Yes / No** If >10/ha: BMA-001

may 20, 2016 08:50

Christy Humphrey, Amanda Bichel

MINISTRY OF NATURAL RESOURCES AND FORESTRY

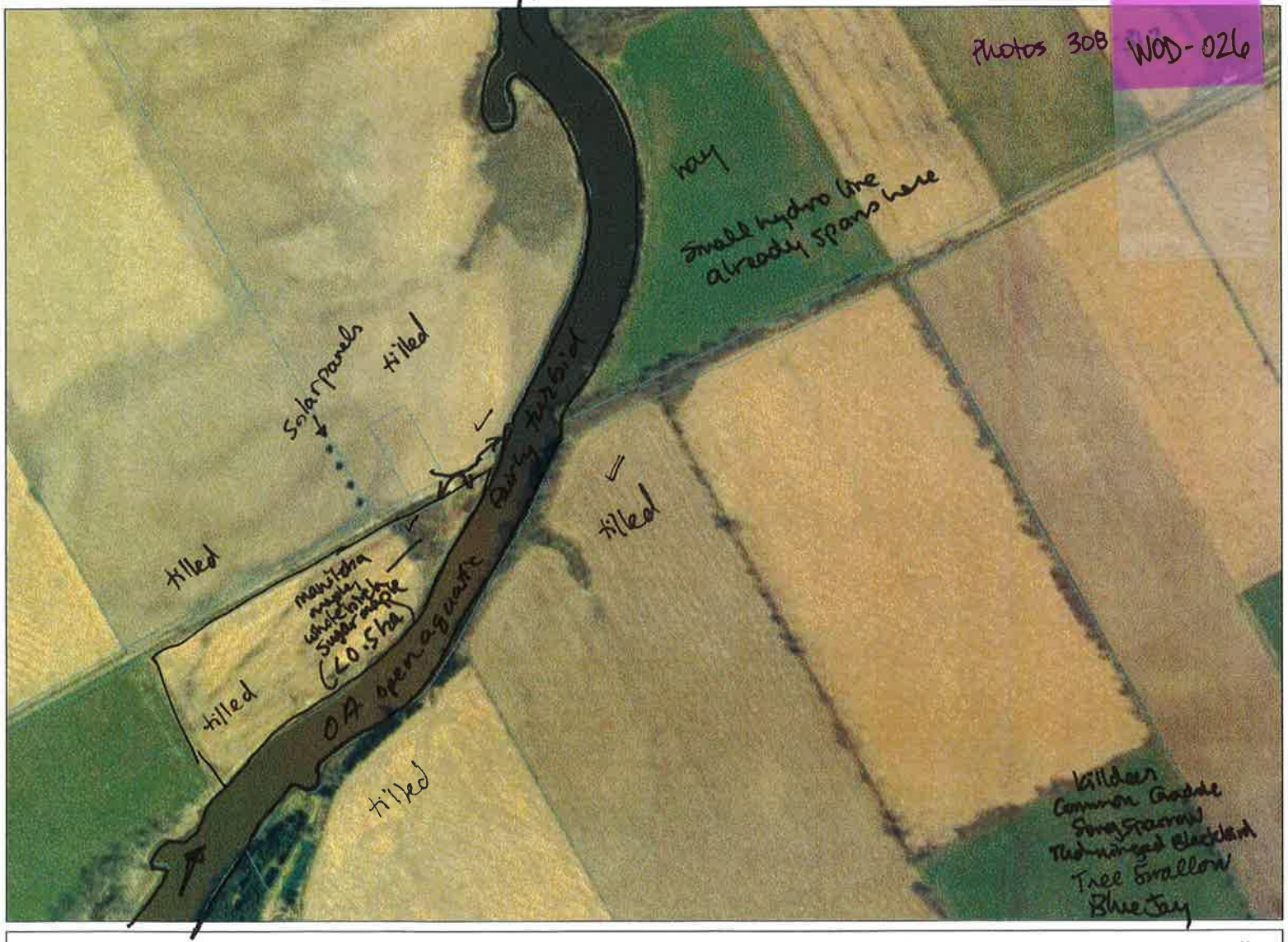
Ontario

Make a Topographic Map

Nation Rise Potential Crossing 4

Notes: area 12.2

Photos 308 WOD-026



Legend

- Building as Symbol
- Building to Scale
- Airport
- Heliport \ Hospital Heliport
- Seaplane Base
- Ferry Route
- Trail Head \ Trail
- Railway \ Train Station
- Railway with Bridge
- Railway with Tunnel
- Road (Major — Minor)
- Winter Road
- Road with Bridge
- Road with Tunnel
- Primary, Kings or 400 Series Highway
- Secondary Highway
- Tertiary Highway
- District, County, Regional or Municipal Road
- Toll Highway
- One Way Road
- Road with Permanent Blocked Passage
- Road with Address Ranges
- Hydro Line, Communication Line or Unknown Transmission Line
- Natural Gas Pipeline, Water Pipeline or Unknown Pipeline
- Spot Height
- Index Contour
- Contour
- Wooded Area
- Wetland
- Waterbody
- Waterbody Elevation
- Watercourse
- Falls
- Rapids
- Rapids \ Falls
- Rapids
- Rocks
- Lock Gate
- Dam \ Hydro Wall
- Dam \ Hydro Wall
- Provincial \ State Boundary
- International Boundary
- Upper Tier \ District Municipal Boundary
- Lower Tier \ Single Tier Municipal Boundary
- Lot Line
- Indian Reserve
- Provincial Park
- National Park
- Conservation Reserve
- Military Lands

0 0.3 km

Projection: Web Mercator

N

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June 6 2016
CH, CP

MINISTRY OF NATURAL RESOURCES AND FORESTRY

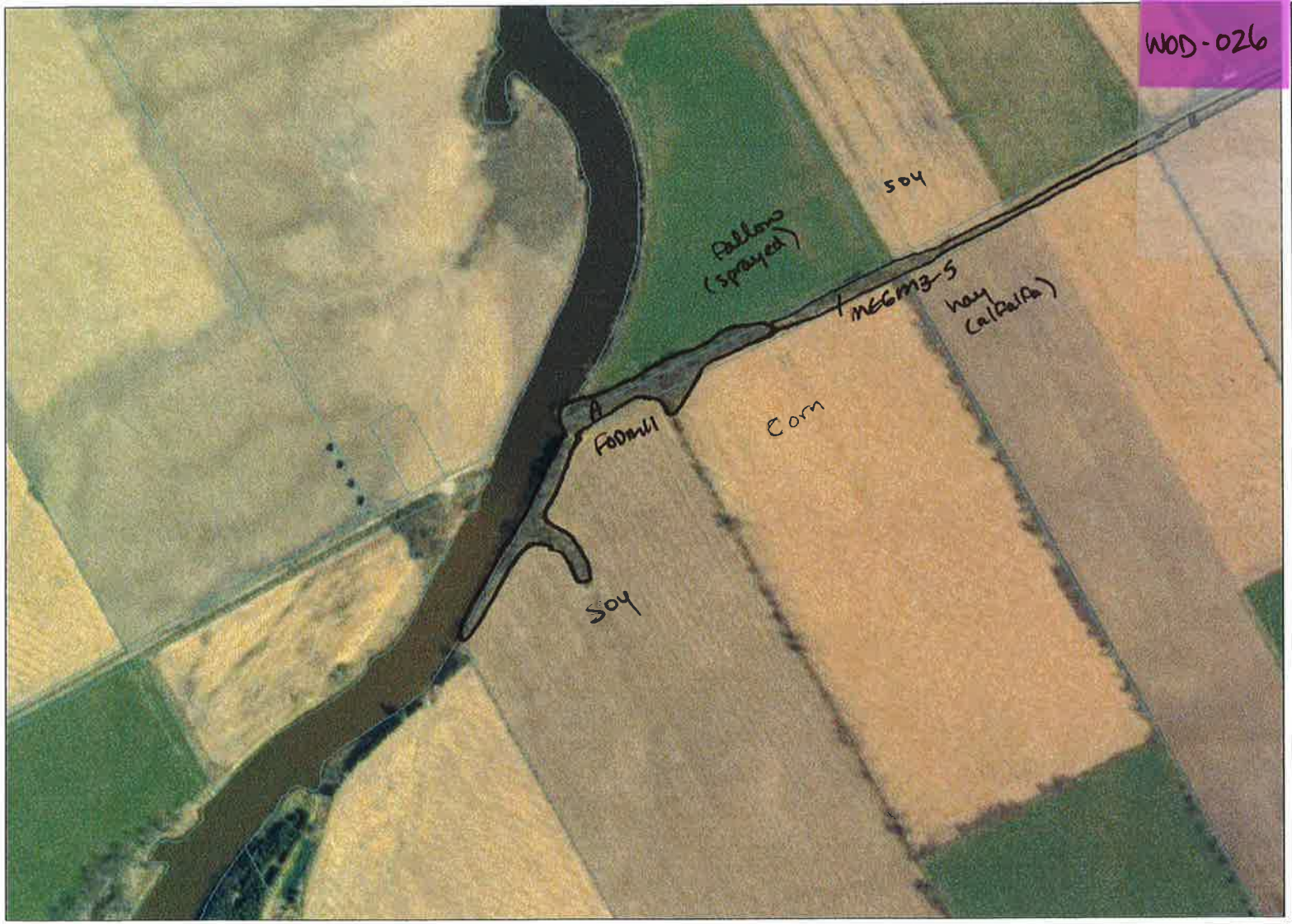
Ontario

Make a Topographic Map

Nation Rise Potential Crossing 4

Notes: Area 122

WOD-026



→ to the first house on the South

Legend

- Building as Symbol
- Building to Scale
- Airport
- Heliport \ Hospital Helipad
- Seaplane Base
- Ferry Route
- Trail Head \ Trail
- Railway \ Train Station
- Railway with Bridge
- Railway with Tunnel
- Road (Major → Minor)
- Water Road
- Road with Bridge
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- One Way Road
- Road with Permanent Booked Passage
- Road with Address Ranges
- Hydro Line, Communication Line or Unknown Transmission Line
- Natural Gas Pipeline, Water Pipeline or Unknown Pipeline
- Spot Height
- Index Contour
- Contour
- Wooded Area
- Wetland
- Waterbody
- Waterbody Elevation
- Watercourse
- Falls
- Rapids
- Rapids \ Falls
- Rapids
- Rocks
- Lock Gate
- Dam \ Hydro Wall
- Dam \ Hydro Wall
- Provincial \ State Boundary
- International Boundary
- Upper Tier \ District Municipal Boundary
- Lower Tier \ Single Tier Municipal Boundary
- Lot Line
- Indian Reserve
- Provincial Park
- National Park
- Conservation Reserve
- Military Lands

0 0.3 km

Projection: Web Mercator

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NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-026

Site: National Rose	175a
Polygon: Potential River Crossing 4	A
UTM:	
Date: June 6 2016	Time: 17:15 - 1820
Surveyor(s): Christy Humphrey, Carlene Perlein	
Weather: 20°C, wind 4/SW, cc 70%, No precip	

Community Classification

Vegetation Type:	Form 11 Naturalized Deciduous Hedgerow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	X Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	-
1	Canopy	2	3	White Ash, White Elm
2	Sub-canopy	3	4	White Ash > White Elm > Hawthorn sp. > Manitoba Maple
3	Understorey	4/5	1	Choke Cherry - Red Raspberry
4	Groundcover	4/5	4	Smooth Brome > Wild Parsnip >> Virginia Creeper

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	O	> 50
Snags	N	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 (1=canopy) 2-10 (2=sub-canopy) 0.5-2 (3=understorey) <0.5 (4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	D	O	O		
manitoba maple		O			
Common Apple		O			
Sugar maple	R	O			
Sweet Cherry		O			
White Elm	O	O			
Oak sp.				R	
Crack Willow	R				
White Cedar		O			
Bur Oak		R			
Basswood		O	O		
Rosa Blanda					
Red Elderberry			R		
Red Raspberry			O		
Riverbank Grape			O	O	
Common Buckthorn		O	O		
Prickly Gooseberry			O		
Virginia Creeper				O	
Hawthorn sp		A			
Pin Cherry		O	O		
Choke Cherry			O		
Tartarian Honeysuckle		R	O		

Species	Layer 1	2	3	4	Sample
Bane berry sp				O	
Smooth Brome				D	
Enchanter's Nightshade				O	
Fragaria virginiana				O	
Toxic poison ivy				O	
Avena sp.				O	
Wild Parsnip				A	

Wildlife and Other Notes

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: Potential River Crossing 4 - B	
UTM:	
Date: June 6 2016	Time: 1700 - 1715
Surveyor(s): Christy Humphrey, Carlene Pierson	
Weather: 20°C, Wind 4 SW, cc 70% No precip	

Community Classification

Vegetation Type:	MEGM3-5 Smooth Brome Graminoid Meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
X Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd	Bryophyte	
		X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy		0	—
1	Canopy	2	1	White Ash > Manitoba Maple
2	Sub-canopy	3	1	Hawthorn sp. > White Ash > Pin Cherry
3	Understorey	4/3	4	Smooth Brome > Poa pratensis > Wild Parsnip > Tufted Vetch
4	Groundcover	5/4	4	Dandelion > Canada Thistle

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	R	R			
Manitoba Maple	R				
Pin Cherry		R			
Hawthorn sp.		R	R		

Species	Layer 1	2	3	4	Sample
Smooth Brome			D		
Urtica dioica			O		
Wild Parsnip			O		
Dandelion				D	
Wild Carrot				O	
Canada Thistle				O	
Tufted Vetch			O		
Meadow Goatsbeard				O	
Poa pratensis			O		
Orchardgrass			O		

Wildlife and Other Notes

Polygon is the extent of the Road ROW.

WOD-026

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** Potential marsh/swamp 4	
Date: 06/06/2016	**Start Time:** 17:00	**End Time:** 18:30	**Observers:** CEP CLB
Weather Conditions: TWCN 4SW CC 75% Prec 0			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water	✓		Presence of fish
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel	✓		Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles	✓		Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 06/06/2016

Project Name: Nat on 2nd WP | Project #: 1756 | Area and/or Polygon ID: Potential riparian crossing 4

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Open water	1	South Nation River	see photo #'s from may 20 visit (0308 - 0312)	larger river, relatively turbid.	—
Banks.	—	Sides of S. Nation River	11	Banks are ~ 1-3 m high here, largely vegetated. would be scoured/flooded during seasonal spring floods. Not suitable for swallows.	—

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	E Kingbird	S	1						
B	Savannah Sparrow	S	1						
B	Song Sparrow	S	1						
B	Red-winged Blackbird	S	1						
B	Am. crow	S	1						
B	Am. goldfinch	S	1						
B	Am. robin	OB	1						
B	Red-winged blackbird	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: Nation Rose WP Project #: 1736

NATURAL RESOURCE SOLUTIONS INC.
Aquatic Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Start Time 1720 End Time 1820 Date: 06/06/2016 Observer(s): CFP CLH

Polygon or Area ID (Potential) crossing 4 Weather Conditions: T 80% W 4SW cli 75% Precip 0

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	*plot too small for plot BHD - every tree investigated		
Plot 2			
Plot 3			
Plot 4			
Plot 5			
Plot 6			
Plot 7			
Plot 8			
Plot 9			
Plot 10			
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM 18T	Photo Number(s)
1	White ash	1	40cm	487458 5002125	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 1 / 1.416 ha = 0.71 > or = 10/ha? Yes / (No)

If >10/ha: BMA- ____

Dec 7 2016 EMB KLB

Roadside

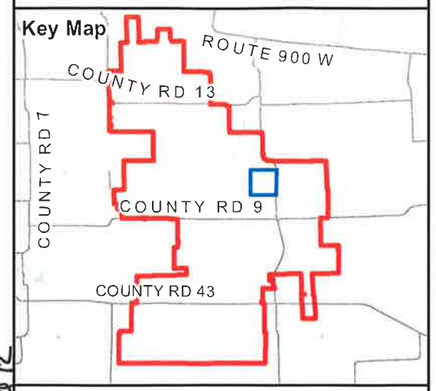
WOD-027
WOD-028

Nation Rise Wind Project

Natural Features Field Map

Area ~~45~~ & 45 & 120

Key Map



Legend

- Utility Line
- Primary Road
- Secondary Road
- Railway
- Land Parcel

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-027

Site:	1756 Nation Rise Wind Project
Polygon:	Area 120 - 60106027 9-Roadside
UTM:	
Date:	DEC 7 2016 Time: 15:55-16:20
Surveyor(s):	PWD EMB KLB
Weather:	2°C Wind 2E No precip. cc: 95%.

Community Classification

Vegetation Type:	FODM4-2 White Ash Hardwood Deciduous
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	1	white elm = white ash
2	Sub-canopy	3	4	white ash > white elm > sugar maple
3	Understorey	5	3	tall goldenrod > wild carrot
4	Groundcover	6	4	grass sp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
white elm	R	O			
sugar maple		R			
white ash	R	O			
green ash	R	R			

Species	Layer 1	2	3	4	Sample
tall goldenrod			O		
wild carrot			O		
grass sp.				A	

Wildlife and Other Notes

Appears to be previous meadow now densely populated with saplings & young trees

PIC 433

unable to see if pond is present

WOD-027
Roadside

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise Wind Project **Project #:** 1756 **Area and/or Polygon ID:** Area 120

Date: December 7 /16 **Start Time:** 15:50 **End Time:** 16:20 **Observers:** KLB ~~PWD~~ EMB

Weather Conditions: 2°C Wind ZE Precip: None CC: 95%

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		X	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond → possible	X		Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp		X	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		X	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		X		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		X	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		X	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		X	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		X			
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs)		
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: December 7/16

Project Name: Nation Rise Wind Project Project #: 1756 Area and/or Polygon ID: Area 120

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
ROADSIDE					
possible pond	1	see map	N/A	possible small pond visible on air photo	N/A

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

ROADSIDE ASSESSMENT

Roadside WOD-028

Site:	1756 Nation Rise Wind Project
Polygon:	Features 45446 - 60106372 & 60106030-1
UTM:	
Date:	Dec 7 2016
Time:	10:21 - 16.40
Surveyor(s):	[redacted] EMB KLB
Weather:	0°C Wind 2 S Precip: NON CC: 95%.

Community Classification

Vegetation Type:	FODM11 - Naturalized Deciduous Hedgerow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—	NA	NA
1	Canopy	2	4	green ash = manitoba maple = white ASH
2	Sub-canopy	3	2	green ash > manitoba maple > white elm > white ASH
3	Understorey	4	2	grey dogwood > tall goldenrod > meadow fescue
4	Groundcover	7	2	grass sp. > moss sp. > Poverty oats → snowcover

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

→ roadside

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	[redacted]
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
manitoba maple	O	O	O		
green ash	O	O			
sugar maple	R	R			
white elm	R	R			
grey dogwood			O		
White Ash	O	R			

Species	Layer 1	2	3	4	Sample
tall goldenrod			D		
canada bluejoint			R	R	
black raspberry				R	
riverbank grape			R	R	
moss sp.				R	
meadow fescue				O	

Wildlife and Other Notes

Creek on either side, trail thru centre
photos 435 - 6 snowmobile trail
ROADSIDE ASSESSMENT

WOD-028

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise Wind Project	**Project #:** 1756	**Area and/or Polygon ID:** Roadside features 45-46	
Date: December 7/16	**Start Time:** 16:21	**End Time:** 16:40	**Observers:** PWD
Weather Conditions: Temp 0°C Wind 2S Precip: None CC: 95%			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All**: Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate). Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic). Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians. Presence of fish. **All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		X	
Vernal Pool		X	
Pond		X	
Shallow Marsh (MAS) or Open Water		X	
Swamp		X	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		X	
Meadow		X	
Thicket, Woodland, Hydro Corridor		X	
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water.
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices.
Cave		X	Depth of cave, bedrock type.
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		X	
Old Rock or Debris Pile, Old Stone Fence	X		
Abandoned Road or Rail Bed		X	
Abandoned Well		X	
Old Foundation		X	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		X	
Medium		X	
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: December 7/16

Project Name: Nation Rise Wind Project Project #: 1756 Area and/or Polygon ID: Feature 45-46

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Old Rock or Debris Pile	1	see map	434	- small to medium sized rocks ✓ ~1.5m high 5 x 5 m.	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

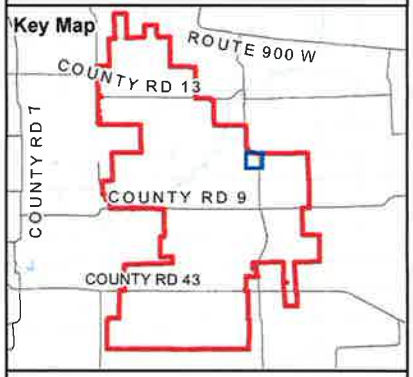
Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Jan. 31 2017
JBB

Nation Rise Wind Project

Natural Features Field Map

Area 45 & 134



Legend

- Utility Line
- Primary Road
- Secondary Road
- Railway
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-028

Site:	Nation Rise
Polygon:	601060367 Area 134
UTM:	
Date:	Jan 31, 2017 Time: 16:45-17:10
Surveyor(s):	JBB
Weather:	-10°C, ~70%, w 1W, no precip

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	/ Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	green ash > white elm > trembling aspen
2	Sub-canopy	3	2	green ash > white elm > trembling aspen
3	Understorey	4-5	2	hawthorn sp. > red osier dogwood
4	Groundcover	6-1	/	snow covered - carrot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
white elm	O	O			
crabapple		R			
trembling aspen	O				
manitoba maple	O	O			
green ash	O	O			
red osier dogwood			O		
hawthorn sp			O		

Species	Layer 1	2	3	4	Sample
wild carrot				O	
tansy				O	
tall goldenrod				O	
smooth brome				O	
cow vetch				O	
canada thistle				O	

Wildlife and Other Notes

Photos: 052-055

Depressions to each side of raised trail/railbed. Snow covered ground layer, carrot assess below.

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-010

hS1

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 600106 0273	
Observer(s): JBB		**ELC Code:** SWDM2-2	
Date: Jan. 31 2017	**Time (24h):** 16:45 – 17:10		
Wetland #: WET-010	**Weather:** Precipitation: None	Temp (° C): -10	
Veg Community #: hS1	Wind Speed & Direction: 1 W	Cloud %: 70	
Wetland Type: S	**Site Type:** P	**Dominant Form:** h	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos: 052 – 055			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%90)	Green Ash > White Elm > Trembling Aspen
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) — clay loam Matthews & Richards 1954

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ⊘ active beaver lodges/dams
- ⊘ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ⊘ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  See map
- ○ human related disturbances (fill, docks, houses, etc)
  old rail bed. Now a snowmobile trail
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  see above
- ⊘ locations of seeps or springs, lagg
- ⊘ iron precipitates, marl deposits
- ⊘ winter cover for wildlife
- ⊘ ungulate summer habitat, moose aquatic feeding habitat
- ⊘ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; ⊘ utility corridor; ⊘ dec. forest; O recent cutover or clearcut (<5yr); ⊘ conif. forest; O mixed forest; O crops; ⊘ row crop; O abandoned pit/quarry; ⊘ pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; ⊘ creek floodplain; ⊘ rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  none observed
- ○ invasive species (plant, aquatic)
  groundcover species

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: 601060367	Area 134
UTM:	
Date: Jan 31, 2017	Time: 16:25 – 16:44
Surveyor(s): JBB	
Weather: -10, cc 70%, w 1W, no precip	

Community Classification

Vegetation Type:	MEFM1-1 Goldenrod Forb Meadow Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	/ Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
/ Open	Open Water	Plankton	/ Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	O	
2	Sub-canopy	3	O	
3	Understorey	4-5	2	tall goldenrod > canada goldenrod
4	Groundcover	6-7	4	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	C	10 - 24	M	25 - 50	M	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young		Mid-age		Mature		Old Growth
	X									

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
black raspberry			O		
common buckthorn			O		
red osier dogwood			O		

Species	Layer 1	2	3	4	Sample
tall goldenrod				O	
grass-leaved aster				O	
smooth brome				O	
canada goldenrod				O	
bull thistle				O	
canada thistle				O	
new england aster				O	
tansy				O	
wild carrot				O	
common milkweed				O	
evening primrose				O	

Wildlife and Other Notes

Photos: 048-051

Soil 58cm vFSC M32, no clay

WOD - 028

Wildlife Habitat Field Data Collection

Area 45 & 134

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 60160365	
Date: Jan 31, 2017	**Start Time:** 16:25	**End Time:** 17:10	**Observers:** JBB
Weather Conditions:			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	✓		Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	✓			Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed	✓		Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation			**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Jan 31, 2017

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 601060367 Area 134

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow	1	See map	048, 049, 051	see ELC sheet for MEFM	
Old Railbed	1	See map	052, 053	treed to either side, connects to other natural features high	
hydro corridor			050, 051	meadow community / corn below	
swamp	1	See map	052-055.	no stick nests observed no suitable vernal pools (low ditches).	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

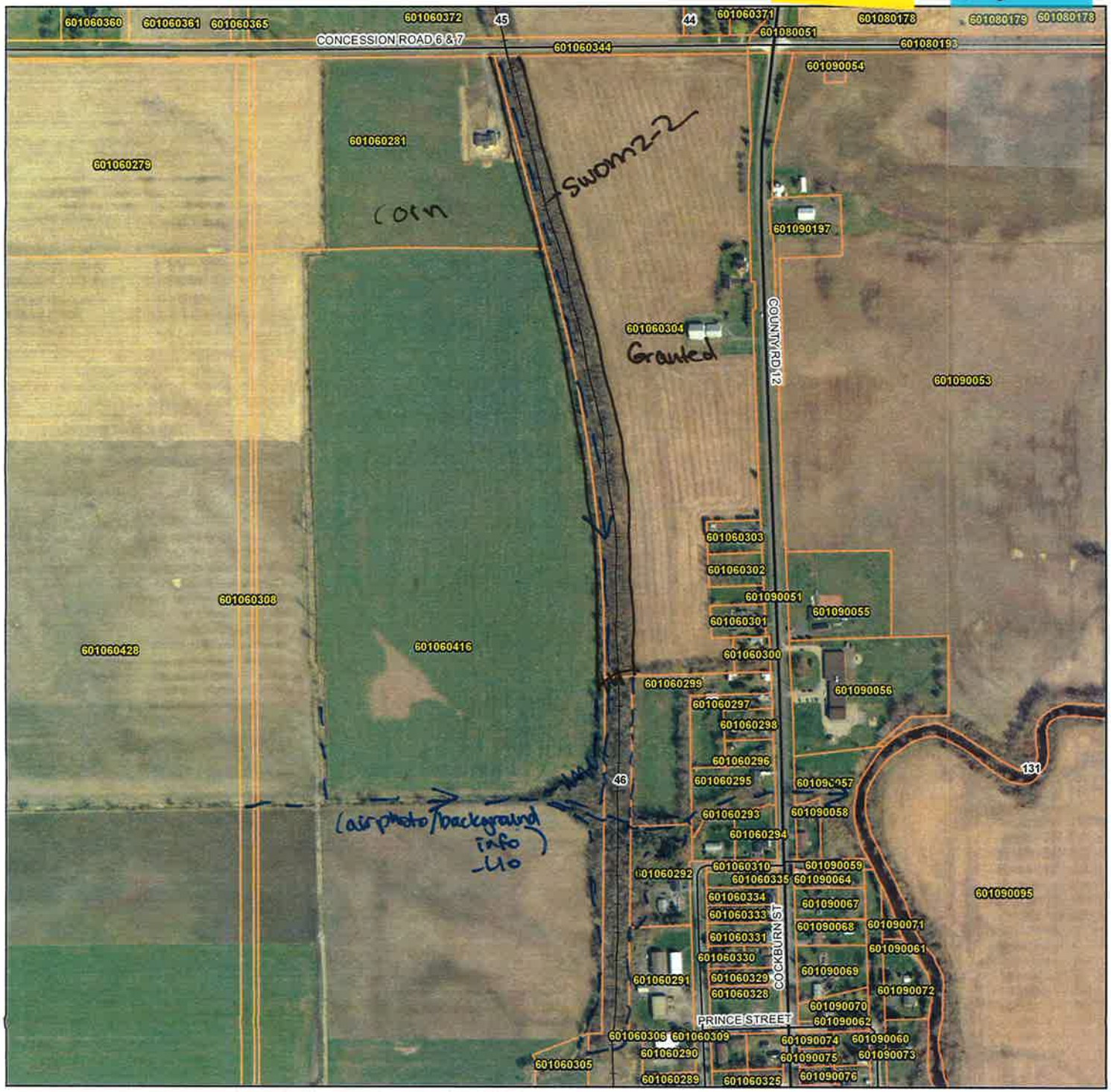
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

WET-011

WOD-089

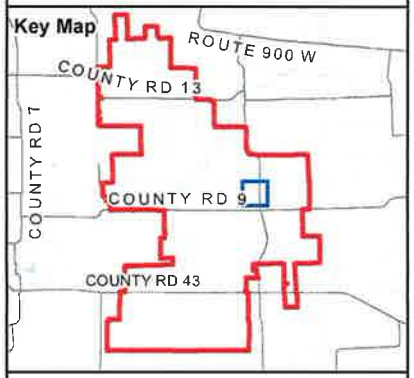
Feb 1 2017
JBB Amc



Nation Rise Wind Project

Natural Features Field Map

Area 46



Legend

- Primary Road
- Secondary Road
- Railway
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756
Date: November 2, 2016

NAD83 - UTM Zone 18
Size: 8.5 x 11"
1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-029

Site: Nation Rise	1756
Polygon: 601060304	Area 46
UTM:	
Date Feb 1, 2017	Time: 8:18 – 9:20
Surveyor(s): JBB, AMC	
Weather: −13°C, 100%cc, wØ, light snow	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous	
Shrub	Shallow Water	Submerged	Lichen	Mixed	
/ Treed	/ Surficial Dep	Floating-Lvd	Bryophyte		
	Bedrock	Graminoid	/ Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	green ash > trembling aspen > white elm
2	Sub-canopy	3	4	green ash > white elm > manitoba maple
3	Understorey	4-5	3	green ash > raspberry >
4	Groundcover	6-7	/	snow covered: cannot assess

HT Codes: 1 >25m 2 25 - 10m 3 10 - 2m 4 2 - 1m 5 1 - 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 - 10% 2 10 - 25 3 25 - 60% 4 >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	R	> 50

Abundance Codes: N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba maple	O	O	O		
white elm	O	O	O		
black cherry	O	O	O		
green ash	D	A	O	O	
common apple		R			
trembling aspen	O	O	O		
big-tooth aspen	O	O			
common buckthorn			O		
redosier dogwood			O		
blackraspberry			O		
woodbine			O		
red baneberry				O	
tartarian honeysuckle			O		
chokecherry			O		
hawthorn sp.			O		
red raspberry			O		
riverbank grape			O		

Species	Layer 1	2	3	4	Sample
smooth brome				O	
tansy				O	
tall goldenrod				O	
heal-all				O	
canada thistle				O	
white avens				O	
deadly nightshade				O	

Wildlife and Other Notes

Photos: 065-067
raised trail with depression/ditch to each side. Upland sp. only occuring along trail edge. Trees growing in depression. Snow covered ground layer. Cannot assess below.

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-011

hS1

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601060304
Observer(s): JBB, AMC		**ELC Code:** SWDM2-2
Date: Feb 1, 2017	**Time (24h):** 8:18-9:20	
Wetland #: WET-011	**Weather:** Precipitation: light snow	Temp (° C): -13
Veg Community #: hS1	Wind Speed & Direction: Ø	Cloud %: 100
Wetland Type: S	**Site Type:** P	**Dominant Form:** h
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds	
Photos: 065-067		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 85)	green ash > trembling aspen > white elm
c (%:)	
≥10% dc (%:)	
≥10% dh (%: 11)	green ash > white elm
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

downy woodpecker, dog tracks (recreational walks)
snow cover impedes assessment.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  intermittent flows expected in ditch to flow south
- ⊗ human related disturbances (fill, docks, houses, etc)
  raised rail/community trail down center of polygon
- ⊗ evidence of recreational activities (nature appreciation, fishing, hunting)
  dog walking, snow mobile use
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ◯ winter cover for wildlife
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat agricultural area adjacent
- ◯ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊗ fence rows; ⊗ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
  spruce shelter area south, off property
- ◯ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ◯ vernal pools
- ⊗ invasive species (plant, aquatic)
  common buckthorn, tartarian honeysuckle

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

WOD-029

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 6010603049	
Date: Feb 1, 2017	**Start Time:** 8:18	**End Time:** 9:20	**Observers:** JBS, AMC
Weather Conditions: -13°C, 100% cc, wd, light snow			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate)
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**. Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics)
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 1, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 601060304

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
swamp	1		065-067	No heron nests, ~30m wide, along community trail. See ELC and wetland sheets	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	downy woodpecker	OB	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

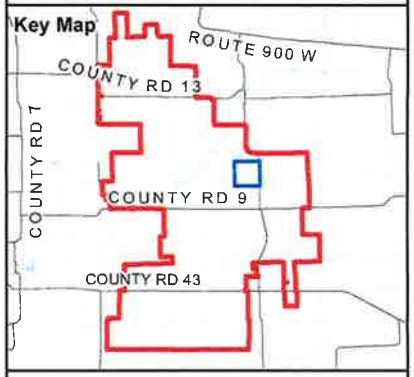
Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

PROPERTY LINE ASSESSMENT WOD-030 Feb 1 2017 JBB, AMC

Nation Rise Wind Project

Natural Features Field Map

Area 43 [redacted] #44



Legend

- Utility Line
- Primary Road
- Secondary Road
- Railway
- Land Parcel

.5 hrs

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-030

★ PROPERTY LINE ASSESSMENT ★

Site: NATION RISE	1756
Polygon: 601060372	AREA 45
UTM:	
Date: Feb 1, 2017	Time: 07:51 - 08:02
Surveyor(s): JBC, AMC	
Weather: -13°C, cc 100%, w0, light snow	

Community Classification

Vegetation Type:	FODM5-8 Dry-Fresh Sugar Maple-White Ash Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover			Open Water	Plant Form		
Open			Shallow Water	Plankton	Forb	Coniferous
Shrub		/	Surficial Dep	Submerged	Lichen	Mixed
/ Treed			Bedrock	Floating-Lvd	Bryophyte	
				Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	4-2	4	sugar maple > white ash
2	Sub-canopy	3	3	sugar maple > white ash
3	Understorey	1.5	2	white ash > sugar maple
4	Groundcover	0.1	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		< 10		10 - 24		25 - 50		> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	O	O			
Sugar maple	O	O			

Species	Layer 1	2	3	4	Sample
Tall Goldenrod				O	

Wildlife and Other Notes

- property line assessed. Assessed from road ~100m away
- snow covered - cannot assess soil, topography, and ground cover.

PROPERTY LINE ASSESSMENT

WOD-030

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 60106372 Area43
Date: Feb 1, 2017	**Start Time:** 07:51 - 2 **End Time:** 08:02	**Observers:** JBB, AMC
Weather Conditions: -13°C, cl 100% cld, light snow		

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate)
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**. Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb1, 2017

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 60108037-2 Area 43

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
None				*Assessed from ~100m away from feature	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

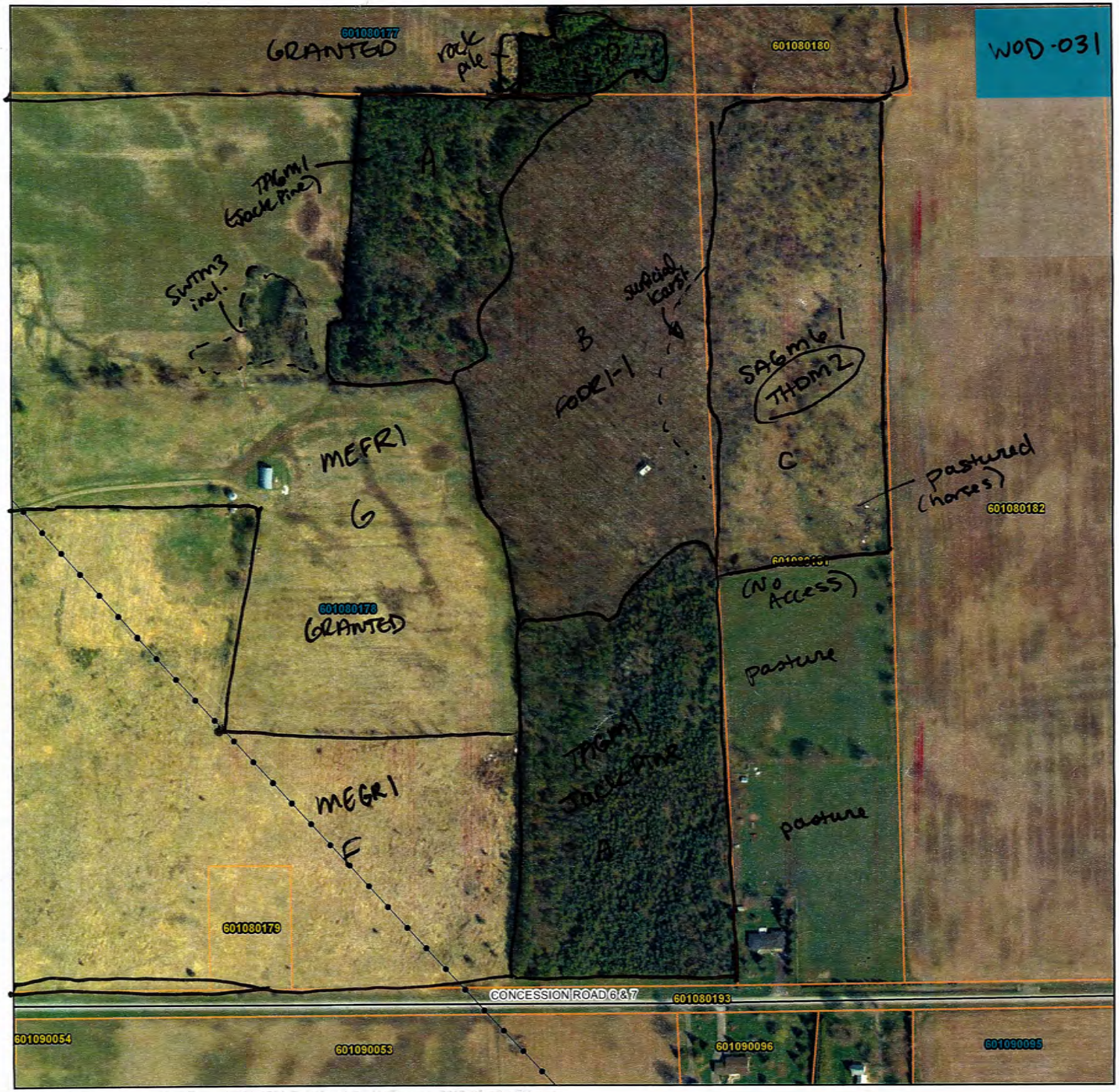
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

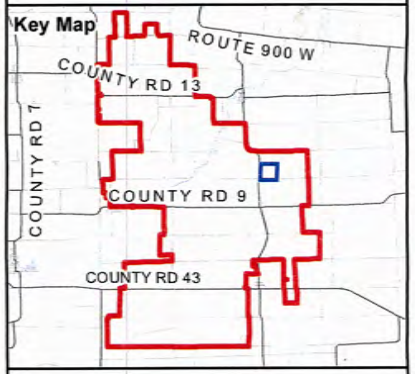
June 7-8, 2016
Christy Humphrey, Carlene Perkin



Nation Rise Wind Project

Natural Features Field Map

Area 42



Legend

- Utility Line
- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

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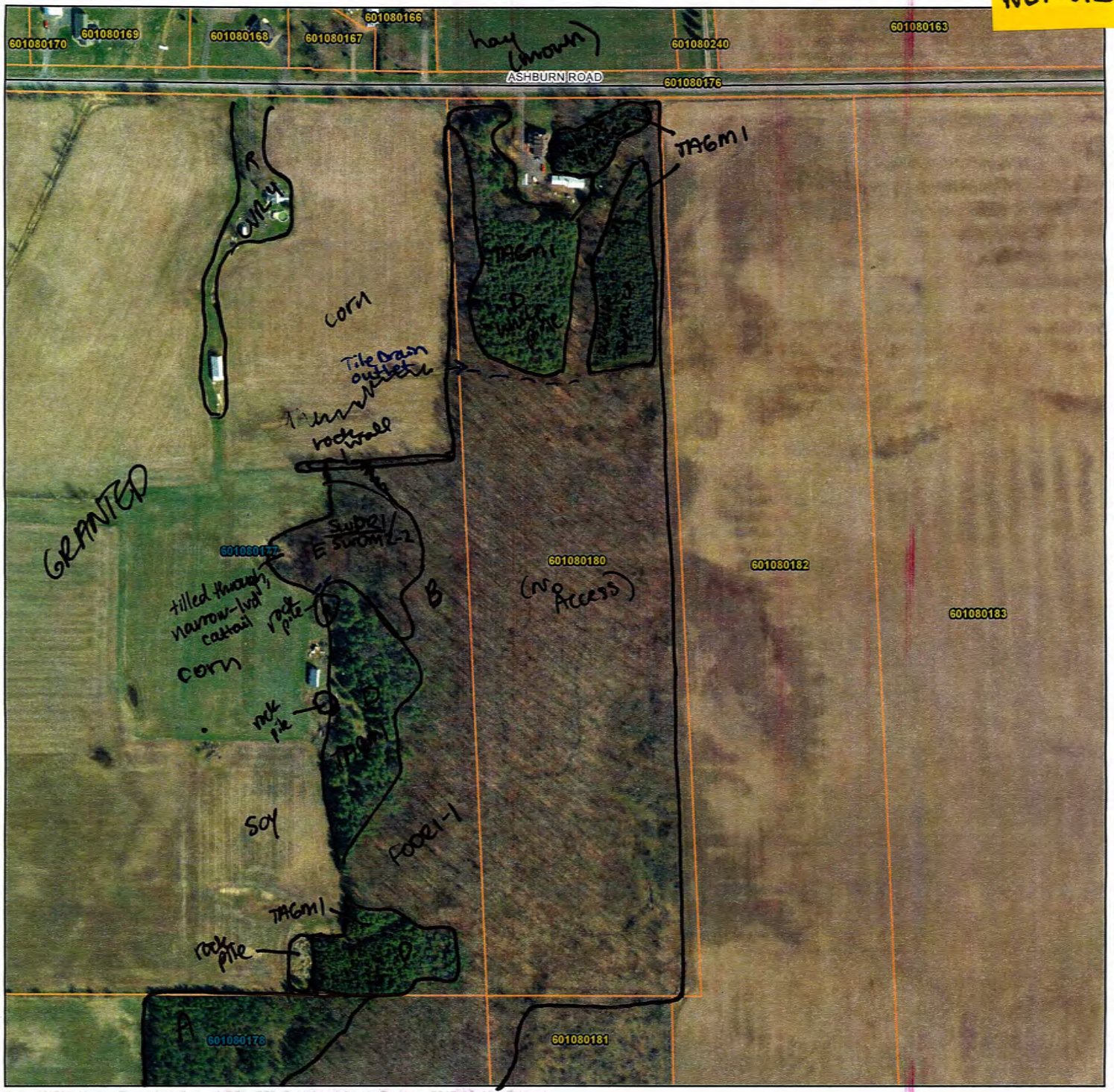
Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

WOD-031 WET-012

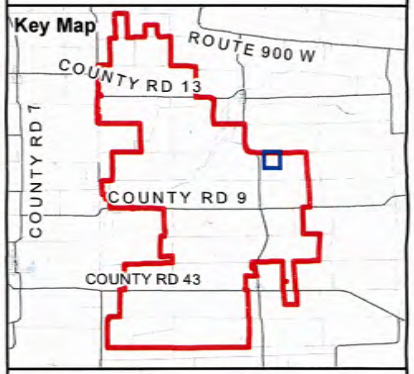
Jun 7-8, 2016
Christy Humphrey,
Corlene Pellerin



Nation Rise Wind Project

Natural Features Field Map

Area 42



Legend

- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-031

Site: Nation Rise	1756
Polygon: Area 42 - A	601080178
UTM:	
Date: June 7, 2016	Time: 10:10 - 11:30, 13:20 - 15:05
Surveyor(s): Christy Humphrey, Carlene Perkin	
Weather: 14°C, 100% CC, wind 3 to 5 km/h, slight precip	

Community Classification

	Vegetation Type:	Thorn Coniferous Plantation
	Inclusion:	(Jack Pine)
X	Complex:	RBOB1-2 Calcareous Open Rock Barren meadow

Interspersed esp. in West polygon. → Poa pratensis, moss.

Polygon Description

System		Substrate		Topo Feature				Community			
X	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
	Wetland	X	Mineral Soil		Riverine		Crevice/Cave		Pond		Meadow
	Aquatic		Parent Min.		Bottomland		Alvar		River		Prairie
			Acidic Bedrock		Terrace		Rockland		Stream		Thicket
History			Basic Bedrock		Valley Slope		Beach/Bar		Marsh		Savannah
	Natural	X	Carb. Bedrock		Tableland		Sand Dune		Swamp		Woodland
X	Cultural			X	Roll. Upland		Bluff		Fen		Forest
		Site			Cliff				Bog	X	Plantation

Cover			Plant Form					
	Open		Open Water		Plankton		Forb	X Coniferous
	Shrub	X	Shallow Water		Submerged		Lichen	Mixed
X	Treed		Surficial Dep.		Floating-Lvd.		Bryophyte	
			Bedrock		Graminoid		Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	O	—
1	Canopy	2	O	—
2	Sub-canopy	3	4	Jack Pine >> White Elm >> manitoba maple
3	Understorey	4/5	2	Common Buckthorn > Red Raspberry > Sweet Cherry > Choke Cherry
4	Groundcover	4	4	Moss >> Poison Ivy > Fragaria virginiana >> Heal-all

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 (1=canopy) 2-10 (2=sub-canopy) 0.5-2 (3=understorey) <0.5 (4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Jack Pine		D			
Sweet Cherry			O	O	
Bur Oak			O		
White Elm		O			
Manitoba Maple		O			
Bitternut Hickory			R		
White Pine	R				
Scots Pine	R				
Carex gracillima				O	
Heal-all				O	
Black medic				O	
Bull thistle			R		
Carex radiata				O	
Glossy Buckthorn			R		
Virginia Creeper				O	
Red Osier			O		
Choke Cherry			O		
Red Raspberry			O	O	
Common Buckthorn			O	O	
Hawthorn sp		O	O		

Species	Layer 1	2	3	4	Sample
Tufted Vetch				O	
Wild Parsnip				O	
Smooth Brome			O		
Poa pratensis				O	
Yarrow				O	
Viola sp.				R	
Fragaria virginiana				O	
Dandelion				O	
Sulphur cinquefoil				R	
moss				A	
Tansy			R		
Taraxacum officinale radicans				O	
Goldenrod sp			O		
Daisy Fleabane				O	
Common Mullein				O	
Scouring-rush			R		
Tall Buttercup				O	
Common Milkweed			R		
Carex leptonervia				O	
Garden Valerian			O		
Butter N Eggs				O	
Poverty Oats				R	
Galium triflorum				O	

Wildlife and Other Notes

West side has more White Elm, but still old Jack Pine plantation (South polygon)

Very shallow soil over bedrock (~5-10cm).

West polygon - complex of open meadow rock barren, dominated by moss and Poa pratensis.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-031

Site: Motion Rise	1756
Polygon: Area 42-B	601080178
UTM:	
Date: June 7 2016	Time: 11:30 - 12.40, 16:00 - 16:45
Surveyor(s): Christy Humphrey, Carlene Perkin	
Weather: 14°C, cc 100%, Wind S/SW No precip.	

Community Classification

Vegetation Type:	FODR1-1: Dry-Fresh Sugar Maple-Hardwood
Inclusion:	Calcareous Shallow Deciduous Forest
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	X Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Sugar maple >> White Ash = Bitternut Hickory = Basswood
2	Sub-canopy	3	3	Ironwood > Sugar maple > White Elm > White Ash
3	Understorey	4/5	1	Sugar maple > Basswood > White Elm
4	Groundcover	6/7	2	Bitternut Hickory > Sugar Maple > Poison Ivy > Black Cherry

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		< 10		10 - 24		25 - 50		> 50
	0		0		0		0	
Snags	0		0		0		R	
Deadfall/Logs	0		0		R		R	

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth
			X		

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____ of ____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 7+0 2-10 0.5-2
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Bitternut Hickory	O			O	
Basswood	O		O		
White Ash	O	O	O	O	
Sugar Maple	A	O	O		
White Elm		O		O	
Trembling Aspen	O			R	
Ironwood		O			
Black Cherry	O	O		O	
White Birch	R	O			
Bur Oak	1	R			
Alternate leaf Dogwood		O			
Prickly Gooseberry				O	
Virginia Creeper				O	

Species	Layer 1	2	3	4	Sample
Enchanter's Nightshade				G	
Jack-in-the-pulpit				G	
Tomcat/Common ragweed				O	
Carex leptonervia				O	
Dandelion				O	
Viola sp.				O	
Carex radiata				O	
Herb Robert				O	
Upright yellow wood sorrel				O	
Carex arctata				O	
Carex jamesii				O	
False Solomon's Seal				O	
Baneberry sp.				R	
Carex albursina				O	
Sweet cicely				O	
Wild Ginger				O	
Carex hirtifolia				O	
Carex pensylvanica				O	
Zigzag Goldenrod				O	
Blue Cohosh				O	
Prenanthes sp.				R	

Wildlife and Other Notes

understory very open.
Surface Stoniness - 3
Bedrock @ surface @ E end., Fissured, moss-covered
& in this area surface rockiness is 5.
North Section - Same composition but with many large DBH trees

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

No Access. PROPERTY LINE ASSESSMENT

Site: Nation Rise		1756
Polygon: Area 42 - C		601080181
UTM:		
Date: June 7 2016	**Time:** 1240 - 1250	
Surveyor(s): Christy Humphrey, Carlene Petkin		
Weather: 16°C, CC 70%, Wind 3, No precip		

Community Classification

Vegetation Type:	SAGM6 Shrub Pasture / THOM2 Dry-Fres
Inclusion:	Deciduous thicket Ecosite
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	
2	Sub-canopy	3	3	Shrubs - Hawthorn sp., Common Apple.
3	Understorey	4/5	4	Grasses
4	Groundcover	5		not visible.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	< 10	10 - 24	25 - 50	> 50
Snags	< 10	10 - 24	25 - 50	> 50
Deadfall/Logs	< 10	10 - 24	25 - 50	> 50

Unknown.

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Common Apple		✓			
Basswood				✓	
Bitternut Hickory				✓	
Hawthorn sp.		✓			

Species	Layer 1	2	3	4	Sample
Tall Buttercup				✓	
Quack grass			✓		
Poa sp.				✓	
Tufted Vetch.				✓	

Wildlife and Other Notes

Property Line Assessment
No Access
Pasture d - Horses.
Not very visible from property lines.
Primarily air photo interp.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-031

Site: Nation Rise	1756
Polygon: Area 42 - D	60108 0177
UTM:	
Date: June 7 2016	Time: 12:50-13:20, 15:05-15:30
Surveyor(s): Christy Humphreys	
Weather: 18°c, CC 65%, Wind 3, No precip	

Community Classification

Vegetation Type:	TAGRM1 Coniferous Plantation (White Pine)
Inclusion:	
Complex:	

Polygon Description

System		Substrate		Topo Feature			Community	
X	Terrestrial		Organic		Lacustrine		Lake	Barren
	Wetland	X	Mineral Soil		Riverine	Talus	Pond	Meadow
	Aquatic		Parent Min.		Bottomland	Crevice/Cave	River	Prairie
			Acidic Bedrock		Terrace	Alvar	Stream	Thicket
History			Basic Bedrock		Valley Slope	Rockland	Marsh	Savannah
	Natural		Carb. Bedrock	X	Tableland	Beach/Bar	Swamp	Woodland
X	Cultural				Roll. Upland	Sand Dune	Fen	Forest
		Site			Cliff	Bluff	Bog	X Plantation

Cover			Plant Form			
	Open		Open Water		Plankton	Forb	X Coniferous
	Shrub	X	Shallow Water		Submerged	Lichen	Mixed
X	Treed	X	Surficial Dep.		Floating-Lvd.	Bryophyte	
		X	Bedrock		Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	O	—
1	Canopy	2	4	White Pine >>> White Elm
2	Sub-canopy	3	1	Sugar Maple > White Elm > White Pine > White Ash
3	Understorey	4 5	1	Black Cherry > Alt-lvd Dogwood > Prickly Gooseberry > White Ash
4	Groundcover	6 7	1	Poison Ivy > Enchanter's Nightshade > Bitternut Hickory > Jack in the Pulpit

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 70 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	D	O			
White Ash		O	O	O	
Bitternut Hickory				O	
Basswood			O		
Sugar Maple		O			
Black Cherry		O	O	O	
White Elm	O	O	O		
White Spruce	R				
Prickly Gooseberry			O		
Alt-lvd Dogwood		O	O	O	
Red Elderberry			O		
Virginia Creeper				O	

Species	Layer 1	2	3	4	Sample
Enchanter's Nightshade	Fnd	de		O	
Toxicodendron radicans				O	
Lady Fern				R	
Bloodroot				R	
Jack in the Pulpit				O	
Herb Robert				O	
Poa graveress				O	
Wild Parsnip				O	

Wildlife and Other Notes

West polygon.
No access to north polygons (white pine & white spruce).

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-031

Site:	Nation Rise HTS6
Polygon:	Area 42-E 601080177
UTM:	
Date:	June 7 2016 Time: 15:30 - 16:00
Surveyor(s):	Christy Humphreys, Carlene Perkin
Weather:	20°C, CC 100%, WNW 3/5W, No precip

Community Classification

Vegetation Type:	SWDR1 Calcareous Rock/Bedrock Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Green Ash >> White Elm > Basswood
2	Sub-canopy	3	3	White Elm > Green Ash > Sugar Maple > Basswood
3	Understorey	4/5	1	White Elm > Basswood > Prickly Gooseberry > Carex lupulina
4	Groundcover	6	4	Poison Ivy > Enchanters Nightshade > Fragaria virginiana > Carex radiata

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	A	25 - 50	O	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age →		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	D	O	O		
White Elm	O	O	O		
Basswood	R	O	O		
Sugar Maple		O			
Ribes lacustre				O	
Carex lupulina			O		
Fragaria virginiana				O	
Tall Buttercup			O		
Enchanters Nightshade				O	
Caulophyllum thalictroides			O		
Carex gracillima			O		
Poa pratensis				O	
Upright yellow Wood Sorrel				O	
Toxicodendron radicans				A	
Common St Johnswort				O	
Galium palustre				O	
Taraxacum officinale				O	
Herb Robert				O	
Daisy Fleabane			O		
Carex radiata				O	
Viola sp.				O	
Geum sp.				O	
Prickly Gooseberry			O		
common Ragweed		O		O	

Wildlife and Other Notes

Shallow loam over Bedrock ~5-15cm deep.
Takes in drainage from fields

h.ts, gc

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-012

hS1

Wetland Vegetation Communities

Project Name: NATION RISE **Project #:** 1756 **Parcel #:** 601080177

Observer(s): CHRISTY HUMPHREY **ELC Code:** SWDE1 / SWDM2-2

Date: JUNE 7, 2016 **Time (24h):** 15:30 - 16:00

Wetland #: WET-012 **Weather:** Precipitation: — Temp (° C): 20

Veg Community #: hS1 Wind Speed & Direction: 3 / SW Cloud %: 100

Wetland Type: SWAMP **Site Type:** IS. **Dominant Form:** h.

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos:

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:90)	Green Ash (70%) White Elm (20%) Basswood (10%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:50)	White Elm (60) Green Ash (20)
ls (%:)	
gc (%:70)	Poison Ivy (30) Enchanter's Nightshade (10) Wild Strawberry (8)
ne (%:15)	Carex radiata, Carex gracillima, Carex lupulina, Poa Pratensis.
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: L Mineral ☒ Organic ☐ Depth of organics: — cm Organic Type: F M H Depth to bedrock: 5-15 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:
See separate wildlife form.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ✓ active beaver lodges/dams
- ✓ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ✓ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ✓ plant species (wild rice, cranberries)
- ✓ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  intermittent inflow from adjacent fields, no outflow.
- ✓ human related disturbances (fill, docks, houses, etc)
  Some clearing of a small area, still re-growing with cattails.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  hunting - shells.
- ✓ locations of seeps or springs, lagg
- ✓ iron precipitates, marl deposits
- ✓ winter cover for wildlife
- ✓ ungulate summer habitat, moose aquatic feeding habitat
- ✓ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat, somewhat rolling
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ✓ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  Pooling in Spring is evident but not persistent — as of June 7 all dry.
- ✓ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site:	Nation Rise 17516
Polygon:	Area 42-F 601080178
UTM:	
Date:	June 8 2016 Time: 0940-0955, 1010-1120
Surveyor(s):	Christy Humphrey, Carlene Parkin
Weather:	10°C, 90% CC, Wind 3 No precip

Community Classification

Vegetation Type:	MEGR1 Dry-Fresh Calcareous Bedrock Graminoid meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	1	Jack Pine > Scots Pine
3	Understorey	4/5	1	Common Buckthorn > Jack Pine > Scots Pine
4	Groundcover	6/7	4	Poa pratensis > Tufted Vetch > Wild Parsnip > Red Raspberry

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Jack Pine		R	O		
Scots Pine		R	R		
Red Raspberry			O	O	
Common Buckthorn			O		
Red Osier				O	
Riverbank Grape				O	

Species	Layer 1	2	3	4	Sample
Poa pratensis				D	
Equisetum laevigatum				O	
Tall Buttercup				O	
Tufted Vetch				O	
Tansy				O	
Common Mullein				O	
Wild Parsnip				O	
Oxeye Daisy				O	
Red Clover				O	
Fragaria virginiana				O	
Quack Grass				O	
Sulphur cinquefoil				O	
Smooth Brome			O		
Horsetail				O	
Balsam Ragwort				O	

Wildlife and Other Notes

Soils 10-25cm over Bedrock.
Small area of near-bare ground near Clyed 12

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nationrise	1756
Polygon: Area 42 - G	601080178
UTM:	
Date: June 8 2016	Time: 0955 - 1040
Surveyor(s): Christy Humphrey, Carlene Perkin	
Weather: 10°C, 100% CC, Wind 3, No precip.	

Community Classification

	Vegetation Type:	MEFR1 Dry-Fresh Calcareous Bedrock Forb Meadow ecosite
X	Inclusion:	SWTM3 Willow Mineral Deciduous Thicket Swamp
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	X Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
Site		Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	X Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	0	—
3	Understorey	4/5	1	Smooth Brome > Orchard Grass
4	Groundcover	6/7	4	Horsewood > Red Clover > Wild Carrot > Poa pratensis

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X	Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
E. Cottonwood		R			
Bog Osier			O	O	
Manitoba Maple		O	O		
Green Ash		O	O		
Salix petiolaris			O		
Salix bebbiana			O		

Species	Layer 1	2	3	4	Sample
Horsewood				A	
Ox-Eye Daisy				O	
Common milkweed				O	
Red Clover				A	
Poa pratensis				O	
Wild Carrot				A	
Orchard Grass			O		
Timothy				O	
Tufted Vetch				O	
Smooth Brome			O		
Carex granularis				O	
Swamp Milkweed				R	
Reed Canary			O		
Wool-grass				R	
Carex lupulina				R	
Sensitive Fern				O	
Fox Sedge				O	
Narrow-leaf Cattail			O		
Juncus tenuis				O	
Purple Loosestrife				O	
Poa palustris				O	

inclusion

inclusion

Wildlife and Other Notes

Soil 10 - 22cm deep over bedrock. Loam.

Vegetation relatively sparse, quite weedy. Likely was tilled in recent years - this is fallow regrowth.

08/06/2016 Start time: 9:40 End time: 11:05
T: 10°C W: 2W CC 100% Precip: 0

WOD-031

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Watson Rec LP	**Project #:** 1756	**Area and/or Polygon ID:** 42	
Date: 07/06/2016	**Start Time:** 10:10	**End Time:** 17:00	**Observers:** CFP CLH
Weather Conditions: T: 17 °C W: 4W CC 95% Precip: 0			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond	✓		
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor	✓		
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst	✓		Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 07/06/2016 ; 08/06/2016

Project Name: Nation Rise WP Project #: 1756 Area and/or Polygon ID: 42

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s) 18T	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Old rock pile	1	0490780 5004991 ±10m	160156 to 163149	rocks ~ 0.25 - 0.50m long 1m high, 100m long shaded by trees on edge of field located in close proximity to wetland feature new rocks placed on top of old (not suitable, too shallow)	none
Old rock pile	1	0490702 5004785 ±10m	163606 to 163717	~2m high, 10m long part sun ✓ >120m	none
Sheet metal pile	1	0490743 5004714 ±7m		flat on ground. x	none
Old rock pile	1	0490808 5004523 ±7m	06-08-16 101800	~2m high; 25m long; 10m wide ✓ full sun exposure covered in vegetation (~90%)	none
Pond	1	0490734 5004299 ±9m		~20m long, 15m wide, ~40cm deep shallow man-made pond cattails growing in dense patches along perimeter log basking feature	none AWO.
Hydro Corridor + meadow	1	see map, F+C		Cuts across meadow habitat old meadow, hummocks. grass dom.	Red-tailed Hawk obs. perching on towers
Swamp	1	see map		No nest boxes obs.	none

TY	Species	EV	#	Notes
B	Am. Crow	S	1	
B	Am. Robin	S	1	
B	Song Sparrow	S	1	
B	Red-winged Blackbird	S	1	
B	Savannah Sparrow	S	1	
	Tree Swallow sp.	OB	1	
B	Ruby-crowned Kinglet	S	1	
B	Ruffed grouse	D	1	heard courtship sound
M	Red squirrel	SC	2	

TY	Species	EV	#	Notes
B	Black-capped Chickadee	S	1	
B	D. Cardinal	S	1	
B	Common Yellowthroat	S	1	
	Turkey tail mushroom	OB		
B	Grey Catbird	S	1	
B	Woodpecker sp.	FE	2	
B	E. Wood Pewee	S	1	
B	Brown Thrasher	S	1	
B	Red-eyed Vireo	S	2	
B	Chipping Sparrow	S	1	
B	Tree Swallow	OB	1	

TY	Species	EV	#	Notes
B	Turkey	OB	1	
M	Grey Squirrel	OB	1	
M	E. Chipmunk	OB	1	
H	E. Garter Snake	OB	1	
M	jumping mouse sp.	OB	1	
B	Pileated Woodpecker	OB	1	
M	Vole sp.	OB	1	
B	Red-tailed Hawk	OB	1	
B	warbling vireo	S	1	
	yellow warbler	S	1	
	white-tailed deer	OB	1	

flushed agitated

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young

FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE- Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Karst B Polygon had highest evidence. Fractured rock at surface crevices ~20cm deep, most with soil overtop >120m. see map. Photo 123132 other areas with some bedrock at surface, no cracks / fissures observed (A, E)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: Nation Rise WP Project #: 1756

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Start Time 10:10 End Time 1645 Date: 07/06/2016 Observer(s): CEP, CH

Polygon or Area ID (42) Weather Conditions: T: 17°C W: 4 W CC: 95% Precip: 0

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	0	0491097 5004279 ±8m	
Plot 2	0	0491046 5004263 ±9m	
Plot 3	0	0491054 5004346 ±8m	
Plot 4	0	0491006 5004247 ±8m	
Plot 5	1	0491004 5004411 ±8m	
Plot 6	0	0490966 5004303 ±10m	
Plot 7	2	0490898 5004305 ±8m	
Plot 8	1	0490926 5004396 ±9m	
Plot 9	0	0490960 5004435 ±11m	
Plot 10	0	0490894 5004457 ±16m	
Plot 11	0	0490927 5004535 ±16m	
Plot 12	0	0490886 5004509 ±9m	
Plot 13	2	0490896 5004620 ±7m	
Plot 14	0	0490865 5004602 ±10m	
Plot 15	0	0490867 5004672 ±9m	
Plot 16	1	0490788 5004783 ±8m	
Plot 17	1	0490732 5004828 ±9m	
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

8

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM 18T	Photo Number(s)
1	bitternut hickory (dead)	5	45	0491018 5004398 ±11m	
2	black locust	1	35	0490893 5004306 ±7m	
3	black cherry	3	30	0490904 5004317 ±8m	
4	basswood	2	35	0490928 5004378 ±8m	
5	Sugar maple	1	40	0490896 5004468 ±10m	
6	sugar maple	3	250	0490910 5004618 ±9m	
7	White ash	3	150	0490789 5004793 ±9m	woodpecker holes
8	white ash	1	200	0490730 5004824 ±9m	
9					
10					
11					
12					
13					
14					
15					

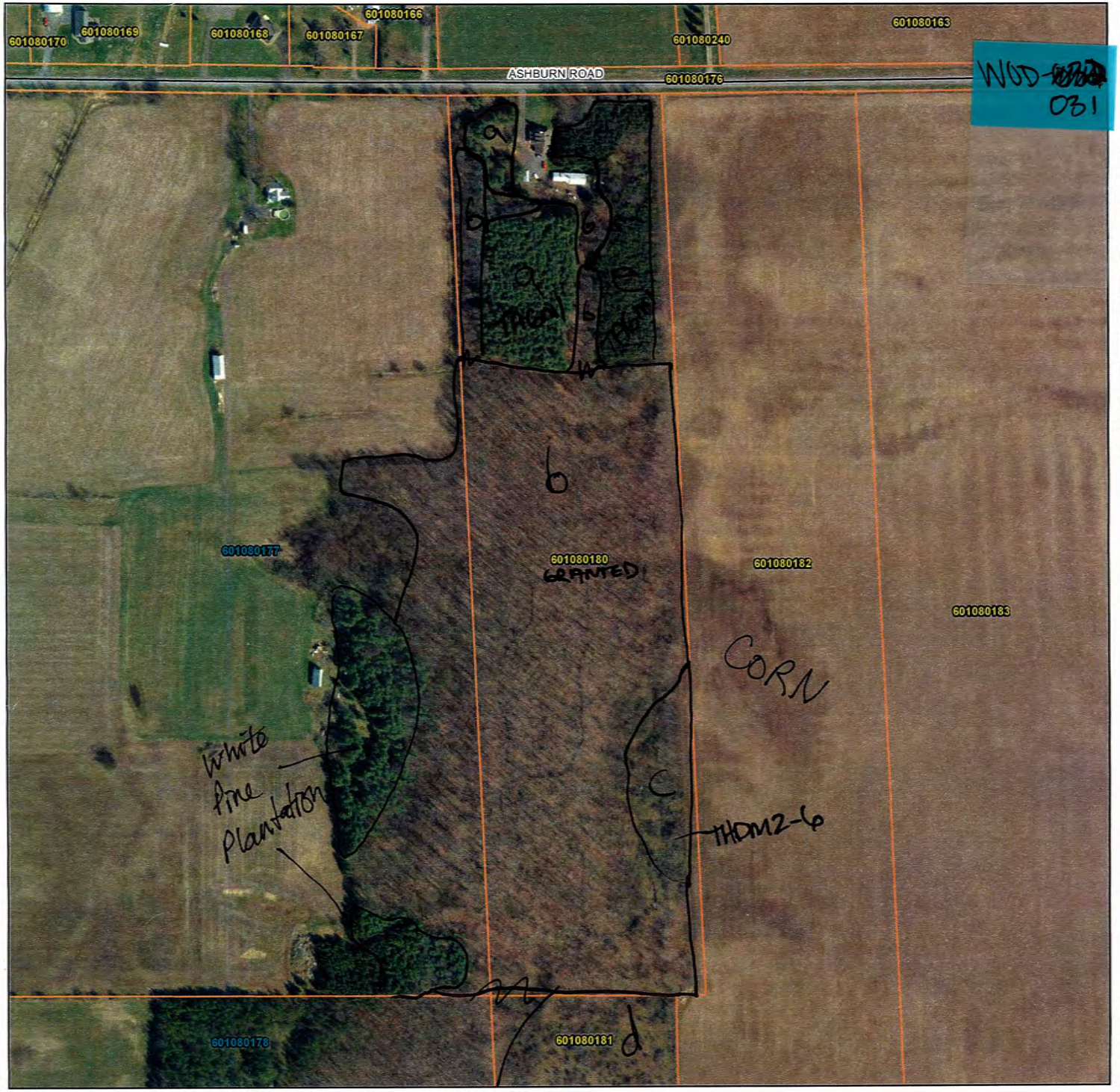
This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 8/(17×0.05) = 8/0.85 = 9.41 > or = 10/ha? Yes / (No)

If >10/ha: BMA-

Feb 1, 2017 JBB, AMC

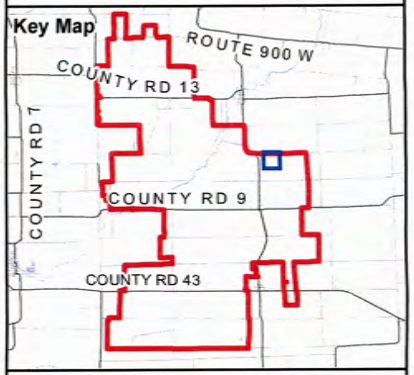


WOD-031

Nation Rise Wind Project

Natural Features Field Map

Area 42



Legend

- Secondary Road
- Land Parcel
- [redacted]
- [redacted]

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Project: 1756	NAD83 - UTM Zone 18
Date: May 13, 2016	Size: 8.5 x 11"
	1:4,000

0 50 100 150 Meters

N

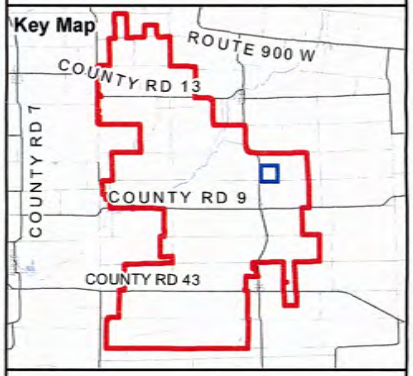
WOD-031

feb1 2017
JBB, AMC

Nation Rise Wind Project

Natural Features Field Map

Area 42



Legend

- Utility Line
- Secondary Road
- Land Parcel
- [redacted]
- [redacted]

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-031

Site: Nation Rise	17562
Polygon: 601080180-a	Area 42
UTM:	
Date: Feb1, 2017	Time: 9:54-10:04
Surveyor(s): JBB, AMC	
Weather: -10, cc 100%, wd, light snow	

Community Classification

Vegetation Type:	TAGN1 - Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	white pine > Sugar maple
2	Sub-canopy	3	1	white pine > white elm > Sugar maple
3	Understorey	4-5	1	common buckthorn > hawthorn sp.
4	Groundcover	6-7	/	snow covered, - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	D	D			
Man. Maple		R			
White Cedar		R	R		
White Elm		O			
Sugar Maple	O	O			
Hawthorn sp			O		
C. Buckthorn			O		
R.O. Dogwood			O		

Species	Layer 1	2	3	4	Sample
Tall Goldenrod				O	
Wild Carrot				O	
Thistle				O	
Canada Thistle				O	
Bull Thistle				O	
White Avens				O	
Smooth Brome				O	
Black raspberry				O	

Wildlife and Other Notes

Snow covered ground layer, cannot assess below.

Photos: 071, 073, 074

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-031

Site: Nation Rise	1756
Polygon: 601080180-6	Area 42
UTM:	
Date: Feb 1 2017	Time: 10:05-10:53, 11:21-11:30
Surveyor(s): JBB, AMC	
Weather: -10°C, cc 100%, WØ, light snow	

Community Classification

Vegetation Type:	FODR1-1 D-F Sugar maple - Hardwood
Inclusion:	Calcareous Shallow Deciduous Forest
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	Sugar maple > white ash > am. basswood
2	Sub-canopy	3	3	Sugar maple > white ash > ironwood
3	Understorey	4-5	1	Sugar maple > white ash > common buckthorn
4	Groundcover	6-7	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O < 10	A 10 - 24	A 25 - 50	O > 50
Snags	O < 10	O 10 - 24	O 25 - 50	O > 50
Deadfall/Logs	O < 10	O 10 - 24	O 25 - 50	O > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Basswood	O	O	O		
White Elm	O	O	O		
Apple		R			
Man. Maple		O			
Blue Beech			R		
Juglans sp.	O	O	O		
Sugar Maple	A	A	A	O	
Iron wood		O	O		
Red Oak		O			
White Ash		O			
alt. leaved dogwood		O			
Hawthorn sp.		O	O		
C Buckthorn			O		

Species	Layer 1	2	3	4	Sample
Bellwort.				R	

Wildlife and Other Notes

BCLI1 Soil >35cm deep
BLJA

Photos: 072-080, 093-094

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-031

Site: Nation Pipe	1756
Polygon: 601080180-C	Area 42
UTM:	
Date: Feb 1, 2017	Time: 10:55 - 11:20
Surveyor(s): JBB, AMC	
Weather: -10°C, cl 100%, WO, light snow	

Community Classification

Vegetation Type:	THDM2-6 Buckthorn Deciduous Shrub Thicket Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
History	Acidic Bedrock	Terrace	Rockland	Stream	/ Thicket
/ Natural	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Cultural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
	Site	/ Roll. Upland	Bluff	Fen	Forest
		Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
/ Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	1	juglans sp./wh/ash
2	Sub-canopy	3	1	common buckthorn > hawthorn sp. > apple
3	Understorey	4-5	4	common buckthorn > hawthorn sp.
4	Groundcover	6-7	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Apple		O			
White Ash		D			
White Elm		D			
Bur Oak		O			
Juglans sp.		O			
Cr. Hackberry			O		
White Cedar			R		
Woodbine		R			
Hawthorn sp		O	O		
C. Buckthorn		A	A		

Species	Layer 1	2	3	4	Sample
Tall Goldenrod				O	
Smooth Brome				O	

Wildlife and Other Notes

com. raven
white breasted nuthatch

Photos: 081-092

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-031

Site: Nation Rise	1756
Polygon: 60680181-d	Area 42
UTM:	
Date: Feb 1, 2017	Time: 11:35-12:20
Surveyor(s): JBB, AMC	
Weather: -10°C, <100%, w Ø, light snow	

Community Classification

Vegetation Type:	THDM2-11 Hawthorn Deciduous Shrub Thicket Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	/ Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
/ Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	O	
2	Sub-canopy	3	2	hawthorn sp. > common buckthorn > crabapple
3	Understorey	4-5	3	hawthorn sp. > common buckthorn
4	Groundcover	6-7	/	cannot assess - snow covered

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	N	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

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Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm		O	O		
Bitternut			R		
Crabapple		O	O		
red osier dogwood			O		
E. Buckthorn		O	O		
Hawthorne sp.		A	A		

Species	Layer 1	2	3	4	Sample
Tall Goldenrod				O	
Blackraspberry				O	
Red raspberry				O	
Common milkweed				O	
Dame's leaved dog				O	
Timothy				O	
Wild Carrot				O	
Common Mullein				O	

Wildlife and Other Notes

soil depth >60cm. vfSL
no carbonates

Photos: 098-105

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-031

Site: Nation Rise	1756
Polygon: 60 108 180 e	
UTM:	
Date: Feb 1, 2017	Time: 12:33 - 12:40
Surveyor(s): JBB, AMC	
Weather: -10°C, <100%, wind, light snow	

Community Classification

Vegetation Type:	TAGM1 - Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
✓ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	✓ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
✓ Cultural		✓ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	✓ Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	✓ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
✓ Treed	✓ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	4	white spruce
2	Sub-canopy	3	4'	white spruce
3	Understorey	4-5	Ø	none
4	Groundcover	6-7	—	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	A	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
white spruce	D										
white elm		R									
sugar maple		R									
am. basswood		R									
hawthorn sp.		R									

Wildlife and Other Notes

Photos 106-109

wild turkey tracks

WOD-031

Area 42

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 601080180

Date: Feb 1, 2017 **Start Time:** 9:54 **End Time:** 1326 **Observers:** JBB

Weather Conditions: -10°C, cl 100%, w Ø, light snow

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 1, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 60108080 Area 42

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Thicket	2	See ELC map THDM communities		~2-3m height, livestock browsing throughout, large adjacent FODM	none

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	black-capped chickadee	S							
B	blue jay	S							
B	common raven	S							
B	hairy woodpecker	O							
B	white-breasted nuthatch	O							
M	grey squirrel	OB							
M	coyote/fox	TK							

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Parcel 60108180, Area 42

Candidate Bat Maternity Roost Data Form

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Use this form in FOD, FOM

Project Name: NationRise Project #: 1756

Start Time 10:30 End Time 12:30 Date: Feb. 1, 2017 Observer(s): JBB/AMC.

Polygon or Area ID (Area 42) Weather Conditions: -10°C, ~100%, wD, light snow

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM	(Zone: 18T)	Comments
Plot 1	Ø	0490756	5004948	young sugar maple stand
Plot 2	Ø	0490797	5004855	
Plot 3	1	0490901	5004715	most trees too young, 1 cavity 10m on small branch. ~ Sugar m.
Plot 4	Ø	0490999	5004666	Butternut + Sugar Maple - too young.
Plot 5	Ø	0490959	5004603	sugar maple, butternut community.
Plot 6	Ø	0490913	5004603	
Plot 7	Ø	0490871	5004831	
Plot 8	Ø	0490838	5004927	young sugar maple community
Plot 9				
Plot 10				
Plot 11				
Plot 12				
Plot 13				
Plot 14				
Plot 15				
Plot 16				
Plot 17				
Plot 18				
Plot 19				
Plot 20				
Plot 21				
Plot 22				
Plot 23				
Plot 24				
Plot 25				
Plot 26				
Plot 27				
Plot 28				
Plot 29				
Plot 30				
Plot 31				
Plot 32				
Plot 33				
Plot 34				
Plot 35				

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 1 / (8 x 0.05) = 2.5 > or = 10/ha? Yes / (No) If >10/ha: BMA- ____

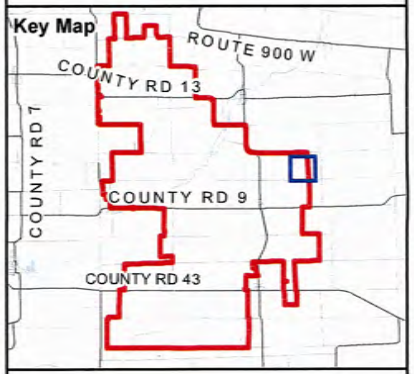
WOD-032

June 8, 2016
CLH, CP

Nation Rise Wind Project

Natural Features Field Map

Area 48 & 49



Legend

- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

WOD-032

Nation Rise
Area 48
Legend
LC
Meem35
River
Google earth
600 m
N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-032

Site: Nation Rise	1756
Polygon: Area 49-A	60108 0254
UTM:	
Date: June 8 2016	Time: 1200 - 1405
Surveyor(s): Christy Humphrey, Carlene Barker	
Weather: 10°C, 100% CC wind 3, no precip	

Community Classification

Vegetation Type:	FODM7-2 Fresh-Moist Green Ash-Hardwood Lowland Deciduous forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	X Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	3	Green Ash > White Elm > Black cherry
2	Sub-canopy	3	4	Green Ash >> Manitoba Maple > White Elm
3	Understorey	4/5	3	Ostrich Fern > Smooth Brome > Red Raspberry > Green Ash
4	Groundcover	6/7	4	Meadow Horsetail > Virginia Creeper > Hog Peanut > Salicula odorata

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young →		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5. 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	R		O		
Green Ash	O	D	O		
Sweet Cherry		R			
Bur Oak			R		
Manitoba Maple		O	O		
White Elm	O	R	O		
Freemans Maple	R				
Black Cherry	O	R			
Crack Willow	O				
Black Walnut			R		
White Elderberry			R		
Red Raspberry			O	O	
Virginia Creeper				O	
Riverbank Grape				O	
Salix eriocephala		O			

Species	Layer 1	2	3	4	Sample
Ostrich Fern			O		—
Reed Canary			O		
Urtica dioica				O	
Tall Meadow-rue			O		
Canada Anemone				O	
Smooth Brome			O		
meadow Horsetail				A	—
Poa palustris				O	
Salicula odorata				O	
common Milkweed				R	
Hog Peanut				O	—
Elymus sp.				O	not flow.
Upright yellow Woodsorrel				O	
Viola sp.				O	
Honewort				O	

Wildlife and Other Notes

120617 – 140003.

Photos of cleared area: 115301 – 120230.

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	U		
Aspect:	290		
%	0		
Type:	Simple		
Class:	A		

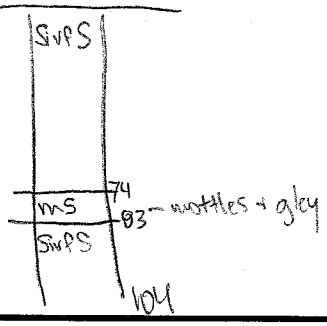
Strata:	Texture	SiVFS		
	Depth	74		
Strata:	Texture	mS		
	Depth	83		
Strata:	Texture	SiVFS		
	Depth	104		
Strata:	Texture			
	Depth			
Effective Texture		SiVFS		
Surface Stoniness				
Surface Rockiness				
Depth to:				
	Mottles	80		
	Gley	80		
	Bedrock	—		
	Water table	—		
	Carbonates	none		
Depth of Organics		—		
Pore Size Disc #1		74		
Pore Size Disc #2		83		
Pore Size Disc #3		—		
Moisture Regime		2)-3		

Polygon: Area 49-A.

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES: Soil core done in lowland floodplain, community carries up the valley slope to the top of bank



Wildlife Habitat Field Data Collection

WOD-032

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP **Project #:** 1750 **Area and/or Polygon ID:** 49

Date: 08/06/2016 **Start Time:** 11:30 **End Time:** **Observers:** CEP, LLH

Weather Conditions: T: 11°C W: 4W CC: 100% Precip: 0

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles	✓		Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)	✓		Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 08/06/2016

Project Name: Notion Rise WP Project #: 1756 Area and/or Polygon ID: 49

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Stick nest	1	bank too steep to access		25m high; 100cm wide in green ash tree does not appear to be in use	none
Bank		along Payne R. & trib.	140026 - 140124 141106	1-2 m high at most (where exp. soils are) otherwise treed.	—

TY	Species	EV	#	Notes
B	Savannah Sparrow	S	1	
B	Song Sparrow	S	1	
B	Red-winged Blackbird	OB	4	
M	White-tailed deer	TK	1	
B	Killdeer	OB	1	
M	Coyote	TK	1	
B	Am. crow	S	1	
B	Mallard	P	2	
B	Mourning dove	S	1	

TY	Species	EV	#	Notes
B	Am. robin	S	1	
		S		
B	House wren	S	1	
B	Belted Kingfisher	OB	1	

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

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Modified ELC Community Description Page __ of __

Site:	Nation Rise 1756
Polygon:	Area 48-A (West Woodlot) 60108087
UTM:	
Date:	June 8 2016 Time: 1405 – 1445
Surveyor(s):	Christy Humphrey
Weather:	12°C, Wind 4 KW, 100% CC No precip

Community Classification

Vegetation Type:	FODMS-6 0 F Sugar Maple-Basswood Decid. Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	X Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	X Shallow Water	Submerged	Lichen	Mixed
X Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

Layer	HT	Cover	Species
Super-canopy	1	0	–
1 Canopy	2	4	Basswood > Sugar maple > White Ash > Bur Oak
2 Sub-canopy	3	2	Basswood > Sugar maple > White Ash > White Elm
3 Understorey	4/9	2	Choke Cherry > Sugar Maple > White Ash > Prickly Gooseberry
4 Groundcover	6/7	3	Sugar maple > Viola sp > Zig Zag Dog.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	A	25 - 50	O	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	A	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age → X		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	O	D	O	O	
White Ash	O	O	O		
Manitoba Maple		O			
Basswood	O	O			
Green Ash	R				
White Elm		O	O		
Hemlock		R			
Black Cherry	O		O		
Burdock	O		O		
Yellow Birch		R			

Species	Layer 1	2	3	4	Sample
Smooth Brome				O	
Urtica dioica			O		
Zig Zag Goldenrod				O	
Bonesberry sp.				O	
Viola sp.				O	

Species	Layer 1	2	3	4	Sample
Choke Cherry			O		
Prickly Gooseberry			O		
Nannyberry			O		

Wildlife and Other Notes

Access only to 60108087.
Top edge of very steep slope down to river.
1455 28
1459 05
1411 10
1412 07

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

Site: NATION RISE	1756
Polygon: Area 48-B	
UTM:	
Date: JUNE 8 2016	Time: 1445–1525
Surveyor(s): Christy Humphrey, Carlene Parkin	
Weather: 12°C, CC100%, Wind 4, No precip	

Community Classification

Vegetation Type:	SWOM 3-4 Manitoba Maple Mix Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	Manitoba Maple > Green Ash > Basswood
2	Sub-canopy	3	4	Manitoba Maple > White Elm > Basswood
3	Understorey	4/5	2	Choke Cherry > Green Ash > White Elm > Reed Canary
4	Groundcover	4/5	3	Virginia Creeper >> White Snakeroot > Canada Anemone > Honeywort

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	A	25 - 50	D	> 50
Snags	N	< 10	R	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	R	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba Maple	6	D			
White Elm		O	O		
Basswood	R	R			
Green Ash	R		O		
Choke Cherry			O		
Prickly Gooseberry				O	
Virginia Creeper				O	

Species	Layer 1	2	3	4	Sample
Wood Nettle				6	
Dame's Rocket			R		
Reed Canary			O		
White Snakeroot				O	
Canada Anemone				O	
Blue-Stemmed Goldenrod			O		
Honeywort				O	
Carex intumescens				O	

Wildlife and Other Notes

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID:
N/A. 7120m, Not Completed

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 601080187

Observer(s): Christy Thumphrey, Carlene Perkin **ELC Code:** SWDM3-4

Date: June 8 2016 **Time (24h):** 09:55 - 10:40

Wetland #: **Weather:** Precipitation: — Temp (° C): 12

Veg Community #: Wind Speed & Direction: 4 Cloud %: 100

Wetland Type: S **Site Type:** R **Dominant Form:** h

Permanent Open Water: 10 % **Check one:** ○ central area ○ spread out in ponds

Photos: See ELC sheet

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Manitoba Maple (60) > Green Ash (15) > White Elm (10)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%: 25)	Virginia Creeper
gc (%: 40)	White Snakeroot = Canada anemone
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%: 10)	open water

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  Raccoon · obs.
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----➤)
  Riverine see map
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat - rolling
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  low marsh, seasonally flooded swamp
- ○ vernal pools
- ○ invasive species (plant, aquatic)
  Moneywort

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

Site:	NATION RISE
Polygon:	Area 48 - C
UTM:	
Date:	JUNE 8 2016
Time:	1525 - 1535
Surveyor(s):	CARLY HUMPHREY CARLENE PERKIN
Weather:	12°C, CC 100%, Wind 4, NO precip

Community Classification

Vegetation Type:	MEGM3-5 Smooth Brome Gram. Meadow.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	X Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	White Elm
2	Sub-canopy	3	1	Hawthorn > Manitoba Maple > White Elm > Bur oak
3	Understorey	4/5	4	Smooth Brome >> Goldenrod sp. > Tufted Vetch > Wild Parsnip
4	Groundcover	6/7	1	Ground Ivy

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R < 10	R 10 - 24	R 25 - 50	R > 50
Snags	R < 10	R 10 - 24	R 25 - 50	N > 50
Deadfall/Logs	N < 10	N 10 - 24	N 25 - 50	N > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba Maple		O			
Bur oak		O			
White Elm	R				
Hawthorn sp.		O			
Common Hawthorn			O		
Nannyberry			O		

Species	Layer 1	2	3	4	Sample
Smooth Brome			D		
Tufted Vetch			O		
Goldenrod sp.			O		
Tansy			O		
Wild Parsnip			O		
Ground Ivy				O	

Wildlife and Other Notes

152630

Wildlife Habitat Field Data Collection

601080187

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** Area 48

Date: JUNE 8 2016 **Start Time:** 1405 **End Time:** 1545 **Observers:** Christy Humphrey, CEP

Weather Conditions: 12C Wind 4/SW 0100% No precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	✓		Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles	✓		Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large	✓				
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	✓		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: June 8 2016

Project Name: NATION RISE Project #: 1756 Area and/or Polygon ID: 48 601080187

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Cavity trees	☒ ☐			Bat Habitat Assessment - applicable to 601080187 only. Photos not possible Inventory of all cavity trees >25cm DBH in the polygon.	mother and baby raccoon sleeping in cavity of sugar maple
Swamp	1	see map B	see ELC sheet	no heron nest bowls obs.	
meadow	1	see map. C.	see ELC sheet	valley slope adj to river. veg grassy, linear.	—
Banks.	—	along edge of Payne River	143130	some spots, banks are incised ~ 1-2m tall. will flood + exceed banks in spring.	—
large den in cavity tree	1	~	145905	large cavity in sugar maple	Raccoon family

TY	Species	EV	#	Notes
B	House Wren	S	1	
B	Great Crested Flycatcher	S	1	
B	Tree Swallow		1	foraging
B	Savannah Sparrow	S	1	
B	D. Flicker	OB	1	exiting cavity of dead tree
B	American Crow	S	1	
B	Spotted Sandpiper	S	1	
M	Raccoon	OB	2	mother with baby in sugar maple tree cavity
B	N. Cardinal	S	1	

TY	Species	EV	#	Notes
B	Barn Swallow	OB	>10	foraging over field next to watercourse
B	Red-winged Blackbird	O	1	
B	Veery	S	1	
B	American Robin	S	1	
B	Red-winged blackbird	OB	1	
B	Cliff swallow	OB	1	

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: Nation River Project #: 1756

NATURAL RESOURCE SOLUTIONS INC.
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Project Manager Use Only:
Woodland Number :

Start Time 11:30 End Time _____ Date: 08/06/2016 Observer(s): CEP, CLH

Polygon or Area ID (49) Weather Conditions: T: 11°C W. 4W CC: 100% Precip: 0

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)		Comments
Plot 1	1	0492312 5005316	±9m	* New trees ≥ 25cm dbh * plot too small for plot RSHAs ∴ every tree ≥ 25cm dbh inspected
Plot 2	1	0492184 5005356	±7m	total # cavity trees = 5 in polygon
Plot 3	1	0492038 5004484	±9m	
Plot 4	1	0491965 5005483	±8m	
Plot 5	1	0491985 5005568	±8m	
Plot 6				
Plot 7				
Plot 8				
Plot 9				
Plot 10				
Plot 11				
Plot 12				
Plot 13				
Plot 14				
Plot 15				
Plot 16				
Plot 17				
Plot 18				
Plot 19				
Plot 20				
Plot 21				
Plot 22				
Plot 23				
Plot 24				
Plot 25				
Plot 26				
Plot 27				
Plot 28				
Plot 29				
Plot 30				
Plot 31				
Plot 32				
Plot 33				
Plot 34				
Plot 35				

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

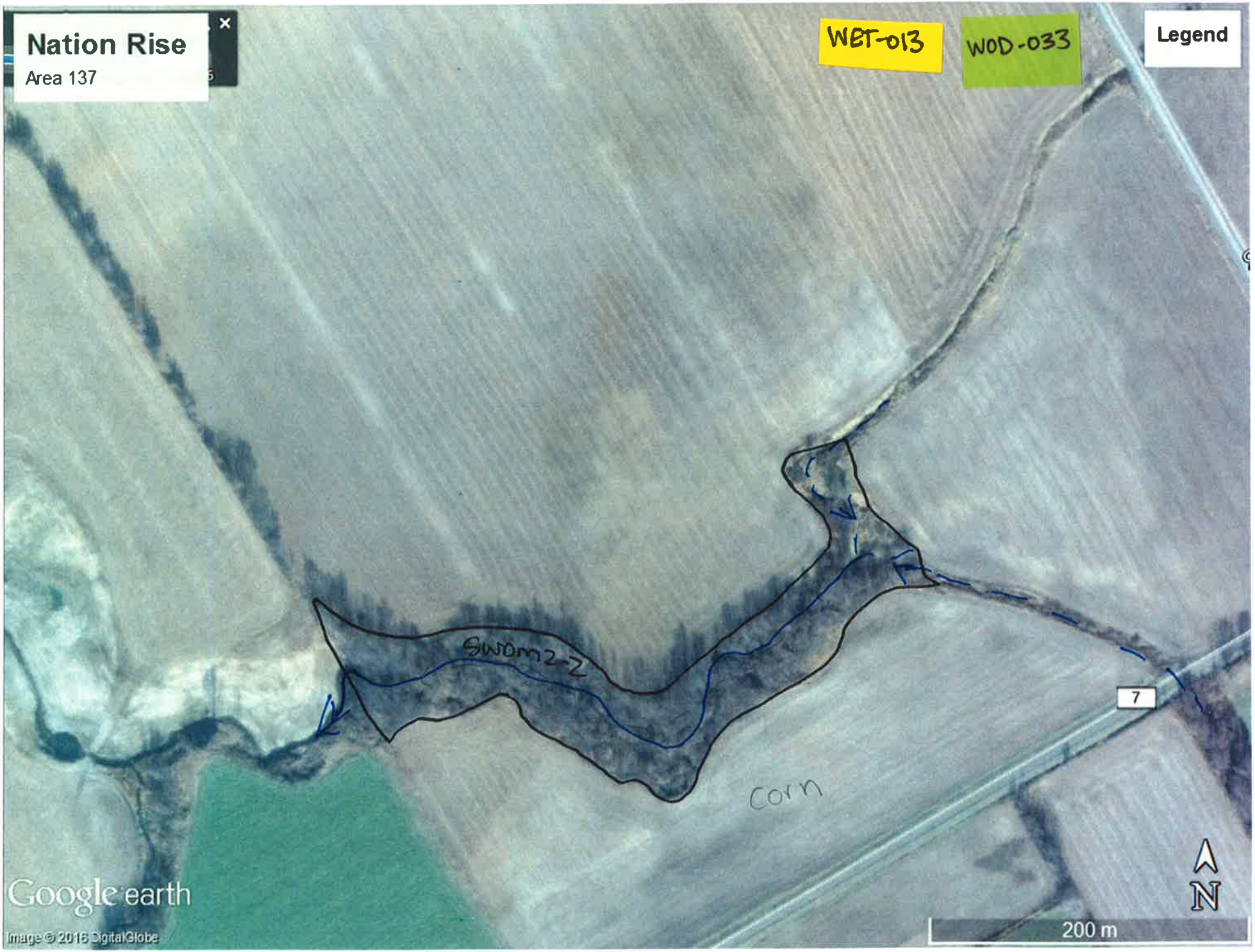
This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 5 / 1.56ha = 3.21 > or = 10/ha? Yes / (No) If >10/ha: BMA- ____

T29 Coast

Feb 1 2017, JBB



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Modified ELC Community Description

Page __ of __

WOD-033

Site: Nathan Rise	1756
Polygon: 601080191	Area 137
UTM:	
Date: Feb 1, 2017	Time: 13:52 - 14:40
Surveyor(s): JBB	
Weather: -9°C, cc 30%, w 1E, no precip	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Dec. Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	/ Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	green ash > red maple > Manitoba maple
2	Sub-canopy	3	3	green ash > red maple > Manitoba maple
3	Understorey	4-5	2	black raspberry > red raspberry
4	Groundcover	6-7	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	O	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
red maple	A	A			
green ash	A	A			
manitoba maple	A	A			
sugar maple	O				
white birch		O			
yellow birch		R			
crack willow	R				
white ash	O				
juglans sp.		R			
grey dogwood			O		
riparian grape			O		
red raspberry			O		
com. elderberry			R		
black raspberry			O		
bur cucumber			R		

Species	Layer 1	2	3	4	Sample
scouring rush				A	
tall goldenrod				O	
smooth brome				O	
D. canthusiana				O	
yellow avens				O	

Wildlife and Other Notes

Snow covered ground layer - cannot assess, below.
See soil core page
Flood plain areas and steep slopes to creek feature

Photos: 110-119

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:			
Aspect:			
%			
Type:			
Class:			

Polygon: SWDM2-2

Strata: Texture	LFS		
Depth	32cm		
Strata: Texture	LSC		
Depth	92+		
Strata: Texture			
Depth			
Strata: Texture			
Depth			
Effective Texture			
Surface Stoniness	?.		
Surface Rockiness	?.		
Depth to:			
Mottles	30		
Gley	72		
Bedrock	999		
Water table	?.		
Carbonates			
Depth of Organics			
Pore Size Disc #1			
Pore Size Disc #2			
Pore Size Disc #3			
Moisture Regime	6.		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

Significant snow cover in glades, deeper core

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Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-013

hS1-A

Area137

Wetland Vegetation Communities

Project Name: Norton Rise	**Project #:** 1756	**Parcel #:** 60180191
Observer(s): JBB		**ELC Code:** SWDM2-2
Date: Feb 1, 2017	**Time (24h):** 13:52-14:40	
Wetland #: WET-013	**Weather:** Precipitation: none	Temp (° C): -9°C
Veg Community #: hS1-A	Wind Speed & Direction: 1E	Cloud %: 30
Wetland Type: S	**Site Type:** P	**Dominant Form:** h
Permanent Open Water: 5 %	**Check one:** ☒ central area ○ spread out in ponds	
Photos: 110-119		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%80)	green ash > red maple > Manitoba maple
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SC Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: >92cmcm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  creek feature flowing west, water open in places
- ◯ human related disturbances (fill, docks, houses, etc)
- ◯ evidence of recreational activities (nature appreciation, fishing, hunting)
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ◯ winter cover for wildlife
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ◯ surrounding topography (flat, rolling, hilly, steep)
  steep slopes leading to floodplain and river adjacent to upper, flat cornfield
- ◯ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ◯ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  creek through polygon
- ◯ vernal pools
- ☒ invasive species (plant, aquatic)
  minor buckthorn and tartarian honeysuckle

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-033

Wildlife Habitat Field Data Collection

Area 137

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 661080191	
Date: Feb 1, 2017	**Start Time:** 13:32	**End Time:** 14:40	**Observers:** JBB
Weather Conditions: -9°C, cc 30%, w 1 E, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC; Dimensions (length, width, and depth); Vegetation species, woody debris/basking logs within water; Presence of fish; Longevity of site (if known, or estimate); Sources of disturbance, current use, origin (natural or anthropogenic); Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation; Evidence of small mammals; Size of site; Frequency and source of disturbance; Location and abundance of raptor perches (scattered trees, snags, fenceposts); Abundance of nectar-producing plants (e.g. goldenrods and asters); Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age; Rock size; Evidence of Use; Depth into the ground; Vegetation present; Amount of sun exposure (or direction the slope faces); Substrate composition (or bedrock type); Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance; Ecosite of location; Soil Type; Proximity to water and type of water; Availability of aquatic vegetation or fish; Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs)
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 1, 2017

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 60108091

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp	1	See ELC SWDM	110-119	No stick nests observed Riparian habitat, creek through middle. See ELC and wetland forms	NONE

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

PROPERTY LINE ASSESSMENT

Jan 30 2017
JBB, AMC

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 2

★PROPERTY LINE ASSESSMENT★ WOD-034

Site: Nation Rise	1756
Polygon: 601090112	AREA 50
UTM:	
Date: Jan. 30, 2017	Time: 15:10 - 15:25
Surveyor(s): JBB, AMC	
Weather: -10°C, CC 100%, no precip, w 0	

Community Classification

Vegetation Type:	FODM5-2 Sugar Maple American Beech Deciduous Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover	Open Water	Plant Form		
Open	Shallow Water	Plankton	Forb	Coniferous
Shrub	/ Surficial Dep.	Submerged	Lichen	Mixed
/ Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	4	Am. Beech > White Ash = Sugar Maple
2	Sub-canopy	3	4	Am. Beech > White Ash > Sugar Maple
3	Understorey	4	2	Am. Beech > Alternate Leaved Dogwood.
4	Groundcover	6-7		Snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 2 of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Am. Beech	A	A			
White Ash	O	O			
Sugar Maple	A	A			
Alternate Leaved Dogwood			O		

Species	Layer 1	2	3	4	Sample
Wild Carrot				O	

Wildlife and Other Notes

PHOTO #1, 2
- ADJACENT TO SNOW MOBILE TRACK
- Property Line Assessment.
- significant snow cover - cannot assess topography, soil, and ground cover.

WOD-034

Significant snow cover may impede observations of SWH

Wildlife Habitat Field Data Collection PROPERTY LINE ASSEMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 601090112 Area 50	
Date: Jan 30, 2017	**Start Time:** 15:10	**End Time:** 15:25	**Observers:** JBB, AMC
Weather Conditions:			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		/	Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Vernal Pool		/	
Pond		/	
Shallow Marsh (MAS) or Open Water		/	
Swamp		/	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		/	
Meadow		/	
Thicket, Woodland, Hydro Corridor		/	
Substrate and Topography			
Sand or Fine/Loose Gravel		/	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		/	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		/	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		/	Depth of crevices
Cave		/	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes			Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters)
Exposed Unvegetated Lake/River/Wetland Edge		/	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		/	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		/	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		/	
Old Rock or Debris Pile, Old Stone Fence		/	
Abandoned Road or Rail Bed		/	
Abandoned Well		/	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		/	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		/	
Medium		/	
Large		/	
Log Jams, Old Beaver Lodges		/	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles; eggs, frogs).
Crayfish Chimney (7E only)		/	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		/	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		/	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		/	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		/	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		/	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		/	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		/	Soil type and depths.
Red Spruce or White Oak Forest		/	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		/	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		/	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		/	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		/	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		/	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		/	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Jan. 30, 2017

Project Name: NATION RISE | Project #: 1756 | Area and/or Polygon ID: 60109 0112

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
	None observed.								

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec. 7, 2016

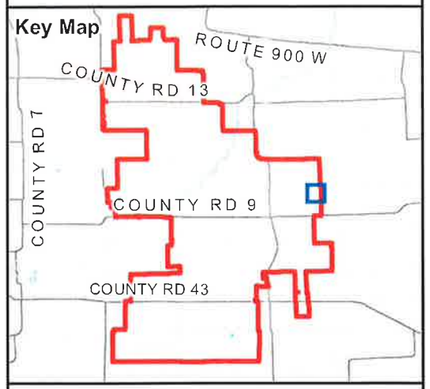
PWD

Nation Rise Wind Project

Natural Features Field Map

Area [redacted] 55

* No accompanying field notes.



Legend

- Secondary Road
- Land Parcel

601090102 Granted

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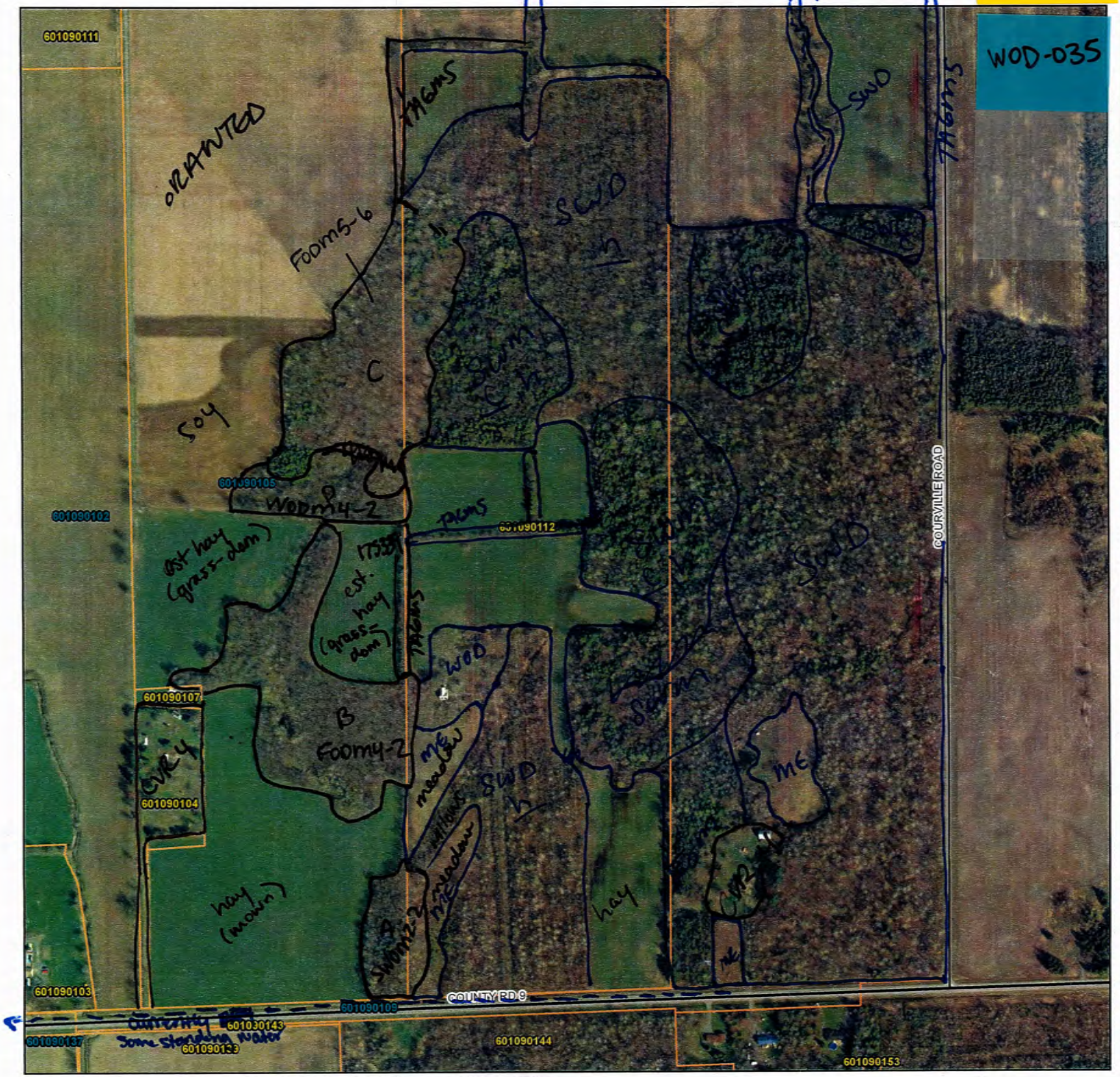
Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

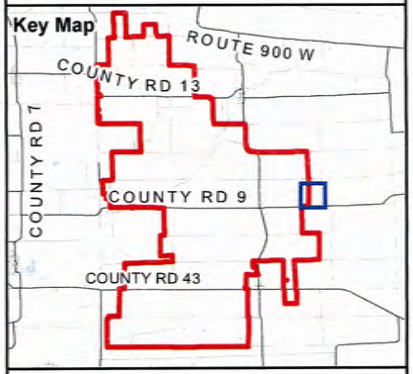
Path: X:\1756_Nation Rise Wind_Project\NRSI 1756 FieldMaps_NatFeatures_2016_11_02.LEH



Nation Rise Wind Project

Natural Features Field Map

Area 51



Legend

- Primary Road
- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

air photo interp

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Project: 1756	NAD83 - UTM Zone 18
Date: May 13, 2016	Size: 8.5 x 11"
	1:6,000

0 50 100 150 Meters

N

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Modified ELC Community Description Page __ of __

WOD-035

Site: NATION RISE	1756
Polygon: Area 51-A	100109105
UTM:	
Date: JUNE 8, 2016	Time: 16:15 – 17:00
Surveyor(s): CHRISTY HUMPHREY, CARLENE PERKIN	
Weather: 12°C, 100% CL, Wind 4/5W, No precip.	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1		
1	Canopy	2	4	Green Ash > Bur Oak > Freeman's Maple > Trembling Aspen
2	Sub-canopy	3	2	White Cedar > Green Ash >> White Elm > Freeman's Maple
3	Understorey	4/3	1	Green Ash > Common Buckthorn
4	Groundcover	5/4	4	Sensitive Fern > Sarsaparilla > Swamp Raspberry > Canada Mayflower

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	D	25 - 50	O	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen	O				
White Elm	R	O			
Green Ash	O	O	O		
Sugar Maple		O	O		
Freeman's Maple	O	O			
Bur Oak	O		O	O	
White Cedar		O		O	
White Birch		O			
American Beech		R			
Balsam Poplar	R				
Virginia Creeper				O	
Swamp Raspberry				O	
Prickly Gooseberry			O		
Choke Cherry			O		
Glossy Buckthorn				R	
Common Buckthorn			O		

Species	Layer 1	2	3	4	Sample
Sensitive Fern				A	
Bracken				O	
Spikenard				R	
Tall meadow rue			O		
Carex arcillima				O	
Carex pedunculata				O	
Sarsaparilla				O	
Canada mayflower				O	
Lady fern				O	
Spinulose wood fern				O	
Royal fern				R	
Enchanter's Nightshade				O	
Cinnamon fern			O	O	
Jack-in-the pulpit				O	
Turtlehead				R	
Bluebead Lily				R	
Starflower				O	
Red Trillium				R	
Carex intumescens				O	
Viola sp.				O	
Fragaria virginiana				O	
marsh fern				O	
Carex radiata				O	

Wildlife and Other Notes

"cold northern woods"
162421 - 164348

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	S		
Aspect:	—		
%	0		
Type:	Simple		
Class:	A		

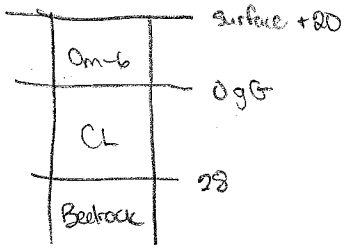
Polygon: S1 A

Strata:	Texture	Om-6		
	Depth	+20		
Strata:	Texture	CL		
	Depth	28		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		CL		
Surface Stoniness		0		
Surface Rockiness		0		
Depth to:				
	Mottles	0		
	Gley	0		
	Bedrock	48		
	Water table	—		
	Carbonates	—		
Depth of Organics				
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		6		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:



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(Office use only) Community ID: WET-013

hS3

Wetland Vegetation Communities

Area 51-A

Project Name: Nation Rise	**Project #:** 1756		**Parcel #:** 60109 0105
Observer(s): Christy Humphrey, Carlene Perkin			**ELC Code:** SWDM2-2
Date: June 8 2016	**Time (24h):** 16:15 - 17:00		
Wetland #: WET-013	**Weather:** Precipitation: –	Temp (° C): 12	
Veg Community #: hS3	Wind Speed & Direction: 4/5 W	Cloud %: 100	
Wetland Type: S	**Site Type:** P	**Dominant Form:** h	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos: 162421-164348			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 80)	Green Ash (45) > Bur oak (20) > Freeman's maple (15).
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%: 30)	Sensitive fern (20) > sarsaparilla (15) > others.
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: 20 cm Organic Type: F (M) H Depth to bedrock: 48 cm from surface 28 from top of mineral.

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- O active beaver lodges/dams
- O locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- O wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- O plant species (wild rice, cranberries)
- O location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  see map for outflows.
- O human related disturbances (fill, docks, houses, etc)
- O evidence of recreational activities (nature appreciation, fishing, hunting)
- O locations of seeps or springs, lagg
- O iron precipitates, marl deposits
- O winter cover for wildlife
  yes - cedar patch.
- O ungulate summer habitat, moose aquatic feeding habitat
  deer
- O suitability for waterfowl breeding, staging, moulting
- O surrounding topography (flat, rolling, hilly, steep)
  gently rolling / flat
- O surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- O fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- O vernal pools none obs. pooling likely in normal years - organic soils. patchy groundcover
- O invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-035

Site: NATION RISE	1756
Polygon: Area 51-B	601090105
UTM:	
Date: JUNE 8 2010	Time: 17:30 — 1815.
Surveyor(s): CHRISTY HUMPHREY, CARLENE PERKIN	
Weather: 12° 100% CC Wind 4/SW No precip	

Community Classification

	Vegetation Type:	FOOM4-2 D-F White Ash-Hardwood Deciduous Forest
	Inclusion:	
X	Complex:	SWDR1 Calcareous Rock Deciduous Swamp (Green Ash)

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	X Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	X Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
X Treed	X Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	3	White Ash > White Elm
2	Sub-canopy	3	4	White Ash >> Basswood, > White Elm > Alternate-lvd Dogwood
3	Understorey	4/5	4	N. Prickly-Ash > White Ash > Common Buckthorn > Hawthorn sp.
4	Groundcover	6/7	4	Virginia Creeper > Fragaria virginiana > Carex gracillima > Black medic

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	O	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Basswood		O			
White Ash	D	A			
Trembling Aspen		O			
Ironwood		O			
Sugar Maple	R				
White Elm	O	O			
Burdock				O	
E. Cottonwood	R				
Botrychium virg.				O	
Lady Fern				R	
Canada anemone				O	
Carex albursina				O	
Pin Cherry			R		
Red Osier			O		
Common Apple		O			
Meadowsweet				R	
N. Prickly Ash			O		
Hawthorn sp.		O	O		
Nanny berry			O		
Alt-lvd Dogwood		O	O	O	
Common Buckthorn		O	O		
Prickly Gooseberry			O		
Virginia Creeper				O	
Smooth Rose					

Species	Layer 1	2	3	4	Sample
Dandelion				O	
Viola sp.				O	
Galium triflorum				O	
Carex gracillima				O	
Burdock				O	
Symphyotrichum lat.					
Poa compressa				O	
Wild parsnip				O	
Alsike clover				O	
Fragaria virginiana				O	
Enchanter's Nightshade					
Poa pratensis				O	
Goldenrod sp.			O		
Avens sp.				O	
Upright Yellow Wood Sorrel				O	
Yarrow				O	
Black medic				O	
Common Milkweed			O		
Common St. John's-wort			O		
Carex intumescens				O	
Carex radiata				O	
Canada Mayflower					
Toxicodendron rydbergii				O	
Sweet Cicely					

Wildlife and Other Notes

Very shallow soils over bedrock. ~5cm - 10cm. Loam over Bedrock
Complex micro to pogography - variations in bedrock surface

174332 - 1913447

Manitoba maple

Baneberry sp. o
Balsam Ragwort o

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-035

Site: NATION RISE	1756
Polygon: AREA S1 -C	
UTM:	
Date: JUNE 9 2016	Time: 0900 - 0945, 10:00 - 11:50
Surveyor(s): CAMISTY HUMPHREY, CARLENE PERKIN	
Weather: 12°C 100% CC Wind 4/SW No precip.	

Community Classification

Vegetation Type:	FOOM5-6 Dry-Fresh Sugar Maple-Basswood Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Sugar maple >> Basswood >> White Ash > Trembling Aspen
2	Sub-canopy	3	4	Sugar Maple >> Ironwood > White Ash > White cedar
3	Understorey	4/5	1	Sugar Maple > White Ash > Alt-lvd Dogwood >> White Cedar
4	Groundcover	5	1	Enchanter's Nightshade = Carex pedunculata > Ribes americanum > Virg. Creepers

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	O	> 50
Snags	R	< 10	R	10 - 24	O	25 - 50	O	> 50
Deadfall/Logs	R	< 10	R	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	X Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar maple	A	A	O	O	
Ironwood	R	O			
Basswood	O	R		O	
White Ash	O	O	O	O	
White Elm		R			
White Cedar		O	O	O	
Trembling Aspen	O	along the edge.			
Blue Oak				R	
Yellow Birch		R			
Swamp Raspberry				R	
Choke cherry				O	
Common Buckthorn				O	
Common Apple		R			
Virginia Creeper				O	
Ribes americanum				O	
Alt-lvd Dogwood		O	O	O	

Species	Layer 1	2	3	4	Sample
Enchanter's Nightshade				O	
Carex brevicillina				O	
Hellebarine				R	
Carex rosea				O	
Lady Fern				R	
Carex albursina				R	
Carex pedunculata				O	
Bracken				R	
Canada May Flower				R	
Sensitive Fern				R	
Toxicodendron rydbergii				R	
White Trillium				R	
Blue Cohosh				R	
marginal Wood Fern				R	
Zag Zag Goldenrod				R	
Christmas Fern				R	
Tall Blue Lettuce				R	
Sharp-lobed Hepatica				R	

Wildlife and Other Notes

~15-20 cm loam over rocks. MR = O/Rapid
Portion of forest within property (601090105) has little to no understory / groundcover. Adjacent property more dense.

on a hill/knoll.

no toothwort observed

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Modified ELC Community Description

Page __ of __

WOD-035

Site:	NATION RISE 176
Polygon:	Area 51-D
UTM:	
Date:	JUNE9 2016 Time: 0815-0900, 945-10:00, 1130-12:00
Surveyor(s):	CHRISTY HUMPHREY, CARLENE PERKIN
Weather:	12°C, CC/100%, Wind 4/SW, No precip

Community Classification

Vegetation Type:	WODM4-2 D-F White Ash Deciduous Woodland
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	X Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	X Carb. Bedrock	Tableland	Sand Dune	Swamp	X Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff Knob.		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	White Ash = Juglans sp. > Trembling Aspen.
2	Sub-canopy	3	4	Hawthorn sp > White Ash > Common Buckthorn > Alt-iva Dogwood
3	Understorey	3	4	Red Raspberry > Goldenrod sp > Prickly Gooseberry
4	Groundcover	9	4	Wild Strawberry > Red clover > tufted Vetch > Poa pratensis.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	R	25 - 50	R	> 50
Snags	R	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	R	O	O	O	
Trembling Aspen	O				
Bur Oak					
Basswood					
Juglans sp.	O	O			
manitoba maple		O			
White Elm			R		
White Cedar		O			
Pin cherry			O		
Nannyberry			O		
Prickly Gooseberry			O		
Riverbank Grape			O		
Virginia Creeper				O	
Smooth Rose				O	
N. Prickly Ash		O			
Common Buckthorn		O			
Choke cherry			O		
Common Apple		R	O		
Red Raspberry			O		
Staghorn Sumac					
Alt-iva Dogwood		O	O	O	
Hawthorn sp.		O			

Species	Layer 1	2	3	4	Sample
Ruggel's Plantain				O	
wild Parsnip			O	O	
Goldenrod sp.			O		
Alsike clover				R	
Fragaria virginiana				A	
Tufted Vetch				O	
Meadow Bedstraw			O		
Smooth Brome			O		
Red clover				O	
Alfalfa				O	
Sulphur Cinquefoil				O	
Galium triflorum				O	
Carex gracillima			O		
Upright yellow wood sorrel				O	
Poa pratensis				O	
Toxicodendron radicans				R	

Wildlife and Other Notes

084127-085725
Disturbed site, rock piling + excavation
Regrowth, very dense.

09/06/2016 Start: 8:15 End: 18:00
T: 8°C W: 2SW CC: 100% Precip: 0

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NationRise WP	**Project #:** 1756	**Area and/or Polygon ID:** Area 51	
Date: 09/06/2016	**Start Time:** 16:15	**End Time:** 19:00	**Observers:** CER, JH
Weather Conditions: T: 12°C W: 4W CC: 100% Precip: 0			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture	✓		
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	✓		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 08/06/2016 ; 09/06/2016

Project Name: Nat on Rise WP | Project #: 1756 | Area and/or Polygon ID: S1

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s) 18T	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Old rock pile	1	0493213 5003985 ±10m		~25m long; 7m wide; 1-1.5m high 7120 completely shaded by green ash, trembling aspen canopy -dead leaf accumulation on top	none
Old rock pile	1	0493194 5004195 ± 5m			
				~30m long; 5m wide; 1-2m high -full sun exposure, middle of clearing 7120 -covered in vegetation (red raspberry, virginia creeper, orchard grass)	
Swamp	1	A. see map	see ELC sheet	No stick nests / nest boxes obs.	—
Non-Rotat. Hay	1(-2)	see map	175339	grass-dom. long at this time (uncut).	—
Cavity Trees Outstanding	28	C poly.		see bat habitat sheet 28 cavity trees / ha.	—

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Red-eyed Vireo	S	1		B	Warbling vireo	S	1	
B	Winter wren	S	1		B	Blue Jay	S	1	
M	raccoon	SC	1		B	Yellow-bellied Sapsucker	FF		
M	White-tailed deer	OB	1		B	Eastern Pewee	S	1	
B	Yellow warbler	S	1		B	Black-capped chickadee	S	1	
B	House wren	S	1						
B	Am. Goldfinch	S	1						
B	Am. Yellowthroat	S	1						
B	Common yellowthroat	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec 8 2016
EmB KLB

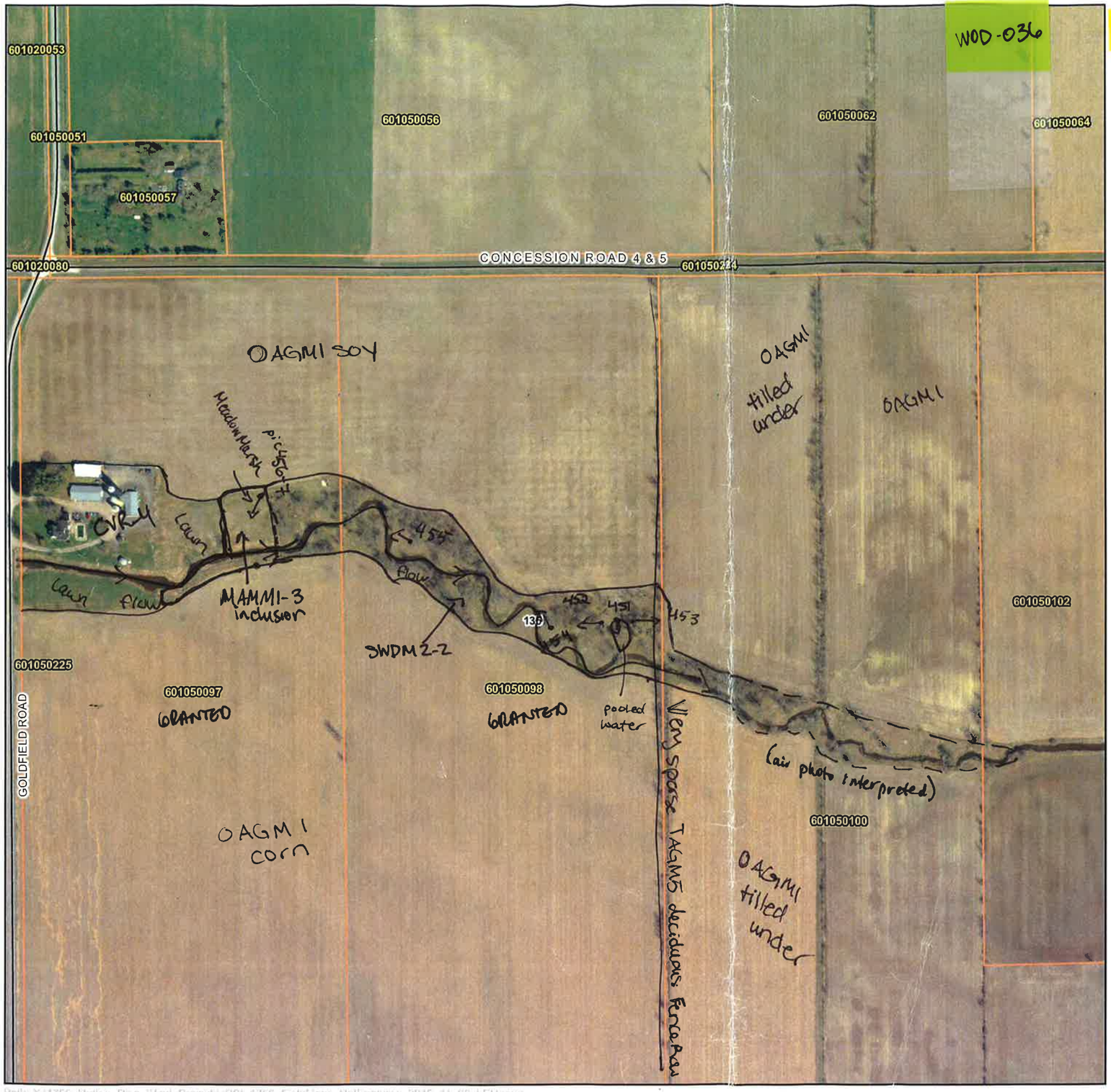
WET-014

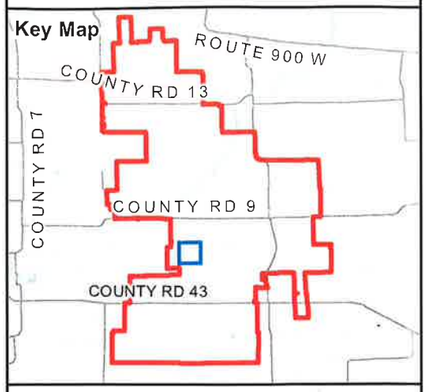
WOD-036

Nation Rise Wind Project

Natural Features Field Map

Area 135





Legend

- Secondary Road
- Land Parcel

601050097 >Granted
601050098

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Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:5,000

0 50 100 150 Meters

N

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Modified ELC Community Description Page 1 of 1

WOD-036

Site:	1756 Nation Rise Wind Project
Polygon:	Area 135 - 601 65 398 = 97
UTM:	
Date:	Dec 8 2016 **Time:** 9:20-11:30
Surveyor(s):	~~PWD~~ EMB KLB
Weather:	10C CC. 100% NO precip. wind: 3W ↳ snow

Community Classification

	Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
X	**Inclusion:**	MAMM1-3 Reed Canary Grass Graminoid Mineral Meadow Marsh
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	X Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	3	Green Ash > Manitoba Maple > White Elm > Trembling Aspen
2	Sub-canopy	3	2	manitoba maple > Hawthorn sp > Trembling Aspen
3	Understorey	4	2	Hawthorn sp > E. Buckthorn > r.o. dogwood
4	Groundcover	6	4	reed canary grass > grass sp. > tall goldenrod

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	R	> 50
Snags	R	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 1

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen	O	O			
red osier dogwood			R		
Black Ash	R	R			
White Elm	O	R			
Hawthorn sp		O	R		
Green Ash	D	R			
E. Buckthorn		R	R		
Sugar Maple	R	R			
Manitoba Maple	D	O			
Basswood	R				
Invasion					
reed canary grass				D	
grass sp.				O	
Canada Bluegrass				R	
Green Ash	R				

Species	Layer 1	2	3	4	Sample
grass sp.				D	
black raspberry				O	
tall goldenrod				O	
cow vetch				R	
cow parsnip				R	
reed canary grass				D	
Yarrow				R	
Riverbank Grape				R	
Moss sp.				O	

Wildlife and Other Notes

Moss present up 30cm on all trunks
with soil + pooled water present throughout
photos 451-457

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(Office use only) Community ID: WET-014

hS1

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** Area 135
Observer(s): EMB KLB		**ELC Code:** SWDM3-2
Date: Dec 8, 2016	**Time (24h):** 9:20-11:30	
Wetland #: WET-014	**Weather:** Precipitation: snow	Temp (° C): 1°C
Veg Community #: hS1	Wind Speed & Direction: SW	Cloud %: 100%
Wetland Type: Swamp	**Site Type:** Riverine	**Dominant Form:** h.
Permanent Open Water: 10 %	**Check one:** ⊗ central area ○ spread out in ponds	
Photos: 451-457		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:20)	Green Ash (50%), Manitoba maple (30%), white elm (10%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:10)	Hawthorn sp. (50%), E. Buckthorn (25%),
ls (%:)	
gc (%:)	reed-canary grass (90%), grass sp. (10%)
ne (%:10)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SiL Mineral ☒ Organic ☐ Depth of organics: \ cm Organic Type: F M H Depth to bedrock: 100+ cm

Soil type: C-clay, L-loam, S-sand, Si-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

canada geese fly over

mammal tracks - raccoon

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: S=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: L=lacustrine (lake at least 8ha); **P**=palustrine; R=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ⊗ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  canada geese fly over
- ○ plant species (wild rice, cranberries)
- ⊗ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map
- ⊗ human related disturbances (fill, docks, houses, etc)
  dumping piles at western end of swamp
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊗ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ⊗ crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊗ fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; ⊗ creek floodplain; O rock outcrop
- ⊗ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  permanent swamp
- ⊗ vernal **pools**
  see map - also located throughout when flooded / in spring likely
- ⊗ invasive species (plant, aquatic)
  E. Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-036

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** Area 135	
Date: Dec 8 2016	**Start Time:** 9:20	**End Time:** 11:30	**Observers:** EMB KLB
Weather Conditions: 1°C CC: 100% No precip Wind 3W			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians.
Vernal Pool	X		
Pond		X	
Shallow Marsh (MAS) or Open Water		X	
Swamp	X		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation. Evidence of small mammals. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Size of site. Frequency and source of disturbance. Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Meadow	X		
Thicket, Woodland, Hydro Corridor		X	
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water.
Banks, Steep Slopes, Sand Piles	X		Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices.
Cave		X	Depth of cave, bedrock type.
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		X	Age. Depth into the ground. Amount of sun exposure (or direction the slope faces). Rock size. Vegetation present. Substrate composition (or bedrock type). Evidence of Use. Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Old Rock or Debris Pile, Old Stone Fence		X	
Abandoned Road or Rail Bed		X	
Abandoned Well		X	
Old Foundation		X	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		X	Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Medium		X	
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	X		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec 8 2016

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 135

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	1	seemap	451	3m x 2m, adjacent to agriculture	None
Swamp	1	see map	451-456	SWDM2-2 Green Ash Mineral Deciduous Swamp	None
Meadow	1	See map	457	MAMM1-3 Reed Canary Grass Graminoid Mineral Meadow Marsh Adjacent to Agricultural & Residential disturbance - dump piles also in feature	None
Banks	1	Along creek	454-55	1m banks to bare soil sides	None
Large DBH Cavity tree	III	See Bat Maternity Roost Data Form	458-463	See Bat Maternity Roost Data Form	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
M	Red Squirrel	OB	1						
B	Blue Jay	S	4						
B	Black-capped Chickadee	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Maternity Roost Data Form

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

FOD, FOM
e: Nation Rise Project #: 1756

ne 9:28 End Time 11:30 Date: December 8/16 Observer(s): EMB KLB

perty or Area ID (Area 135) Weather Conditions: Temp: 1°C Precip: None Wind 2W CC: 95%

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	3 → see trees #1-3 below		
Plot 2			
Plot 3		Looked at all trees >25 cm DBH as few large trees	
Plot 4		are present but spread out.	
Plot 5		Narrow Habitat unsuitable for plot.	
Plot 6			
Plot 7			
Plot 8			
Plot 9			
Plot 10			
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1	Basswood	3	67.9	0482376 4991121	458-59
2	Basswood	1	71.0	0482381 4991147	460-61
3	Manitoba Maple	4	55.3	0482407 4991144	462-63
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

al Wodland Tally

Formula: Total # Cavity Trees / (~~# Plots x 0.05~~ ha)

= 3/3.76ha = 0.80 > or = 10/ha? Yes / No

If >10/ha: BMA-

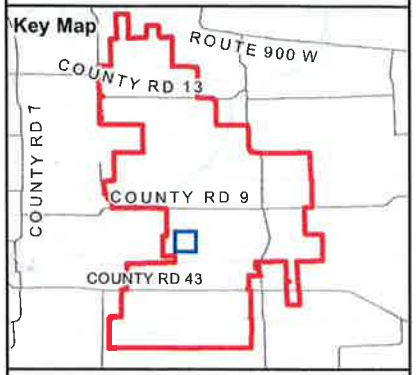
WOD-036

Feb 3 2017
JBB

Nation Rise Wind Project

Natural Features Field Map

Area 135



Legend

- Secondary Road
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:5,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-036

Site: Nation Rise	1756
Polygon: 60050100	Area 13.5
UTM:	
Date: Feb 3 2017	Time: 12:20 – 12:45
Surveyor(s): JBB	
Weather: -8°C, ~5%, w 4W, no precip.	

Community Classification

Vegetation Type:	SWD2-2 Green Ash Mineral Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
✓ Wetland	✓ Mineral Soil	✓ Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
✓ Natural	Carb. Bedrock	Tableland	Sand Dune	✓ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
✓ Treed	✓ Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	✓ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	green ash >> Manitoba maple
2	Sub-canopy	3	2	green ash >> Manitoba maple > white elm
3	Understorey	4-5	1	common buckthorn > nannyberry
4	Groundcover	6-7	—	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	E	> 50
Snags	S	< 10	S	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	D	< 10	D	10 - 24	R	25 - 50	M	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
green ash	D	D	A		
Manitoba maple	O	O			
white elm	O	O			
bur oak	R				
red raspberry			O		
tartarian honeysuckle			O		
hawthorn sp.			O		
chokecherry			O		
common buckthorn			O		
riverbank grape			O		
nannyberry			O		

Species	Layer 1	2	3	4	Sample
smooth brome			A		
reed canary grass			O		
tall goldenrod			O		
canada thistle			R		

Wildlife and Other Notes

Large bank with floodplain-looking area nearly entirely green ash
Water partially open, flowing west.
Snow-covered ground layer, cannot assess below
Blue jay.
Photos: 122445 – 122927

WOD-036

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	Project #: 1756	Area and/or Polygon ID: 601050100 Area 135	
Date: Feb 3 2023	Start Time: 12:20-	End Time: 12 45	Observers: JBB
Weather Conditions: -8°C, 50%, W4W, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst (vegetated)		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 3, 2017

Project Name: Notion Rise | Project #: 1756 | Area and/or Polygon ID: 01050100 Area 135

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp	1	See Map	122445-122927	No stick nests, riparian, green ash dominated	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	blue jay	OB	1						

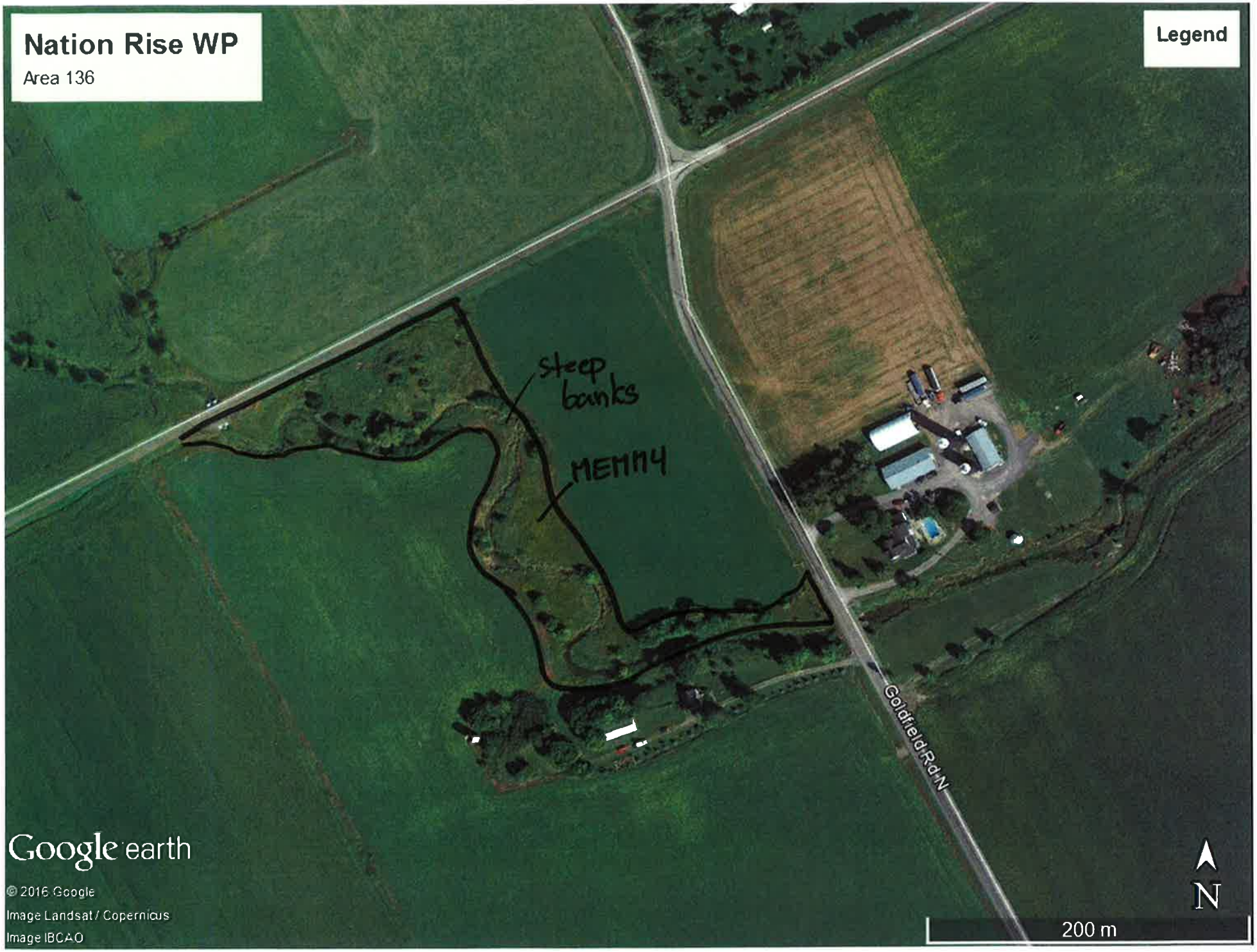
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

JBB Jan. 20 2017



NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise WP	1756
Polygon:	Area 136
UTM:	
Date: Jan. 20 2017	Time: 13:50 - 14:15
Surveyor(s): JBB,	
Weather: 2°C, 100%cc, WE, no precip	

Community Classification

Vegetation Type:	MEMM4 Fresh-Moist Mixed Meadow Ecosite
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	/ Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
/ Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	/ Mixed
Treed	/ Surficial Dep.	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	1	Manitoba Maple > Weeping willow
2	Sub-canopy	3	1	Manitoba Maple > White Elm > Hawthorn sp.
3	Understorey	4-5	2	Hawthorn sp. > grey dogwood > red raspberry
4	Groundcover	0-1	4	Smooth brome > tall goldenrod > tansy

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	C	< 10	R	10 - 24	R	25 - 50	R	> 50
Snags	O	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X	Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba Maple	O	O			
Weeping Willow	R				
White Elm		O			
red osier dogwood			O		
grey dogwood			O		
red raspberry			O		
hawthorn sp.		O	O		

Species	Layer 1	2	3	4	Sample
common mullein				O	
curlyleaf dock				C	
smooth brome				A	
Nodding thistle				O	
Common ragweed				O	
white sweet clover				O	
velvet leaf				O	
evening primrose				O	
horseweed				O	
reed canary grass				O	
tall goldenrod				A	
tansy				A	
wild parsnip				O	
grass-leaved goldenrod				O	
canada thistle				O	

Wildlife and Other Notes

Photos: 046-050

stream feature significant drop from meadow community. Some wetter species found along bank. ~2 ft drop to stream.

* snow cover limited veg/topography observations

dark-eyed junco, American tree sparrow, song sparrow

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WF **Project #:** 1756 **Area and/or Polygon ID:**

Date: Jan 20, 2017 **Start Time:** 13:50 **End Time:** 14:15 **Observers:** JBB

Weather Conditions: 2°C, 100% cc, w 1E, no precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field			
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles	✓		Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters)
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Jan 20 2017

Project Name: Nation Rise WF Project #: 1756 Area and/or Polygon ID:

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow	1	see ELC boundaries	040-050	• Veg no. 5-1m high • Raptor perches present, no adjacent forest • No sign of use of the submireen zone • Nectar producing goldenrods present • Nearby agriculture poses disturbance	None
Banks	1	Along edge of stream	049, 050	• No evidence of turtle/swallow use, however banks had considerable snow cover	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

roadside + air photo

Dec 9 2016
EMB, KLB

WOD-038

removed hedgerows

OAGM1 SOY

OAGM1

TAGM5

FODM5-8 Deciduous Forest

MGMM3

tall goldenrod MEMM3
grass sp.

504

503

601050127 OAGM1

601050133

601050137

forb row sparse deciduous

GOLDFIELD ROAD

THORNAPPLE

Tall Goldenrod
R.D. Dogwood

Rabbit Path

601020097

601050130

601050146

cemetery

601050129

601050226

601020108

601020100

601020052

601030088

601050052

601050128

601050131

601050132

601050134

601050135

601020118

601040055

77

76

tremblingaspen fenceraw along rail line

White Pine only

COUNTY RD 43

TAGM5

494

495

496

498

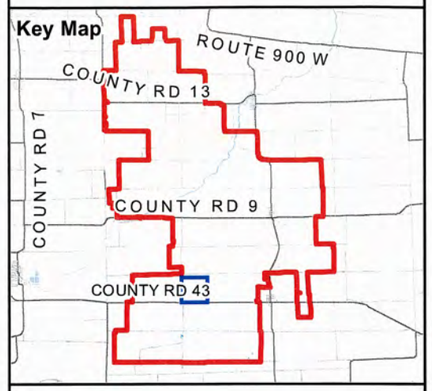
Tremblingaspen fenceraw on either side of rail line (TAGM5)

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

Nation Rise Wind Project

Natural Features Field Map

Area 76 & 77



Legend

- Utility Line
- Primary Road
- Secondary Road
- Railway
- Land Parcel

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

ROADSIDE ASSESSMENT

Roadside WOD-038

Site:	1756 Nation Rise Wind Project
Polygon:	Polygon 76 - 601056134 & Polygon 47
UTM:	
Date:	Dec 9 2016 Time: 11:07-11:40
Surveyor(s):	~~EMB~~ EMB KLB
Weather:	-4°C Wind 2m cc. 50% Precip: None

Community Classification

Vegetation Type:	TAGMI Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System		Substrate		Topo Feature			Community	
X	Terrestrial		Organic		Lacustrine		Lake	Barren
	Wetland	X	Mineral Soil		Riverine		Pond	Meadow
	Aquatic		Parent Min.		Bottomland		River	Prairie
History			Acidic Bedrock		Terrace		Stream	Thicket
	Natural		Basic Bedrock		Valley Slope		Marsh	Savannah
X	Cultural		Carb. Bedrock		Tableland		Swamp	Woodland
		Site		X	Roll. Upland		Fen	Forest
			Cliff		Bluff		Bog	X Plantation

Cover		Site		Plant Form					
	Open		Open Water		Plankton		Forb	X	Coniferous
	Shrub	X	Surficial Dep.		Submerged		Lichen		Mixed
X	Treed		Bedrock		Floating-Lvd.		Bryophyte		
					Graminoid		Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	white Pine > white spruce > Norway Spruce
2	Sub-canopy	3	2	White Pine >> white spruce > Norway Spruce
3	Understorey	4	1	Tall goldenrod > ro dogwood > riverbank grape
4	Groundcover	6	2	Grass sp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	R	> 50
Snags	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	D	D	R		
White Elm	R	R			
Manitoba Maple		R			
Trembling Aspen	R	R			
White Spruce	R	R			
White Ash	R	R			
Balsam Fir		R			
White Cedar		R			
Norway Spruce	R	R			

Species	Layer 1	2	3	4	Sample
Tall goldenrod			O		
RO Dogwood			R		
Riverbank Grape			R		
Grass sp				O	

Wildlife and Other Notes

2 Deer observed. ROADSIDE ASSESSMENT

photos 494-99

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 1

ROADSIDE ASSESSMENT Roadside WOD-038

Site:	1756 Nation Rise Wind Project
Polygon:	Area 77-60105012 7
UTM:	
Date:	DEC 9 2016 Time: 11:42 - 12:15
Surveyor(s):	~~EMB~~ EMB KLB
Weather:	-4°C Wind 3 W No precip CC: 90%

Community Classification

Vegetation Type:	FODM5-8 Dry-Fresh Sugar Maple - White Ash Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	N/A	N/A
1	Canopy	2	4	White ash = sugar maple > White Elm
2	Sub-canopy	3	2	Trembling Aspen > White ash = Sugar maple
3	Understorey			→ roadside
4	Groundcover			↓

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		< 10		10 - 24		25 - 50		> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

→ roadside

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 1

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	O	R			
White Elm	O	R			
Sugar Maple	O	R			
Norway Spruce		R			
White Cedar		R			
Trembling Aspen		O			
Manitoba Maple		R			

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

photos 503:04 ROADSIDE ASSESSMENT

WOD-038

Roadside

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise Wind Project **Project #:** 1756 **Area and/or Polygon ID:** Polygon 76 ~ 77

Date: December 9/16 **Start Time:** 11:07 **End Time:** 12:15 **Observers:** EMB ~~PWD~~ KLB

Weather Conditions: -4°C Wind 2W Precip: None CC: 50%

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		X	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		X	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp		X	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	X		Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	X		Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		X	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		X	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		X	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: December 9/16

Project Name: Nation Rise Wind Project Project #: 1756 Area and/or Polygon ID: Area 76 + 77

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
• Hydro Corridor Roadside	1	0490117 4997170	497	- see map for location details - minimal perching locations due to low shrubs + adjacent conifer community - perching possible on hydro poles - THDM3-2 (tall goldenrod, red osier dogwood)	None
• thicket (same as above)	1	see map	497, 502		
• Meadow	2	see map	504	MEMM3 Dry-Fresh Mixed Meadow • tall goldenrod, grass sp. • Adjacent to deciduous forest	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
M	White-Tailed Deer	OB	2						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec 7 2016
EMB KLB

WET-015

~~1800~~ snow geese @ 300m (over north end of property)

WOD-039

removed

74SM1 deciduous hedgerow

flow

OAGM1
corn

GRANTED
601050137

flow

AGMA1

SWMM1

SWAMP

open water pond
inclusion
pic 431-2

MAMM1-3
inclusion
co.sha

MAMM1

SWAMP

hem

125cm

426

MEMR1

SWAMP

TAGM1
coniferous hedgerow

go old field rd

601050138

601050145

601050132

601050135

601050136

601050139

601050140

granted

601050141

71

70

COUNTY RD 43

601050052

601040055

601040059

601040059

601040059

601040062

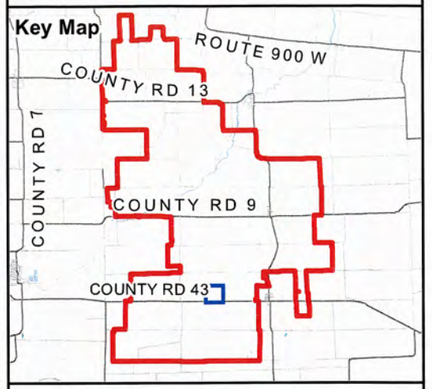
Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

Nation Rise Wind Project

Natural Features Field Map

Area 69[redacted]

Key Map



Legend

- Primary Road
- Railway
- Land Parcel

601050137 granted

Tank

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-039

Site:	1756 Nation Rise Wind Project
Polygon:	Area 69-60 & 50137
UTM:	
Date: Dec 7 2016	Time: 13:45-15:00
Surveyor(s): ~~PWD~~ EMB KLB	
Weather: -2°C. Precip: None CC 100%. Wind 2 SW	

Community Classification

Vegetation Type:	SWMM1-1 White Cedar Hardwood Mineral Mixed Swamp	
X Inclusion:	MAMM1-3 Reed Canary Grass Graminoid Mineral Meadow Marsh	
X ~~Complex~~: " "	OA open water (pond)	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	White Cedar > White Elm >> trembling aspen
2	Sub-canopy	3	1	white elm > white cedar
3	Understorey	4	1	R.O. dogwood > raspberry (red) = E. Buckthorn
4	Groundcover	5	1	wood fern > moss > red raspberry

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	D	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s): ~~PWD~~	
Weather:	

** open water pond: broad-leaved cattail, algae sp. photos 431-2

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
trembling Aspen	O				
White Elm	O				
White Cedar	O				
r.o. dogwood			O		
E. Buckthorn			R		
Malus domestica		R			
A Inclusion Marsh					
cattail (broad)				D	
tall goldenrod				O	
grass sp.				D	
woodland sunflower				R	
wild carrot				R	
red canary grass				D	

Species	Layer 1	2	3	4	Sample
Riverbank Grape				R	
tall goldenrod				R	
moss sp.				R	
Wood fern				2	
red raspberry				R	

Wildlife and Other Notes

Exposed rock
Soil very wet: hole fills to water 30cm loam over clay to >60cm
photos 426-428
red-bellied woodpecker (S)
black-capped chickadee (S)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-015 CS1

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 17756 **Parcel #:** 601050137

Observer(s): EMB KLB **ELC Code:** SWMM1-1

Date: Dec. 7 2016 **Time (24h):** 1345 - 15:00

Wetland #: WET-015 **Weather:** Precipitation: none Temp (° C): -2

Veg Community #: CS1 Wind Speed & Direction: 2 SW Cloud %: 100

Wetland Type: S **Site Type:** I **Dominant Form:** C

Permanent Open Water: 2 % **Check one:** ☒ central area ○ spread out in ponds

Photos: 426 - 428

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 40)	White Elm >> Trembling Aspen.
c (%: 100)	White Cedar (100)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: L Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: 15 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map (but isolated)
- ○ human related disturbances (fill, docks, houses, etc)
  brush piles
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
  cedar
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
  pond
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  low marsh (pond)
- ○ vernal pools
  MAMM1-3 inclusion may have vernal pool. Plus pond.
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	Area 69- 60150137
UTM:	
Date:	Dec 7 2016 Time: 12:26-13:45
Surveyor(s):	~~PWD~~ EMB KLB
Weather:	temp: 2°C wind: 2SW precip: None cc: 35%

Community Classification

Vegetation Type:	MEMR1 – Dry-Fresh Calcareous Bedrock Mixed Meadow	
[ ]	Inclusion:	
[ ]	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
[X] Terrestrial	[ ] Organic	[ ] Lacustrine	[ ] Talus	[ ] Lake	[ ] Barren
[ ] Wetland	[X] Mineral Soil	[ ] Riverine	[ ] Crevice/Cave	[ ] Pond	[X] Meadow
[ ] Aquatic	[ ] Parent Min.	[ ] Bottomland	[ ] Alvar	[ ] River	[ ] Prairie
	[ ] Acidic Bedrock	[ ] Terrace	[ ] Rockland	[ ] Stream	[ ] Thicket
History	[ ] Basic Bedrock	[ ] Valley Slope	[ ] Beach/Bar	[ ] Marsh	[ ] Savannah
[X] Natural	[ ] Carb. Bedrock	[ ] Tableland	[ ] Sand Dune	[ ] Swamp	[ ] Woodland
[ ] Cultural		[X] Roll. Upland	[ ] Bluff	[ ] Fen	[ ] Forest
	Site	[ ] Cliff		[ ] Bog	[ ] Plantation

Cover	Site	Plant Form		
[X] Open	[ ] Open Water	[ ] Plankton	[X] Forb	[ ] Coniferous
[ ] Shrub	[ ] Shallow Water	[ ] Submerged	[ ] Lichen	[ ] Mixed
[ ] Treed	[ ] Surficial Dep.	[ ] Floating-Lvd.	[ ] Bryophyte	
	[ ] Bedrock	[X] Graminoid	[ ] Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	NA	NA
1	Canopy	–	NA	NA
2	Sub-canopy	2	1	White Elm
3	Understorey	4	1	grey dogwood > red osier dogwood >> hawthorn
4	Groundcover	6	4	grass sp > tall goldenrod

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

→ brush piles only

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	[ ]	Pioneer	[X]	Young	[ ]	Mid-age	[ ]	Mature	[ ]	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	~~PWD~~
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Hawthorn sp.			R		
R.O. dogwood			R		
White Elm		R			
Grey dogwood			R		
E. Buckthorn			R		

Species	Layer 1	2	3	4	Sample
Canada Blue joint				O	
Tall Goldenrod				O	
Common Milkweed				R	
Wild carrot				R	
grass sp.				A	
Fragaria vesca				R	

Wildlife and Other Notes

tried soils in 3 places - depth is 15 cm

pics 424, 425, 426

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	6		
Aspect:	0		
%	0		
Type:			
Class:	Loam		

Strata:	Texture	Loam		
	Depth	15cm		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		L		
Surface Stoniness		0		
Surface Rockiness		0		
Depth to:				
	Mottles	Ø		
	Gley	Ø		
	Bedrock	15cm		
	Water table			
	Carbonates			
Depth of Organics		0.5cm		
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		0 R		

A-only

Polygon: Area 69 Meadow

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

3-well drained

Not wetland.

Wildlife Habitat Field Data Collection

WOD-039

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** Feature 69

Date: December 7/16 **Start Time:** 12:20 **End Time:** 15:00 **Observers:** EMB ~~PWD~~ KLB

Weather Conditions: Temp 2°C Wind 2E Precip: None CC: 30%

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		X	
Vernal Pool	X		
Pond	X		
Shallow Marsh (MAS) or Open Water	X		
Swamp	X		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	X		Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		X		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters)
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		X	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		X	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		X	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		X			
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	X		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date:

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Feature 69

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s) (18T)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	1	throughout	427	-located throughout (~3m x 2m)	None
Pond	1	490591 4997899	431-32	-see map (cattail, algae edges/OA)	None
Shallow Marsh	1	490611 4997823	427	-see map & ELC inclusion	None
Swamp	1	see map	427	-see map & ELC (SWMM1-1)	None
Meadow	1	see map	424-26	- refer to ELC sheet (MEMR1)	None
Large DBH Cavity Tree	1	0490618 4997875	429-30	- snag with woodpecker holes at top that extend into hollow areas	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Black-Capped Chickadee	OB	1	Fly-by					
B	Snow Goose	OB	1000+	Flying Overhead					
B	Red-Bellied Woodpecker	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: NorthRise Project #: 1756

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Start Time 12:20 End Time 2:30 Date: Dec 7 2016 Observer(s): EMB KLB

Property or Area ID (Area 69) Weather Conditions: -2°C Precip: None cc: 100% Wind 25W

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18U)	Comments
Plot 1	Ø	490640 4997791	
Plot 2	Ø	490661 4997814	
Plot 3	Ø	490651 4997847	
Plot 4	Ø	490636 4997887	
Plot 5	1	490612 4997926	see tree #1 below.
Plot 6	Ø	490579 4997940	
Plot 7	Ø	490544 4997909	
Plot 8	Ø	490525 4997872	
Plot 9	Ø	490568 4997829	
Plot 10	Ø	490573 4997786	
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			
	1		

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1	White Elm	3	25.0	490618 4997875	430, 429
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

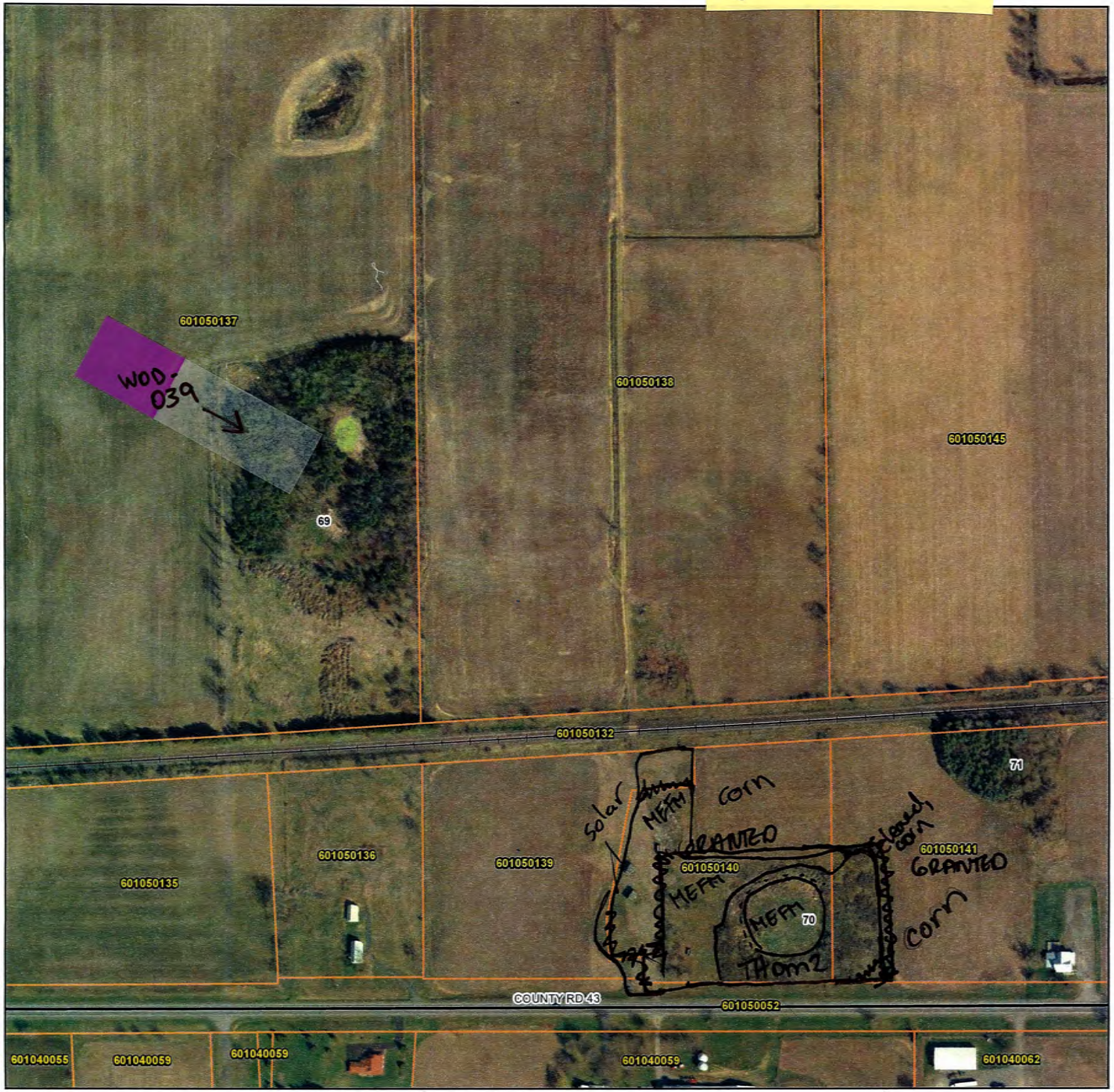
Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 1 / (10 x 0.05) = 1 / 0.5 = 2.0 > or = 10/ha? Yes (No)

If >10/ha: BMA-

(nearby WOD-039)

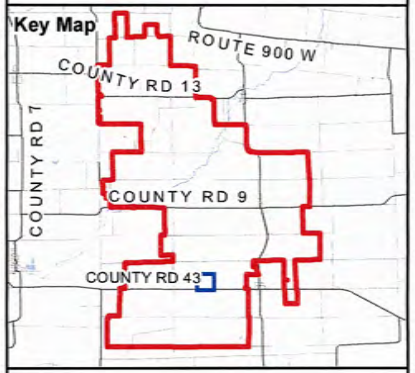
Feb 2/3 2017
JOB



Nation Rise Wind Project

Natural Features Field Map

Area [redacted]70



Legend

- Primary Road
- Railway
- Land Parcel
- ---- cliff feature

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 1756	NAD83 - UTM Zone 18
Date: November 2, 2016	Size: 8.5 x 11"
	1:4,000

0 50 100 150 Meters

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site:	Nation Rise
Polygon:	601050141 Area 70
UTM:	
Date:	Feb 3, 2017 Time: 14:50 - 15:07
Surveyor(s):	JBB
Weather:	-6°C, cc 60%, w , no precip

Community Classification

Vegetation Type:	THDM2 Dry-Fresh Deciduous Shrub Thicket
Inclusion:	Ecosite
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	/ Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
/ Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	2	trembling aspen
2	Sub-canopy	3	4	common lilac >> trembling aspen
3	Understorey	4/5	4	common lilac > common buckthorn
4	Groundcover	6/7	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	O	10 - 24	R	25 - 50	A	> 50
Snags	O	< 10	O	10 - 24	N	25 - 50	P	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba maple	R	O			
trembling aspen		R			
burdock		R			
large-toothed aspen		R			
red osier dogwood			O		
riverbank grape			O		
black raspberry			O		
common buckthorn			O		
tartarian honeysuckle			O		
common lilac		D	D		

Species	Layer 1	2	3	4	Sample
tall goldenrod			O		
tansy			O		
wild carrot			O		
common mullein			O		

Wildlife and Other Notes

Snow covered ground layer, cannot assess below

Photos: 205-209

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

Site: NATION RISE	1756
Polygon: 601050140-B	Area 7D
UTM:	
Date: Feb. 2, 2017	Time: 10:30 - 11:10
Surveyor(s): JBB, AMC	
Weather: -14°C, cc 15%, w 2W, no precip	

Community Classification

Vegetation Type:	MEFM1 - Dry-Fresh Forb Meadow Ecosite
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	/ Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
History	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
/ Natural	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Cultural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
	Site	/ Roll. Upland	Bluff	Fen	Forest
		Cliff		Bog	Plantation

Cover		Plant Form		
/ Open	Open Water	Plankton	/ Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	0	
2	Sub-canopy	3	0	
3	Understorey	4-5	3	wild parsnip > tansy > tall goldenrod
4	Groundcover	6-7	4	cannot assess - snow covered

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:			
Aspect:			
%			
Type:			
Class:			

Strata:	Texture	cSC		
	Depth	57cm		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		cSC		
Surface Stoniness		—		
Surface Rockiness		—		
Depth to:				
	Mottles	999		
	Gley	999		
	Bedrock	999		
	Water table	999.		
	Carbonates	0cm		
Depth of Organics		0		
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime				

Polygon: MEFM1

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

Stone/Gravel impedes deeper core
-snow covered - cannot assess stoniness/rockiness.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

Site: NATION RISE	1756
Polygon: 601050140-A	Area 70
UTM:	
Date: Feb 2, 2017	Time: 10:10 - 10:30
Surveyor(s): JBB, AMC	
Weather: -14°C, ~15%, w IW, no precip -	

Community Classification

Vegetation Type:	THDM2 Dry-fresh Deciduous Shrub Thicket
Inclusion:	Ecosite
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	/ Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
/ Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	2	Large tooth Aspen > trembling aspen
2	Sub-canopy	3	4	Common Lilac >> large-tooth aspen
3	Understorey	4-5	4	Common Lilac >> common buckthorn
4	Groundcover	6-7	—	Snow covered cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	C	10 - 24	R	25 - 50	N	> 50
Snags	N	< 10	C	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	/	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	R				
Trembl. Aspen	R				
Manitoba Maple	O	O			
White Elm.		O			
Large Tooth Aspen	O				
tart. Honeysuckle			O		
White Elderberry			C		
Staghorn Sumac			O		
Black Raspberry			O		
Glossy Buckthorn			O		
Hawthorn sp.		O	O		
C. Lilac		D	D		

Species	Layer 1	2	3	4	Sample
Tall Goldenrod			O	O	
Smooth brome				O	
Wild Barley			O	O	
Common Milkweed				R	

Wildlife and Other Notes

- significant snow cover - cannot assess ground cover, topography.

Photos: 150-158

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
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Project Name: NATION RISE	**Project #:** 1756	**Area and/or Polygon ID:** Area 70, 601050140	
Date: Feb. 2, 2017	**Start Time:** 10:10	**End Time:** 11:10	**Observers:** JBB, AMC
Weather Conditions: -14°C, cc 15%, w 2W, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		/	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		/	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		/	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		/	Presence of fish
Swamp		/	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		/	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	/		Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	/		Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		/	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		/	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs	/		Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		/	Depth of crevices
Cave		/	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		/	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		/	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		/	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		/	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		/	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence	✓		Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		/	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		/	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		/	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		/	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		/	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		/	
Log Jams, Old Beaver Lodges		/	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		/	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		/	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		/	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		/	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		/	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		/	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		/	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		/	Soil type and depths.
Red Spruce or White Oak Forest		/	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		/	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		/	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		/	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		/	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		/	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		/	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb. 2, 2017

Project Name: NATION RISE | Project #: 1756 | Area and/or Polygon ID: Area 70, 60105040

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
MEADOW.	2 (same polygon)	See ELC map.	Photos: 159-163	- height of veg: 0.1 - 1.0m. - Goldenrods present - no snags.	- coyote tracks
THICKET	1	See ELC map.	Photos: 150-158, 205-209	- height of veg: up to 3-4m.	- coyote tracks.
(possible old quarry), rockface	1	See map.	Photo: 153, 154, 160-163	~3m high - Limestone, calcareous. - sporadic crevacies (roughly 3cm wide)	
Rock/Debris Pile	1	MEFM at center of THDM2	154 156	depth unknown Fissures in adjacent cliff edge may indicate fissures suitable for snake hibernation	—

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Am. Crow	OB	5						
M	Coyote	TK	?	Numerous tracks, possible den site nearby.					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

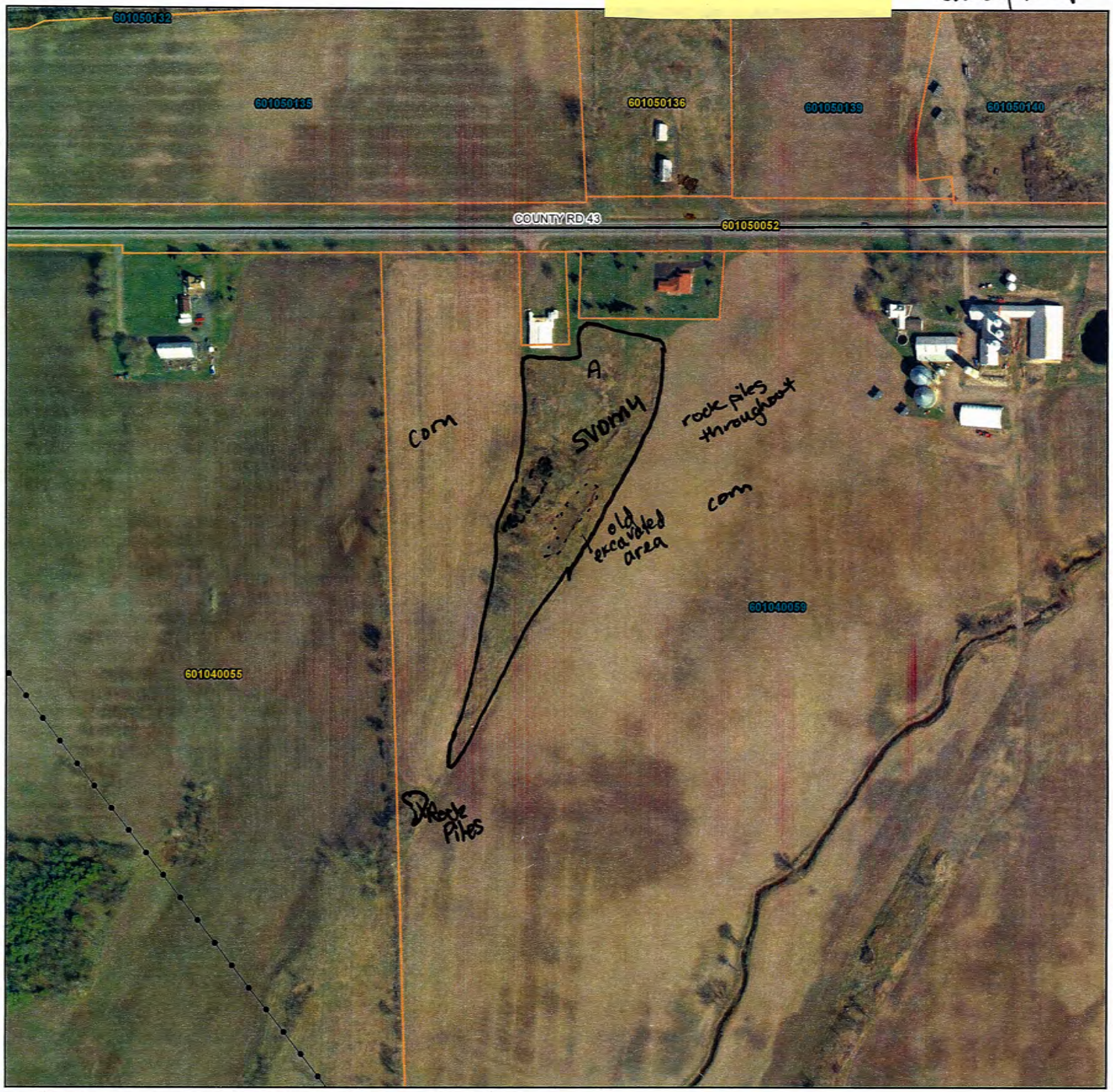
Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

(nearby WOD-039)

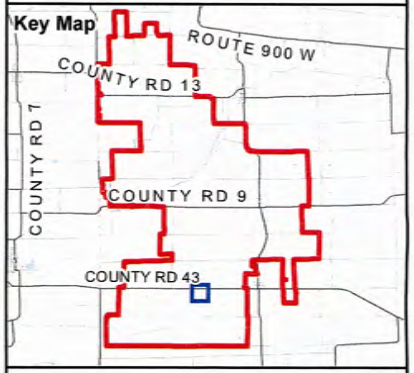
Christy Humphrey May 19, 2016
& Amanda Bichel



Nation Rise Wind Project

Natural Features Field Map

Area 73



Legend

- Utility Line
- Primary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: Area 73-A	
UTM:	
Date: May 19 2016	Time: 08:15-09:10
Surveyor(s): Christy Humphrey	
Weather: 12°C CC 60% Wind No precip	

Community Classification

	Vegetation Type:	SWDM4 Fresh-Moist Deciduous Sarramah Ecosite
X	Inclusion:	MAMM1-2 Cattail Graminoid mineral meadow marsh
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	X Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	Trembling Aspen
2	Sub-canopy	3	3	Manitoba maple = White Elm > Trembling Aspen
3	Understorey	3	1	Red Raspberry >> Ribes americanum
4	Groundcover	4	4	Smooth Brome >>> Goldenrod sp > Tufted Vetch > Wild Parsnip

25-35%

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	N	< 10	R	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

710 2-10 0.5-2 ca.5

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Manitoba Maple		O			
White Elm		O			
E. Cottonwood		R			
Green Ash		R			
Balsam Poplar		R	R		
Trembling Aspen	R	O			
Red maple		R			

Species	Layer 1	2	3	4	Sample
Smooth Brome				A	
Goldenrod sp				O	
Typha latifolia			O		
Wild Parsnip				O	
Common Milkweed			R		
Henbit				R	
Bittercress				O	
Yarrow				O	
Dandelion				O	
Tufted Vetch				O	
Willow sp.		O			
Common Bugleweed		O			
Ribes americanum			O		
Red Osier			R		
Red Raspberry			O		

Wildlife and Other Notes

Photos 232-235 35-40% of community is rock piles

Rock Piles 236, 237-254

Esker with rock piles forced adjacent fields

Some excavated gravelly areas - this is hard-packed gravel, not loose.

1215-1230

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 73

Date: May 19, 2016 **Start Time:** 8:15am **End Time:** 9:10am **Observers:** Amanda Bichel, Christy Humphrey

Weather Conditions: 90% cloud cover, 7°C, wind = 1, no precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence	✓		Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 19, 2016

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 73

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Rock Pile	5	0490798 ± 6m 4997333	236-237	• old pile made of medium sized rocks, goes into ground • 3m long x 3m wide x 1.5m tall	✓
			238-254	• large rock pile in along snaky line, 2m high in some spots • older w/ medium rocks (0.5m x 0.5m) • parts covered in grass and willows growing out of it. • concrete in North side of rock pile, large slabs (7m x 1m) - whole rock pile area 35-40% of polygon	✓
		0490839 ± 4m 4997059	260-261	• smaller, newer rock piles x • 2x2x1, 1x1 x0.5, 2x3x1.8 •	
Excavated gravel area			252 - 254	hard packed. much grass growing out. Some hawthorn, aspen shrubs.	None. No evidence of turtle nesting. No Com. Nighthawks observed (walked right through gravel area).

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Song sparrow	S	2		B	Am. Goldfinch	S	2	
B	Blue Jay	S	1		B	Yellow warbler	S	1	
B	Starling	OB	1		B	Cardinal	S	1	
B	Red-wing BB	OB	2		B	Brown Thrasher	S	1	
B	Chipping Sparrow	S	1		B	Killdeer	S	1	
B	Warbling Vireo	S	1						
B	Robin	S	1						
B	Rock Pigeon	DD	1						
B	Mourning dove	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Nation Rise
Area 56
Legend
WOD-040
Feb. 11 2017
KGB, JDRB
THEM1
cleared
Google earth
Image © 2016 DigitalGlobe
N
300 m

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-040

Site:	601098181 Area 56
Polygon:	Coniferous Plantation (TAGM1)
UTM:	/
Date:	Feb 11/17 Time: 0915-1000
Surveyor(s):	KGB, JDRB
Weather:	-12°, 100% CC, wind 3-E

Community Classification

Vegetation Type:	TAGM1 - Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	/ Coniferous
Shrub	/	Surficial Dep.	Submerged	Lichen	Mixed
/ Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—		
1	Canopy	2	4	White Pine
2	Sub-canopy	3	2	White Pine
3	Understorey	4	1	C. Buckthorn > Alt.-leaved Dogwood
4	Groundcover	5	—	

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	O	10 - 24		25 - 50	N	> 50
Snags	R	< 10	O	10 - 24		25 - 50	N	> 50
Deadfall/Logs	R	< 10	O	10 - 24		25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	/	Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	601090181
Polygon:	TAGM1
UTM:	/
Date:	Feb 11/17 Time: 0915-1000
Surveyor(s):	KGB, JDRB
Weather:	-12°C, 100% CC, wind 3-E

TAGM1

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer CVR_4

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	D	D			
White Elm	R	R			
White Cedar		R			
Balsam Poplar	R	R			
C. Apple		R			
T. Honeysuckle			R		
C. Buckthorn			O		
Alt.-leaved Dogwood			R		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

2319, 2320, 2321, 2322, 2323

burn

Wildlife Habitat Field Data Collection

WOD-040

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE WSP **Project #:** 1756 **Area and/or Polygon ID:** 60 10 90 181

Date: 11/02/17 **Start Time:** 0910 **End Time:** 945 **Observers:** J BARRON K SMITH

Weather Conditions: FULL OVERCAST -12

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field			
Vernal Pool			
Pond			
Shallow Marsh (MAS) or Open Water			
Swamp			**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture			
Meadow			
Thicket, Woodland, Hydro Corridor			
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel			Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles			Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs			Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst			Depth of crevices
Cave			Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes			Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge			Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs			Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water			Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft			
Old Rock or Debris Pile, Old Stone Fence			
Abandoned Road or Rail Bed			
Abandoned Well			
Old Foundation			
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake			
Medium			
Large			
Log Jams, Old Beaver Lodges			Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)			Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat			Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)			Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest (Mature Forest)			Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics). Any cut stumps in the mature/old growth component.
Tallgrass Prairie or Savannah			Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog			Soil type and depths.
Red Spruce or White Oak Forest			Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)			Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges			Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren			Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar			Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)			Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community			Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 11/17

Project Name: Nation Rise | Project #: 1756A | Area and/or Polygon ID: 601090181

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
burn area off site -> cleared of vegi (occurred in summer 2016)					

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

WOD-041

Dec 8 2016
EMB KLB

601090129 601090137 601090138 601090137 601090139 601090141 601090140 601090142

CONCESSION ROAD 4 & 5

601090158

roadside → same community as south end

601090181

601090180

OAGM1 soy

FAGM1 forest edge plantation

OAGM1 corn

GRANTED

601090177

0

601090204

Excavate bedrock to 15 Ditch outflow

rockpile

rockpile

FAGM1 with some dirt plantation

OAGM1 soy

SWDM4-5 Aspen Swamp

MAMM3-1 mixed meadow marsh (10m x 40m)

443

601090182

OAGM1 (filled under)

OAGM1 (filled)

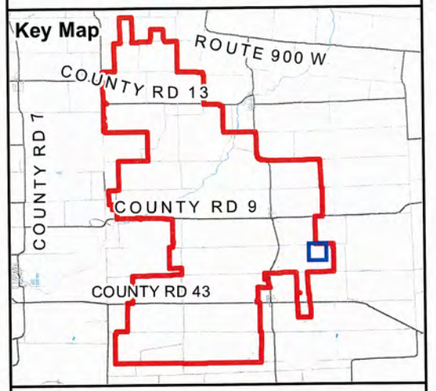
601090184

Nation Rise Wind Project

Natural Features Field Map

Area 56

Key Map



Legend

- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

Path: X:\1756_Natior _Rise_Wind_Project\NRSI_1756_FieldMaps1-31_NatFeatures_2016_05_13_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-041

Site:	1756 Nation Rise Wind Project
Polygon:	Area 516 - 600109204
UTM:	
Date: Dec 8 2016	Time: 7:30 - 9:00
Surveyor(s): ~~PWD~~ EMB KLB	
Weather: -3°C Wind SW cc: 95% precip. None	

Community Classification

Vegetation Type:	TAGM1-white pine (coniferous Plantation
X Inclusion:	SWDM4-5 Poplar Mineral Deciduous Swamp
Complex:	

X Inclusion: MAMM3-1 Mixed Mineral Meadow Marsh

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
X Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	X Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	White pine >> Hop Hornbeam > White Elm
2	Sub-canopy	3	2	White pine > E. Buckthorn > W. Elm
3	Understorey	4	1	E. Buckthorn > W. cedar > bl. raspberry
4	Groundcover	5	1	black raspberry > common mullein

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	R	> 50
Snags	N	< 10	R	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	X Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	D	D			
Sugar Maple	R				
Hop Hornbeam	R				
E. Buckthorn		R	R		
White Elm	R	R			
Trembling Aspen	R	R			
White Cedar		R	R		
White Ash	R	R			
Aspen Inclusion					
Trembling Aspen	D	O	R		
White Pine		R	R		
Goldenrod Sp.				O	
Green Ash	R				
White Elm	R				
E. Buckthorn			D	R	
Red osier dogwood				R	
Fragaria vesca				R	

Species	Layer 1	2	3	4	Sample
common mullein				R	
Black Raspberry				O	
Marsh Inclusion					
tall r. meadowsed				O	
grass sp.				O	
reed-canary grass				D	
wild carrot				R	
canada thistle				R	
wild cucumber				R	
red clover				R	

water 10cm deep

Wildlife and Other Notes

Exposed rock
soil - clay loam, 5cm organics (needle drop), 30cm depth to rock
Large prints/tracks pic 449, 450 (dog).
Snow geese (~50) flying overhead @ 400m

photos 439 - 447

Wildlife Habitat Field Data Collection

WOD-041

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** Area 56	
Date: Dec 8 2016	**Start Time:** 7:30	**End Time:** 9:00	**Observers:** EMB KLB
Weather Conditions: -3°C Wind 2W cc:95% No precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		X	
Vernal Pool	X		
Pond		X	
Shallow Marsh (MAS) or Open Water		X	
Swamp	X		
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		X	
Meadow		X	
Thicket, Woodland, Hydro Corridor		X	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst	X		Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		X	
Old Rock or Debris Pile, Old Stone Fence	X		
Abandoned Road or Rail Bed		X	
Abandoned Well		X	
Old Foundation		X	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		X	
Medium		X	
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec 8 2016

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 56

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	1	see map	445	within trembling aspen swamp small shrubs/tree saplings growing out, indicates does not persist long enough to support amphibian breeding significant	None
Swamp	1	see map	439-440	SWDM4-5 Poplar Mineral Deciduous swamp	None
Karst	1	Exposed rock scattered throughout	–	TAGM1 - White Pine Coniferous Plantation No fractures/crevices observed. Bedrock and boulders at surface No clints/grikes or other karst features.	None
Old rock pile	4	① 0494171 5001878	437-8	15cm-30cm diametre (10m x 2m)	None
		② 0494067 5001814	441	15x15cm diametre (2m x 5m)	None
		③ Along forest edge	–	Shallow - doesn't extend below frost	None
		④ 0494129 5001720	442	15-50cm diametre (2m x 8m)	None
				→ all too shallow + surficial	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Snow Geese	OB	50	flying overhead					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: NationRise Project #: 17560

NATURAL RESOURCE SOLUTIONS INC.
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Project Manager Use Only:
Woodland Number :

Start Time 7:30 End Time 9:00 Date: Dec 8 2016 Observer(s): EMB KLB

Property or Area ID (Area 56(60109284)) Weather Conditions: -30c wind2w cc:95%. Precip: None

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	Ø		
Plot 2		↳checked All trees within Swamp inclusion SWDM4-5	
Plot 3		↳did not observe any cavity trees	
Plot 4			
Plot 5			
Plot 6			
Plot 7			
Plot 8			
Plot 9			
Plot 10			
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = _____ **> or = 10/ha? Yes / No**

If >10/ha: BMA- ✓

Dec. 7 2016
Christy H., Christina C.

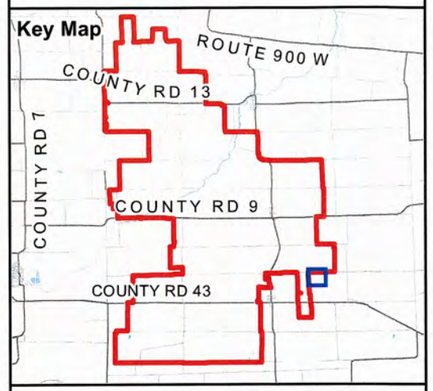
WOD-042

601090177 0
601090204
601090184
601090179
CONCESSION ROAD 3 & 4
601090052
601100169
601100168
601100170
601100165
601100172

tilted
hay
CULT
A
FOOMS-6
59
60
B
MEGM3
ME
meadow
Cultural
Cl
Brush
not visible
from roadside
per recent air photo
(oct. 2016). - Cultural
Brush piles on
Eastern half &
meadow on western
half

Nation Rise Wind Project

Natural Features Field Map
Area 59



Legend
- Secondary Road
- Land Parcel

vernal pool (dug)

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-042

Site: Nation Rise	1756
Polygon: 601100170-A	Area 59
UTM:	
Date: Dec 7 2016	Time: 15:35 - 15:45
Surveyor(s): Christy Humphrey, Christina Carter	
Weather: 3°C, CC95%, Wind 1, No precip.	

Community Classification

Vegetation Type:	FODM5-6 Dry-fresh Sugar Maple-Basswood Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

Layer	HT	Cover	Species
* Super-canopy	1	0	—
1 Canopy	2	4	Sugar Maple > Basswood > White Ash > Bitternut Hickory
2 Sub-canopy	3		Ironwood > Sugar Maple > Basswood
3 Understorey	4 5		
4 Groundcover	4		Not visible

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		< 10		10 - 24		25 - 50		> 50
	O		A		R		R	
Snags	O	< 10	O	10 - 24		25 - 50		> 50
Deadfall/Logs	O	< 10		10 - 24		25 - 50		> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer — 7to 2-to 0.5-2 <0.5

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	O	O			
Ironwood		O	O	O	
Bitternut Hickory	R	O			
White Ash	O	O			
Basswood	O				
Rubus (allegheniensis?)			O		
Grasses					

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Bouldery Highly disturbed microtopography

Photos: 513, 515 Surveyed from Roadside

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT

Site: Nottion Rise	1756
Polygon: 601100 170-A	
UTM:	
Date: Dec 7 2016	Time: 1545 - 1555
Surveyor(s): Christy H. Christina C	
Weather: 3°C, CC 95% wind / No precip	

Community Classification

Vegetation Type:	MEGM3 Dry-fresh Graminoid Meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	41	dead Elm
2	Sub-canopy	3	<1	Manitoba Maple = White Ash
3	Understorey	4/5	2	Rubus sp.
4	Groundcover	6/7	4	Grasses (not visible).

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags		< 10		10 - 24	R	25 - 50		> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 (1=canopy) 2-10 (2=sub-canopy) 0.5-2 (3=understorey) <0.5 (4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm (dead)	R				
Manitoba maple		R			
White Ash.		R			
Rubus sp.			O		
(alleghenensis?)					
Grasses					

Species	Layer 1	2	3	4	Sample

Wildlife Habitat Field Data Collection

WOD-042

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation River	**Project #:** 1756	**Area and/or Polygon ID:** Area 39	601100170
Date: Dec. 7/16	**Start Time:** 15:36	**End Time:** 15:45	**Observers:** CH, CJC
Weather Conditions: 4°C, 90% cc, wind 1, no precip.			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond	✓		
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7/16

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 59 601100170

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Pond	1	Marked on map.	515	Pond in central-northern portion of habitat, marked on map.	None
Meadow	1			Meadow habitat type. Adjacent to forest.	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Black-capped Chickadee	S	2						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

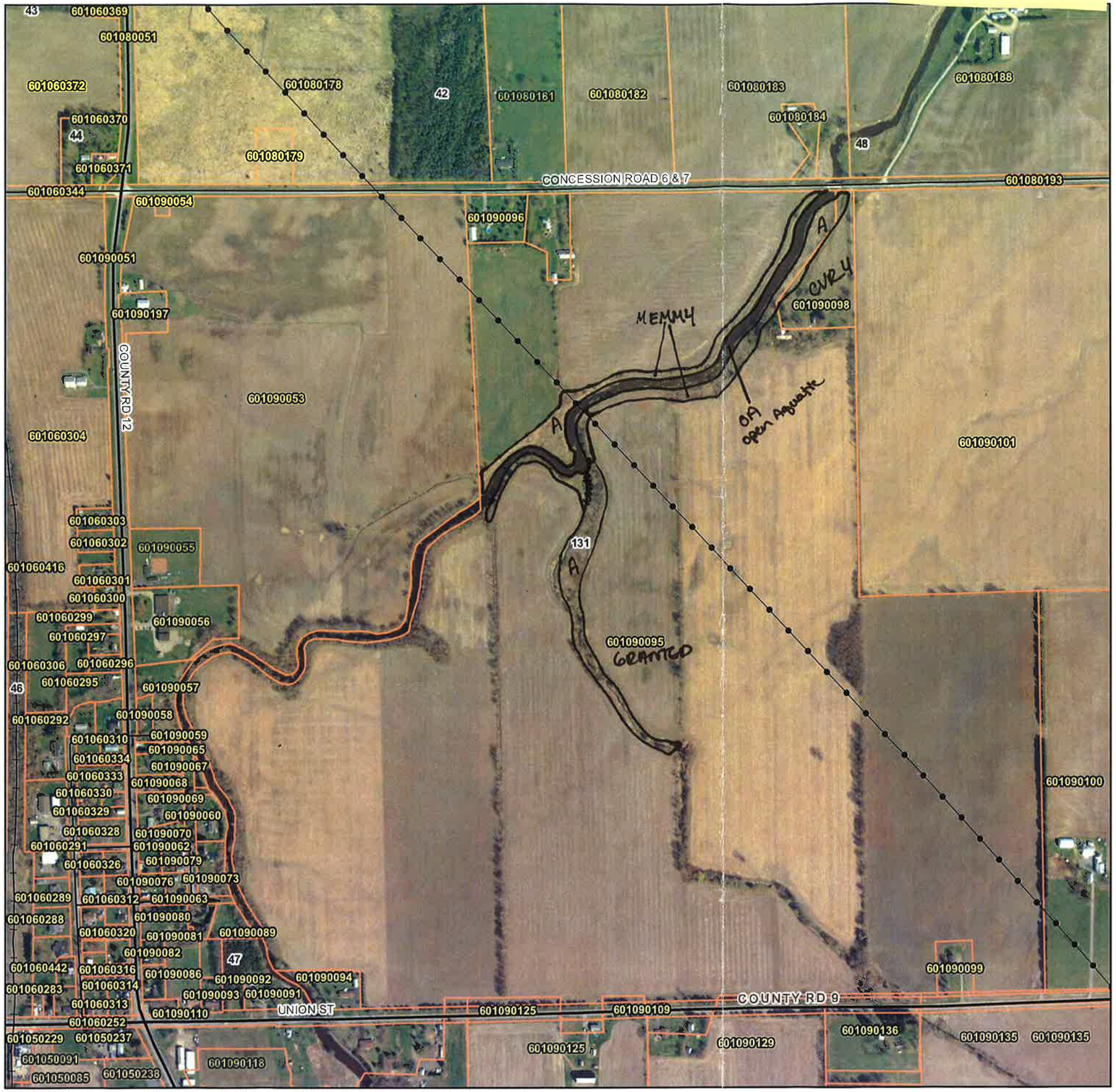
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Nearby WOD-042

Dec. 7, 2016

PWD

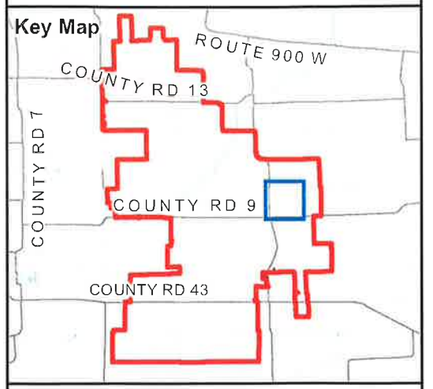


Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

Nation Rise Wind Project

Natural Features Field Map

Area 131



Legend

- Utility Line
- Primary Road
- Secondary Road
- Railway
- Land Parcel

601090095 Granted

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:9,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	1756 Nation Rise Wind Project
Polygon:	601090095, 131 A
UTM:	
Date:	Dec. 7, 2016 Time: 0725 - 0750
Surveyor(s):	PWD
Weather:	-1°C, 100% cc, wind 0, light sleet

Community Classification

	Vegetation Type:	MEMM4 F-M Mixed Meadow
X	Inclusion:	MASM1 Graminoid Min Shallow Marsh. (incl of OA Creek).
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	X Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	X Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	—
1	Canopy	-	-	—
2	Sub-canopy	3	1	Wh. Ash > Manitoba Maple
3	Understorey	4	1	Wh. Ash
4	Groundcover	5	4	Smooth Brome > Reed Canary Grass = Goldenrod sp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Riverbank Grape			R	R	
White Ash		R	R		
Manitoba Maple		R			

Species	Layer 1	2	3	4	Sample
Smooth Brome				A	
Goldenrod sp.				O	
Reed Canary Grass				O	
Bull Thistle				O	
Yellow Eve Primrose				O	
Tansy (Common)				O	
Rush sp. (in creek)				R	

Wildlife and Other Notes

Shallow aquatic rushes growing patchy/sparse along banks

Photos 5929, 5930, 5931, 5932

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 601090095, 131	
Date: Dec. 7, 2016	**Start Time:** 0725	**End Time:** 0750	**Observers:** PWD
Weather Conditions: -1°C, 100% cc, wind 0, light sleet			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7, 2016

Project Name: NationRiseWP | Project #: 1756 | Area and/or Polygon ID: 601090095, 131

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow	2	Entire ELC polygon (both sides of watercourse)	5929, 5930 5931	Riparian meadow habitat (narrow) • Does not provide grassland bird habitat (narrow strips)	None observed.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
	None obs.								

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Dec. 7, 2016
Dec 8, 2016

PWD

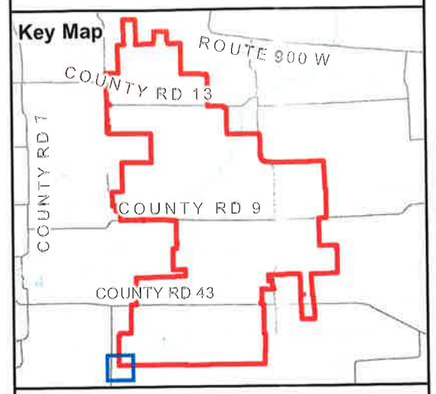
WOD-043

WET-016

Nation Rise Wind Project

Natural Features Field Map

Area 95



Legend

- Primary Road
- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

Path: X:\1756 Eco - Rise Wind Project\NRSI_1756_FieldMaps\1-31_NatFeatures_2016_05_13.LEEmxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-043

Site:	1756 Nation Rise Wind Project
Polygon:	95, 601030124 A
UTM:	
Date:	Dec 7, 2016 **Time:** 1255-1400
Surveyor(s):	PWD
Weather:	3°C, 20%cc, wind 1/SW, no precip

Community Classification

Vegetation Type:	SWDM4-5 Poplar Min. Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System		Substrate		Topo Feature		Community	
	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
X	Wetland	X	Mineral Soil		Riverine		Crevice/Cave		Pond		Meadow
	Aquatic		Parent Min.		Bottomland		Alvar		River		Prairie
			Acidic Bedrock		Terrace		Rockland		Stream		Thicket
History			Basic Bedrock		Valley Slope		Beach/Bar		Marsh		Savannah
X	Natural		Carb. Bedrock	X	Tableland		Sand Dune	X	Swamp		Woodland
	Cultural				Roll. Upland		Bluff		Fen		Forest
		Site			Cliff				Bog		Plantation

Cover		Site	Plant Form		
	Open		Open Water		Plankton		Forb		Coniferous
	Shrub	X	Shallow Water		Submerged		Lichen		Mixed
X	Treed		Surficial Dep		Floating-Lvd		Bryophyte		
			Bedrock		Graminoid	X	Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	4	Trem. Aspen >> Green Ash > Am. Elm
2	Sub-canopy	3	2	Trem. Aspen > Green Ash = Am Elm.
3	Understorey	4	1	Corn. Buckthorn > Trem Aspen = Gr. Ash > Red Osier.
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar		O	O		
Am. Elm	O	O	O		
Green Ash	O	O	O		
Trembling Aspen	A	O	O		
White Spruce	O				
Alt Int Dogwood			O		
Red Osier Dogwood			R		
Red Maple	R				
White Pine	R				
Bur Oak	R				
Bitternut Hickory	O	O			
E. Hemlock	R				
Paper Birch		R			
Red Raspberry			O		
Corn. Buckthorn			O		

Species	Layer 1	2	3	4	Sample
Cedars				D	
Wood Fern sp.			D		
Bracken Fern		D			
Blue Vervain					
Sensitive Fern					
Sp. Joe Pye-weed					

Wildlife and Other Notes

Photos: None taken in this community.

Logging occurring with paths throughout (moderately disturbed) with a thinned canopy due to logging.

Ruffed Grouse (Tk)

Raccoon (Tk)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-016

hS1-A

Wetland Vegetation Communities

Project Name: Nation Rise WP **Project #:** 1756 **Parcel #:** 95.601030124

Observer(s): PWD **ELC Code:** SWDM4-5

Date: Dec. 7.2016 **Time (24h):** 1255 95 - A

Wetland #: WET-016 **Weather:** Precipitation: None Temp (° C): 3

Veg Community #: hS1-A Wind Speed & Direction: 1/SW Cloud %: 20

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: None taken at this community.

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 95)	Trem. Aspen (50%) Green Ash (30%) Am. Elm (15%) Other Decid. trees (5%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: S1 Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

White-tailed Deer (TK)

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; F=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams Not suitable
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  None obs
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  None obs.
- ○ plant species (wild rice, cranberries)
  None obs.
- ✓ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----➤)
  See field map
- ✓ human related disturbances (fill, docks, houses, etc)
  Tree clearing at W & E extent of community, moderate logging recently.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  None obs.
- ○ locations of seeps or springs, lagg
  None obs.
- ○ iron precipitates, marl deposits
  None obs.
- ○ winter cover for wildlife
  Not suitable
- ○ ungulate summer habitat, moose aquatic feeding habitat
  Not suitable
- ○ suitability for waterfowl breeding, staging, moulting
  Not suitable
- ○ surrounding topography (flat,) rolling, hilly, steep)
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ✓ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ✓ crops; ✓ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ✓ fence rows; ✓ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  None
- ○ invasive species (plant, aquatic)
  Com. Buckthorn throughout.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-043

Site:	1756 Nation Rise Wind Project
Polygon:	95, 601030124 B
UTM:	
Date:	Dec. 7, 2016 Time: 1255 - 1400
Surveyor(s):	PWD
Weather:	3°C, 20% cc, wind I/SW, no precip

Community Classification

Vegetation Type:	SWMM 1-1 Wh. Cedar – Hardwood Min Mixed Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	2	4	Green Ash > White Cedar > Am Elm = Trem Aspen
2	Sub-canopy	3	4	Wh. Cedar > Green Ash, = Am. Elm.
3	Understorey	4	1	Green Ash = White Cedar > Com Buckthorn
4	Groundcover	–	–	Cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis							
	O	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	A	O	O		
Am. Elm	O	O	R		
White Cedar	O	R			
Trembling Aspen	O	O			
Com. Buckthorn			D		

Species	Layer 1	2	3	4	Sample
Sedges				/	
Wood fern sp.			/		
Calico Aster	/				

Wildlife and Other Notes

Photos: 5966 - 5971

Logging tracks (largely to southern polygon but some in this community also).

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-016

CS2

Wetland Vegetation Communities

Project Name: Nation Rise WP **Project #:** 1756 **Parcel #:** 95, 60/030/124

Observer(s): PWD **ELC Code:** SWMM1-1

Date: Dec. 7, 2016 **Time (24h):** 1255 95-B

Wetland #: WET-016 **Weather:** Precipitation: None Temp (° C): 3

Veg Community #: CS2 Wind Speed & Direction: 1/SW Cloud %: 20

Wetland Type: S **Site Type:** P **Dominant Form:** C

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 5966 - 5971

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 40)	Green Ash (50%) Am. Elm (30%) Trembling Aspen (20%)
c (%: 60)	White Cedar (95%) E. Hemlock (3%) White Pine (2%)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SI Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None obs.

Wildlife Notes:

Wh-tailed Deer (TK)

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams Not suitable
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  None obs.
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  None obs.
- ○ plant species (wild rice, cranberries)
  None obs.
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----➤)
  See field map.
- ⊘ human related disturbances (fill, docks, houses, etc)
  Some logging trails present
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  None
- ○ locations of seeps or springs, lagg
  None obs
- ○ iron precipitates, marl deposits
  None obs
- ⊘ winter cover for wildlife
  Yes, minimal (conifer cover)
- ○ ungulate summer habitat, moose aquatic feeding habitat
  Not suitable
- ○ suitability for waterfowl breeding, staging, moulting
  Not suitable
- ○ surrounding topography (flat, rolling, hilly, steep)
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊘ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ⊘ crops; ⊘ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊘ fence rows; ⊘ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ⊘ vernal pools
  Yes, in E end of polygon, appears anthropogenic but naturalized
- ○ invasive species (plant, aquatic)
  None observed

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-043

Site:	1756 Nation Rise Wp 601 030131
Polygon:	95
UTM:	
Date:	Dec. 7, 2016
Time:	1235-1255
Surveyor(s):	PWD
Weather:	3°C, 20% c.c., wind 1/SW, no precip.

Community Classification

Vegetation Type:	FODM8-1 F-M Poplar Dec. Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	–	–	–
1	Canopy	2	4	Trembling Aspen
2	Sub-canopy	3	2	Trembling Aspen
3	Understorey	4	2	Com. Buckthorn >> Nannyberry
4	Groundcover	–	–	Unable to Assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Trembling Aspen	A	O	O								
Com. Buckthorn			A								
Nannyberry			O								
Riverbank Grape		R	O	O							

Wildlife and Other Notes

No soil auger sample was taken as ROW is infilled (non-native) soils and further anthropogenic influence by ditching along N&S side of raised ROW.

WOD-043

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WP	**Project #:** 1756	**Area and/or Polygon ID:** 95, 601030124	
Date: Dec 7, 2016	**Start Time:** 1255	**End Time:** 1400	**Observers:** PWD
Weather Conditions: See ELC sheets.			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool	✓		Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters)
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		✓	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		✓	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		✓			
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7, 2016

Project Name: NationRise wp | Project #: 1756 | Area and/or Polygon ID: 95, 601030124

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp	1	See field map.	5966 - 5971	A mixed and deciduous swamp are present. No nest boxes were observed	None obs.
Vernal Pool	1	18T 488100 4993031 (also on field map)	5971	Appears dug, but naturalized. Contained ~30cm of water in centre.	None obs.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
	None observed.								

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: Nation Rise Project #: 1756

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Project Manager Use Only:
Woodland Number :

Start Time 0745 End Time 0834 Date: Dec. 8, 2016 Observer(s): PWD

Property or Area ID (95, 601030124) Weather Conditions: -1°C, 100% cc, wind 2/NW, light snow

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	–	488180 4992923	
Plot 2	–	489152 4992909	
Plot 3	1	488135 4992890	Dead from. aspen, 35cm DBH. 18m, exfoliating bark entire length.
Plot 4	–	488106 4992900	
Plot 5	–	488074 4992899	
Plot 6	–	488055 4992922	
Plot 7	–	488024 4992927	
Plot 8	–	487995 4992913	
Plot 9	–	487993 4992893	
Plot 10	–	487978 4992869	
Plot 11	–	487996 4992843	
Plot 12	–	487995 4992816	
Plot 13	–	487950 4992883	
Plot 14	–	487937 4992915	
Plot 15	–	487916 4992935	
Plot 16	–	487893 4992955	
Plot 17	–	487861 4992966	
Plot 18	–	487846 4992996	
Plot 19	–	487875 4993006	
Plot 20	–	487903 4993019	
Plot 21	1	487934 4993026	Dead fir/spruce, 30cm DBH, exfoliating bark at least 6m up trunk
Plot 22	–	487967 4993020	
Plot 23	–	487996 4993003	
Plot 24	1	488016 4993026	Dead fir/spruce, 40cm DBH, 24m, elevated presence, 10-14m, exfoliating bark
Plot 25	–	488052 4993041	
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) (3) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 3/(25x0.05) = 3/1.25 = 2.4 > or = 10/ha? Yes / (No) If >10/ha: BMA- ✓

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Forest Composition

Forest Description (e.g. ELC Ecosite): SWDM4-5/SWMM1-1

Tree Species	Abundance D= dominant (>50%) A=abundant (35-50%) O = occasional (2-35%) R = rare (<2%)
White Cedar	O
Green Ash	A
Trembling Aspen	A
Am. Basswood	R
Am. Elm	O
Red Maple	R
White Pine	R
E. Hemlock	R

Community Age

___ Young _X_ Mid-Age ___ Mature ___ Old-Growth

Description of general character of snags/cavity trees

- Dead trees with sheet exfoliating bark.
- Some with crevices

Woodland Photos

Photo Number	Photo Number
(Dec. 7) 5966 - 5971	

Class 1-3 are ideal cavity trees

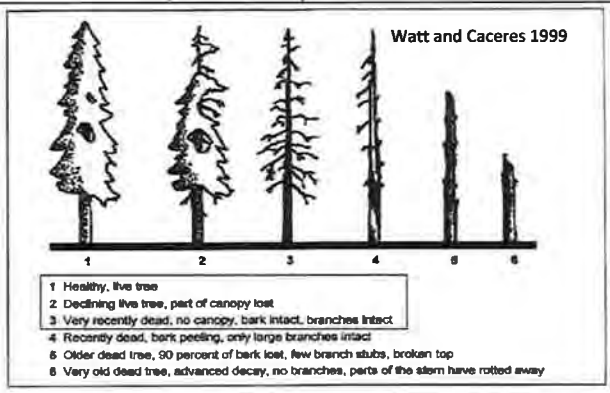
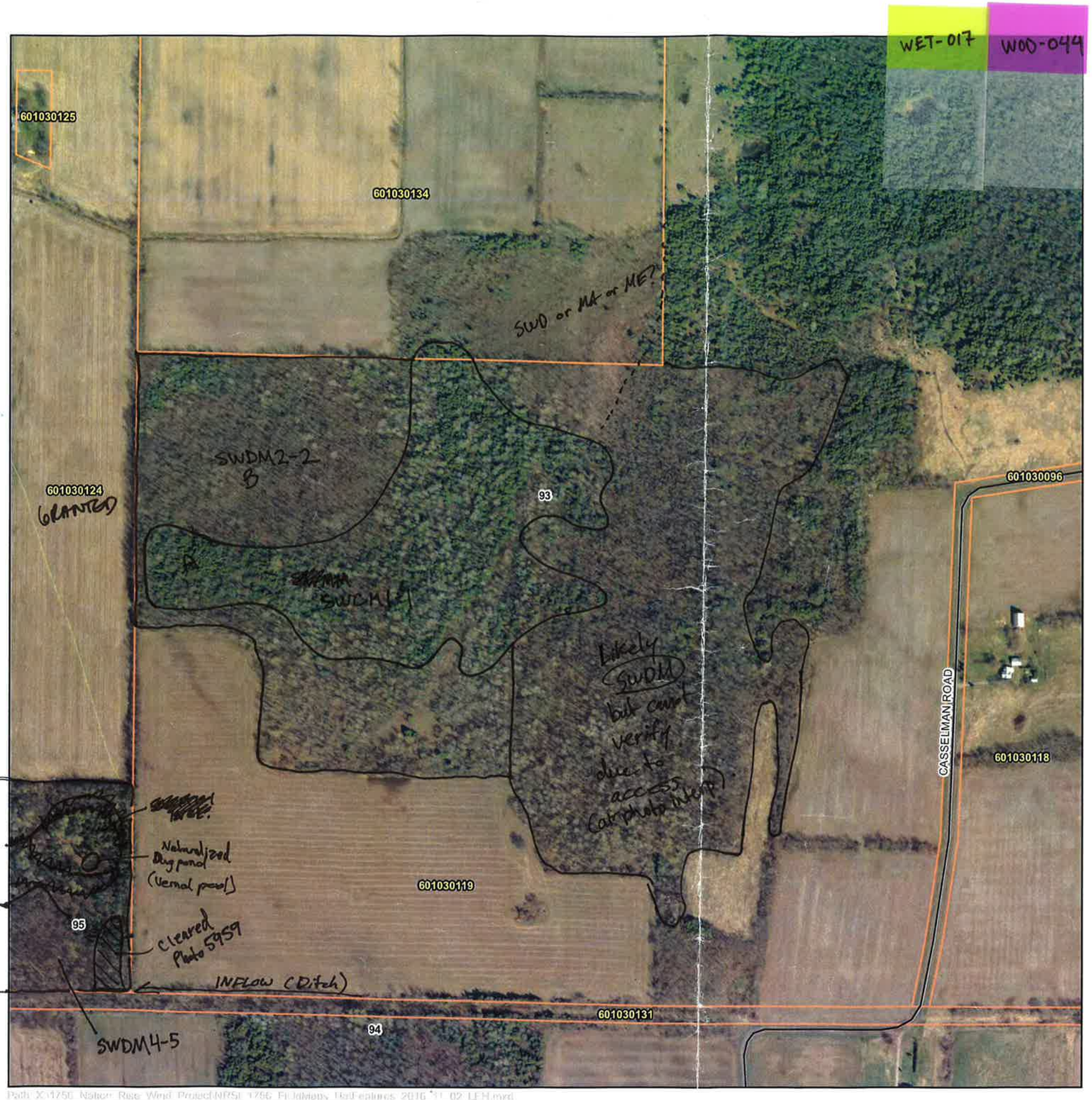


Figure 1: Sample Classification system for snags.

Sketch candidate trees with multiple cavities, identifying the location of cavities

Dec. 7, 2016

PWD

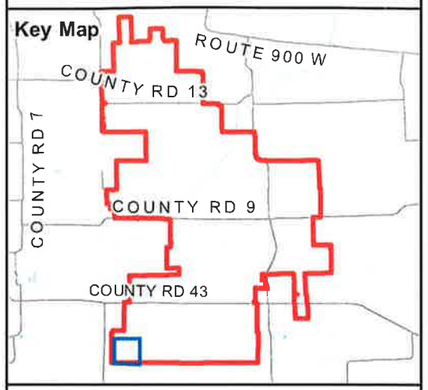


Path: X:\1756_Nation Rise Wind Project\NRSI_1756_FieldMaps_DetFeatures_2016_11_02_LEH.mxd

Nation Rise Wind Project

Natural Features Field Map

Area 93



Legend

- Secondary Road
- Land Parcel

601030124 Granted.

*Note, permanent outflow from NE of feature 93 (not on this map)

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PROPERTY LINE ASSESSMENT WOD-044

Site:	1756 Nation Rise Wind Project
Polygon:	93, 601030119 (Assessed from 601030124) A
UTM:	
Date:	Dec. 7, 2016 Time: 1210 - 1250
Surveyor(s):	PWD
Weather:	3°C, 20% cc, wind 1 / SW, no precip.

Community Classification

Vegetation Type:	SWCM1-1 White Cedar Min. Coniferous Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form			
Open		Shallow Water	Plankton	Forb	X	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen		Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte		
			Graminoid	Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	1	Trembling Aspen
1	Canopy	2	4	White Cedar ≫ Green Ash > Am. Elm = Trem Aspen.
2	Sub-canopy	3	2	" ≫ " > "
3	Understorey	4	2	Green Ash > Am. Elm
4	Groundcover	-	-	Unable to assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Green Ash	O	O	O								
Am. Elm	O	O	O								
White Cedar	D	O	O								
Paper Birch	R	R									
Trembling Aspen	O	O	O								
Nannyberry			O								
Com. Buckthorn			O								
Am. Basswood		O									

Wildlife and Other Notes

Photos: 5962 Surveyed from adjacent property.

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-017

CS1-A

Wetland Vegetation Communities

Project Name: NationRise WP **Project #:** 1756 **Parcel #:** 93,601030119

Observer(s): PWD **ELC Code:** SWCM1-1

Date: Dec. 7, 2016 **Time (24h):** 1210 601030119-93-A

Wetland #: WET-017 **Weather:** Precipitation: None Temp (° C): 3

Veg Community #: CS1-A Wind Speed & Direction: 1/SW Cloud %: 20

Wetland Type: S **Site Type:** P **Dominant Form:** C

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 5962

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%: 80)	White Cedar (100%)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Unknown Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) clay loam per Matthews + Richards 1954

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
None observed	None observed

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams Not suitable
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  None obs.
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  None obs.
- ○ plant species (wild rice, cranberries)
  None obs
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----->
  Watercourse in far NE of feature (not on map) appears to be perm outflow to NE.
- ○ human related disturbances (fill, docks, houses, etc)
  None obs.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  None obs.
- ○ locations of seeps or springs, lagg
  None obs.
- ○ iron precipitates, marl deposits
  None obs.
- ☑ winter cover for wildlife
  Yes, suitable for winter cover
- ○ ungulate summer habitat, moose aquatic feeding habitat
  Not suitable
- ○ suitability for waterfowl breeding, staging, moulting
  Not suitable
- ○ surrounding topography (flat, rolling, hilly, steep)
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  None obs
- ○ invasive species (plant, aquatic)
  None obs.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PROPERTY LINE ASSESSMENT WOD-044

Site:	1756 Nation Rise Wind Project
Polygon:	93, 601030119 (Assessed from 601030124) B
UTM:	
Date:	Dec. 7, 2016 **Time:** 1210 - 1250
Surveyor(s):	PWD
Weather:	3°C, 20%cc, wind 1/SW, no precip.

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Min Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	-	-
1	Canopy	2	4	Green Ash > Am. Elm = Trembling Aspen
2	Sub-canopy	3	2	" > " = " > White Cedar
3	Understorey	4	2	Green Ash = Am. Elm
4	Groundcover	-	-	Unable to assess.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	**Time:**
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Green Ash	A	O	O								
Trembling Aspen	O	O									
Paper Birch		R									
White Cedar		R									
Am. Basswood		R									
Com. Buckthorn			O								
Am. Elm	O	O	O								

Wildlife and Other Notes

Surveyed from adjacent property

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-017

hS2-A

Wetland Vegetation Communities

Project Name: Nation Rise WP **Project #:** 1756 **Parcel #:** 93, 601030119

Observer(s): PWD **ELC Code:** SWDM2-2

Date: Dec. 7. 2016 **Time (24h):** 1210 601030119 - 93-B

Wetland #: WET-017 **Weather:** Precipitation: None Temp (° C): 3

Veg Community #: hS2-A Wind Speed & Direction: 1/SW Cloud %: 20

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 5960-5964

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 95)	Green Ash (40%) Am. Elm (35%) Trembling Aspen (20%) Am. Basswood (3%) Paper Birch (2%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Unknown Mineral [X] Organic [ ] Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

None observed.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams Not suitable
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  None obs.
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  None obs
- ○ plant species (wild rice, cranberries)
  None obs.
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  Watercourse in far NE of ~~feature~~ (not on map) appears to be perm. outflow to NE
- ○ human related disturbances (fill, docks, houses, etc)
  None obs.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  None obs.
- ○ locations of seeps or springs, lagg
  None obs.
- ○ iron precipitates, marl deposits
  None obs.
- ○ winter cover for wildlife
  Yes. may provide winter cover (adjacent SWCM better habitat)
- ○ ungulate summer habitat, moose aquatic feeding habitat
  Not suitable
- ○ suitability for waterfowl breeding, staging, moulting
  Not suitable
- ○ surrounding topography (flat, rolling, hilly, steep)
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ✓ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ✓ crops; ✓ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ✓ fence rows; ✓ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  None obs.
- ○ invasive species (plant, aquatic)
  None obs.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

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Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-044

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise WD	**Project #:** 1756	**Area and/or Polygon ID:** 93, 601030119 (Assessed from 601030124)	
Date: Dec. 7, 2016	**Start Time:** 1210	**End Time:** 1250	**Observers:** PWD
Weather Conditions: See ELC Sheet			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake	?		Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium (Unable to assess)	?		Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large	?		
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc)
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7, 2016

Project Name: Nation Rise WP | Project #: 1756 | Area and/or Polygon ID: 93, 601030119 (from 601030124)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp	1	Entire ELC polygons (2)	5962 5960 - 5964	Coniferous Swamp Deciduous Swamp No nest bowls observed in either ELC community.	None observed. "

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
M	White-tailed Deer	TK							

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

PROPERTY LINE ASSESSMENT

Dec 7 2016
Christy H., Christina C.

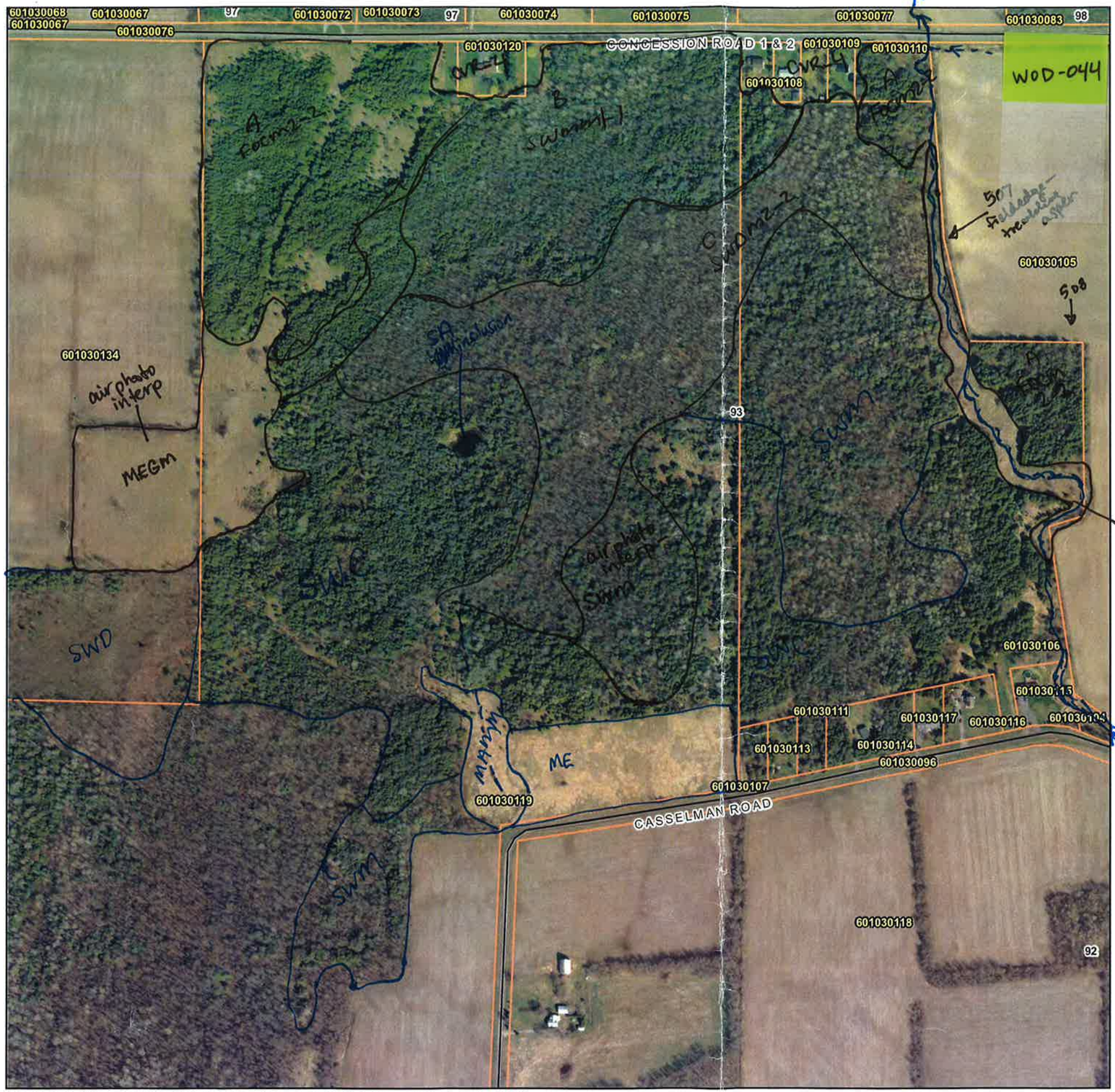
WET-017

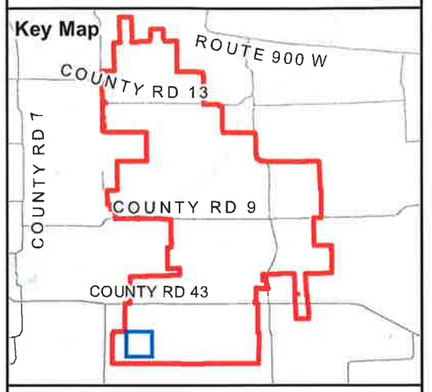
WOD-044

Nation Rise Wind Project

Natural Features Field Map

Area 93





Legend

- Secondary Road
- Land Parcel

air photo interpret MAMM

– airphoto interp. also

SWC E CS1B
SWM E, h CS6
SWD h S2-B
MAMM ne MM

likely intermittent inflow permanent outflow

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT WOD-044

Site: Nation Rise	1756
Polygon: 601030119-A	Area 93
UTM:	
Date: Dec. 7 2016	Time: 12:42 - 12:55
Surveyor(s): Christy Humphreys, Christina Carter	
Weather: 4°C, 90% CC, Wind 1, No precip	

Community Classification

	Vegetation Type:	FOCM2-2 Dry-Fresh White Cedar Coniferous Forest
	Inclusion:	
X	Complex:	MEGM3 D-F Graminoid Meadow

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	Sorficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	4	White Cedar >>> White Ash > Trembling Aspen
3	Understorey	4/5	2	White Cedar > Trembling Aspen
4	Groundcover	5/1		Not visible

HT Codes: 1 >25m 2 25 - 10m 3 10 2m 4 2 1m 5 1 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 - 10% 2 10 25 3 25 60% 4 >60%

Size Class Analysis	A	< 10	O	10 - 24	N	25 - 50	N	> 50
Snags		< 10		10 - 24	N	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar		D	A		
Trembling Aspen		D	O		
White Ash		O			
Scots Pine		R			
Sonicchera sp.					
Tartarian Honeysuckle					
Silky Dogwood					
Riverbank Grape			•		
Hawthorn sp.		•			
Common Apple		•			

Species	Layer 1	2	3	4	Sample
Wild Carrot					
Solidago Sp.					

Wildlife and Other Notes

Surveyed from Roadside

Boulders

Photo 503-505

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-044

Site: Nation Rise	1756
Polygon: C60103011 9-B	Area 93
UTM:	
Date: Dec. 7 2016	Time: 12:55-13:15
Surveyor(s): Christy Humphrey, Christine Carter	
Weather: 4°C, 90% CC, Wind Y, No precip	

Community Classification

Vegetation Type:	SWMM1-1 White Cedar-Hardwood Mineral mixed Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Cave/Cave	Pond	Meadow
Aquatic	Parent Mat	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	6	—
1	Canopy	2	3	Green Ash > White Elm > Trembling Aspen > Balsam Poplar
2	Sub-canopy	3	4	White Cedar > Green Ash > White Elm
3	Understorey	4/5		White Cedar
4	Groundcover	5	Not Visible	

HT Codes: 1 >25m 2 25-10m 3 10-2m 4 2-1m 5 1-0.5m 6 0.5-0.2m 7 <0.2m

Cover Codes: 0 none 1 0-10% 2 10-25 3 25-60% 4 >60%

Size Class Analysis		< 10	A	10 - 24	R	25 - 50	N	> 50
Snags		< 10		10 - 24	N	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5.
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Pine	R				
White Cedar		A	A		
Green Ash	D	A			
White Elm	O	O			
Trembling Aspen	O				
Balsam Poplar	O				

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photo 506

Surveyed from Roadside

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-017

hSS

Area 93-B

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 601030119

Observer(s): Christy Humphries, Christine Carter **ELC Code:** SWMM1-1

Date: Dec. 7 2016 **Time (24h):** 1255-1315

Wetland #: WET-017 **Weather:** Precipitation: — Temp (° C): 4

Veg Community #: hS Wind Speed & Direction: 1 Cloud %: 90

Wetland Type: Swamp **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 506

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 70)	Green Ash (40) > White Elm (20) > Trembling Aspen (15) > Balsam Poplar
c (%: 40)	White Cedar (100)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟿)
  See map.
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
  yes cedars
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat to gently rolling
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  unknown
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT WOD-044

Site: Nation Rise	1756
Polygon: 60103011de-C	
UTM:	
Date: Dec 7 2016	Time: 13:15 - 13:25
Surveyor(s): Christy Humphrey, Christina Barker	
Weather: 4°C, 90% CC, wind 1, No precip	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil?	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland(d)	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carbl Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

Layer	HT	Cover	Species
Super-canopy	1	0	—
1 Canopy	2	4	Green Ash >> Trembling Aspen, White Birch, White Elm
2 Sub-canopy	3		(White Cedar)
3 Understorey	4		Not visible.
4 Groundcover	5		

HT Codes: 1 >25m 2 25 10m 3 10 2m 4 2 - 1m 5 1 0.5m 6 0.5 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 10% 2 10 25 3 25 60% 4 >60%

Size Class Analysis		< 10		10 - 24		25 - 50	> 50
Snags		< 10		10 - 24		25 - 50	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50	> 50

Abundance Codes N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young	X	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	A				
White Birch	R?				
Trembling Aspen	O				
Air photo — also White Cedar					
likely white elm					

Species	Layer 1	2	3	4	Sample

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-017

hS2-A

Area 93-C

Wetland Vegetation Communities

Project Name: NATIONRISE **Project #:** 1756 **Parcel #:** 601030106

Observer(s): Christy Humphrey, Christina Carter **ELC Code:** SWDM2-2

Date: Dec 7 2016 **Time (24h):** 1315 – 1325

Wetland #: WET 017 **Weather:** Precipitation: — Temp (° C): 4

Veg Community #: hS2-A Wind Speed & Direction: 1 Cloud %: 90

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: % **Check one:** ○ central area ○ spread out in ponds

Photos:

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 85)	Green Ash
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, Si-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢) see map
- ◯ human related disturbances (fill, docks, houses, etc)
- ◯ evidence of recreational activities (nature appreciation, fishing, hunting)
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ◯ winter cover for wildlife yes
- ◯ ungulate summer habitat, moose aquatic feeding habitat deer
- ◯ suitability for waterfowl breeding, staging, moulting
- ◯ surrounding topography (flat, rolling, hilly, steep) generally flat
- ◯ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ◯ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed low marsh in watercourse.
- ◯ vernal pools likely but unknown.
- ◯ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

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Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-044

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** Area 93	601030119, 601050106
Date: Dec. 7/16	**Start Time:** 12:43	**End Time:** 13:20	**Observers:** CH, CJC
Weather Conditions: 4°C, 90% cc, wind, no precip			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond	✓		
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor			
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7/16

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 93 601030119, 601030106

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Pond Swamp	1			Pond identified on air photo. Swamp habitat, no stick nests observed from roadside survey.	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Snow Goose	OB	~20	flying over towards W					

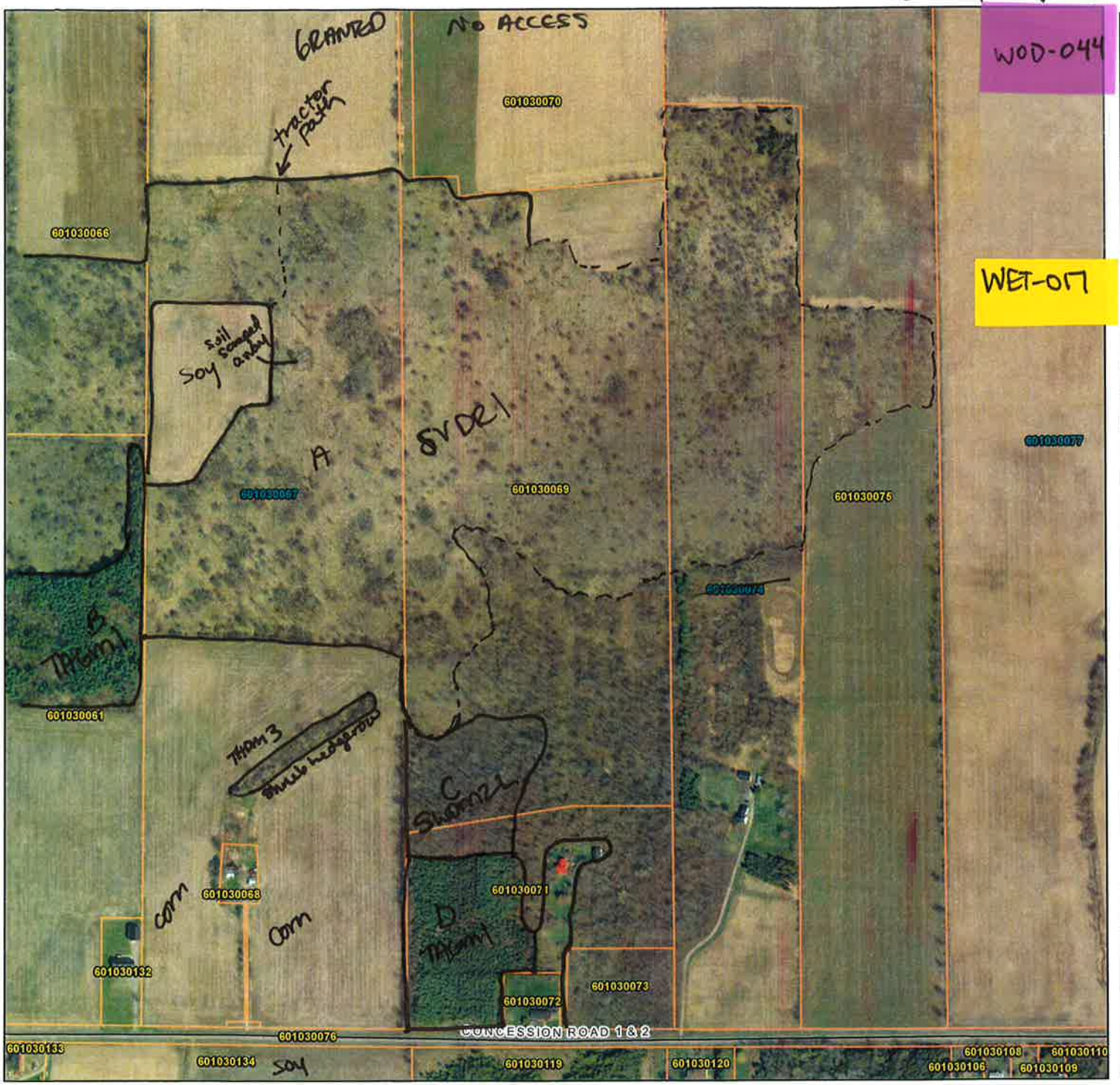
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

JUNE 10, 2016
Christy Humphrey, Carlene Perkin



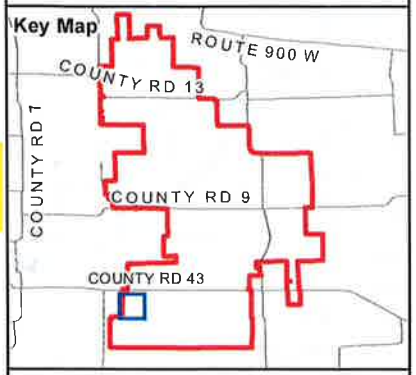
WOD-044

WET-017

Nation Rise Wind Project

Natural Features Field Map

Area 97



Legend

- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

Parcel assessed:
601030067

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-044

Site: Nation Rise	1756
Polygon: Area 97-A	
UTM:	
Date: June 10 2016	Time: 10:15 - 12:40
Surveyor(s): CHRISTY HUMPHREY, CARLENE PERRIN	
Weather: 14°C, CC5%, Wind 3, No precip.	

Community Classification

Vegetation Type:	SVDR1 Dry-Fresh Calcareous Bedrock Deciduous Savannah
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	X Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	X Savannah
X Natural	X Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
X Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
X Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd	Bryophyte	
	X Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	O	—
1	Canopy	2	1	Trembling Aspen > Sugar Maple > White Ash
2	Sub-canopy	3	3	White Elm > Trembling Aspen >> White Ash > Pin Cherry
3	Understorey	4/5	3	Tartarian Honeysuckle = N. Prickly Ash > Hawthorn sp.
4	Groundcover	6/7	4	Smooth Brome > Poa pratensis > Fragaria virginiana > Wild Parsnip

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	R	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 05-2 20.5 (1=canopy 2=sub-canopy 3=understorey 4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm		O	O		
Manitoba maple		R			
Trembling Aspen	R	O			
White Ash	R	O			
Sugar Maple	R	O			
Jack Pine			R		
E. Red Cedar			R		
Bird's foot Trefoil				O	
Garden Valerian				R	
Common St. John's Wort				O	
Orange Hawkweed				O	
Common Blue-eyed Grass				R	
Smooth Rose				D	
Red osier				O	
Red Raspberry				O	
Pin cherry		O	O		
N. Prickly-Ash		O	O	O	
Common Apple		O	R	R	
Tartarian Honeysuckle			O	R	
Pranny berry			R		
Hawthorn sp.		O	O	O	

Species	Layer 1	2	3	4	Sample
Euthamnia graminifolia				R	
Poa pratensis.				A	
Ox-eye Daisy				O	
wild Carrot				O	
Prostrate Coarse-toothed				O	
Fragaria virginiana				O	
Sulphur Fleabane				O	
Field Hawkweed				O	
Smooth Brome				A	
Anemone virginiana				R	
Symphyotrichum ciliolatum				O	
Common milkweed				O	
W. Ia Parsnip				O	
Tansy				O	
Spreading Dogbane				O	
Poa compressa				O	
European Bromwell				O	
Balsam Ragwort				O	
Moss				O	
Bull thistle				O	
Gray Goldenrod				O	
New England Aster				O	
Goldenrod sp.				O	
Potentilla argentia				D	

Wildlife and Other Notes

0, 12, 24 cm soil depth over bedrock

Many trees 10-25 DBH dead or dying likely due to insufficient moisture

Patches of dead/dying ground cover due to seasonal lack of moisture (dry Spring also)

History - likely cleared / tilled + grazed at one point Regeneration.

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	6		
Aspect:	—		
%	0		
Type:	Simple		
Class:	A		

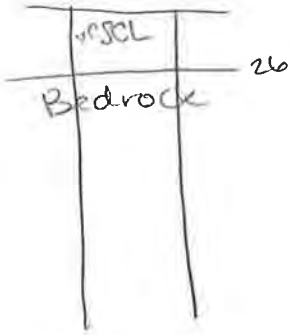
Strata:	Texture	vfSCL		
	Depth	26		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		vfSCL		
Surface Stoniness				
Surface Rockiness				
Depth to:				
	Mottles	—		
	Gley	—		
	Bedrock	26		
	Water table			
	Carbonates	Nak		
Depth of Organics		—		
Pore Size Disc #1		—		
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		0		

Polygon: Area 97-A

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total			
Basal Area			
Snags			

NOTES:



NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Property Line Assessment - No Access WOD-044

Site: Nation Rise	1756
Polygon: Area 97-B	
UTM:	
Date: JUNE 10 2016	Time: 11:20 - 11:30
Surveyor(s): CHRISTY HUMPHREY, C ARLESS PERRIN	
Weather: 14°C, CC 5%, Wind 3 No precip	

Community Classification

Vegetation Type:	TAGM1 Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	X Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
X Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	X Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	X Bedrock	Graminoid	Deciduous	

Stand Description

Layer	HT	Cover	Species
* Super-canopy	1	0	—
1 Canopy	2	0	—
2 Sub-canopy	3	4	Jack Pine >> Red Pine > White Elm
3 Understorey	4 5		not visible
4 Groundcover	6 9		

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		O	< 10	A	10 - 24		25 - 50	> 50
Snags			< 10		10 - 24		25 - 50	> 50
Deadfall/Logs			< 10		10 - 24		25 - 50	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Jack Pine		A			
White Elm		D			
Red Pine		D			
N. Prickly-Ash			X		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT NO ACCESS WOD-044

Site: NATION RISE		1756
Polygon: Area 97-C		601030009
UTM:		
Date: JUNE 10 2016	Time: 1240 - 1245	
Surveyor(s): CHRISTY HUMPHREY, CARLENE PORTER		
Weather: 14°C, 54% CC, WIND 3, No precip.		

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Green Ash > White Elm > Trembling Aspen > Basswood
2	Sub-canopy	3	3	Green Ash, White Elm, Trembling Aspen, common Buckthorn
3	Understorey	4/5		not visible
4	Groundcover	6/7		not visible

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50		> 50 R-ht
Snags		< 10		10 - 24		25 - 50		> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

unknown

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

7.0 2.0 05-2 <0.5

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen	O	O			
Basswood	O				
White Elm	O	O			
Green Ash	A	O			
Hawthorn sp		O			
Common Buckthorn		O			
Riverbank Grape			O		
Nanny berry		O			

Wildlife and Other Notes

Dense

123841

h.ts

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-017

hS4

area 97-C

Wetland Vegetation Communities

Project Name: Nation Trail **Project #:** 1756 **Parcel #:** 460103800 69

Observer(s): Christy Humphreys, Charlene Perkins **ELC Code:** SWDM2-2

Date: June 10 2016 **Time (24h):** 12:40-13:45

Wetland #: WET-017 **Weather:** Precipitation: — Temp (° C): 19

Veg Community #: hS4 Wind Speed & Direction: 3 Cloud %: 5

Wetland Type: S **Site Type:** I **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 123841

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 70)	Green Ash (45) White Elm (20) Trembling Aspen (15)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 40)	Green Ash, White Elm.
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SCL Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) based on nearby soils. Shallow

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees (>6m); c=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: S=swamp; M=marsh; W=open water marsh; B=bog; F=fen

Site Type: L=lacustrine (lake at least 8ha); P=palustrine; R=riverine; IS=isolated

Features to look for in the field:

- ∅ active beaver lodges/dams
- ∅ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ∅ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ∅ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶) none (sol.
- ∅ human related disturbances (fill, docks, houses, etc)
- ∅ evidence of recreational activities (nature appreciation, fishing, hunting)
- ∅ locations of seeps or springs, lagg
- ∅ iron precipitates, marl deposits
- ∅ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat deer.
- ∅ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep) flat.
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools unknown
- ○ invasive species (plant, aquatic) Common Buckthorn.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-044

Site: NATION RISE		1756
Polygon: Area 97 - D		601030071
UTM:		
Date: JUNE 10 2016	Time: 1245 - 1300	
Surveyor(s): CHELSEY HUMPHREY, CHARLENE PERKIN		
Weather: 14°C, 99. CC, WIND 3 NO PRECIP		

Community Classification

Vegetation Type:	TPCOM1	Coniferous Plantation
Inclusion:		
Complex:		

Polygon Description

System		Substrate		Topo Feature			Community			
X	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
	Wetland	X	Mineral Soil		Riverine		Crevice/Cave		Pond		Meadow
	Aquatic		Parent Min.		Bottomland		Alvar		River		Prairie
			Acidic Bedrock		Terrace		Rockland		Stream		Thicket
History			Basic Bedrock		Valley Slope		Beach/Bar		Marsh		Savannah
	Natural		Carb. Bedrock	X	Tableland		Sand Dune		Swamp		Woodland
X	Cultural				Roll. Upland		Bluff		Fen		Forest
		Site			Cliff				Bog	X	Plantation

Cover		Site		Plant Form					
	Open		Open Water		Plankton		Forb	X	Coniferous
	Shrub	X	Surficial Dep		Submerged		Lichen		Mixed
X	Treed		Bedrock		Floating-Lvd		Bryophyte		
					Graminoid		Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2		
2	Sub-canopy	3	4	White Spruce > White Pine >> White Elm
3	Understorey	4/5		not visible
4	Groundcover	4		not visible

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags		< 10		10 - 24		25 - 50		> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

unknown

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:		
Polygon:		
UTM:		
Date:	Time:	
Surveyor(s):		
Weather:		

Layers: 7-10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
White Spruce		A									
Basswood		O									
White Birch		O									
White Pine		A									
Trembling Aspen	R										
White Elm		O									
Common Buckthorn		O									

Wildlife and Other Notes

Hedges w/ deciduous overlap

Wildlife Habitat Field Data Collection

WOD-044

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nelson Rise Ld **Project #:** 1956 **Area and/or Polygon ID:** 97

Date: 11/19/2016 **Start Time:** 10:15 **End Time:** 12:50 **Observers:** CEP, CLH

Weather Conditions: T 11°C W 2NW 60% Precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool	✓		Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond			Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water			Presence of fish
Swamp	✓		**All Swamps**. Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture			Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow			Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	X			Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel			Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles			Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs			Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst			Depth of crevices
Cave			Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes			Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge			Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs			Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water			Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft			Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence			Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed			Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well			**Abandoned Wells Only:** Presence and type of capping		
Old Foundation			**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake			Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium			Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large					
Log Jams, Old Beaver Lodges			Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)			Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat			Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)			Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest			Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah			Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog			Soil type and depths.
Red Spruce or White Oak Forest			Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)			Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges			Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren			Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar			Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)			Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community			Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 10/06/2016

Project Name: Nation Rail WP Project #: 1756 Area and/or Polygon ID: 97

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Savannah		see ELC sheet SVDR1	see ELC sheet	Occasional short Elms. shrub clumps, open patchy.	Brown thrasher Sm. 3
		Shrub/Early Successional		Bird Breeding Habitat	Field Sparrow Sm 1
		# Indicator Species		: 2	Willow Flycatcher Sm 1
		# Common Species:		2. Conf'd SWH.	Clay-coloured Sparrow. Sm 2
Vernal Pool	1	see map - "soil scraped away"	120210 120416	Dry right now, but likely contains water in the spring, Juncus sp., bare soil dried out with cracking.	
Swamp.	1	see map C	See ELC sheet.	no nest bowls obs.	

TY	Species	EV	#	Notes
B	N. Cardinal	S	1	
B	Song sparrow	S	3	
B	Killdeer	S	1	
B	Blue jay	S	1	
B	Am. crow	S	2	
B	Hairy woodpecker	S	1	
B	Black-capped Chickadee	S	1	
B	Am. goldfinch	S	4	
B	Cheek-patch-sided Warbler	S	1	
B	Common grackle	OB	1	
B	Grey-cheeked Flycatcher	S	1	
B	Raven	S	1	
B	Cedar waxwing	OB	1	
D	Dragonfly sp.	OB	1	
1	Arctic Skipper	OB	1	

TY	Species	EV	#	Notes
B	N. Flicker	S	1	
B	Brown thrasher	S	3	
B	Baltimore oriole	S	1	
B	Wood thrush	S	1	
B	Azure sp.	OB	1	
L	Dragonfly dusky wing	OB	1	
B	Field sparrow	S	1	
B	Ruffed grouse	OB	1	Flushed from shrubs
B	Tree Swallow	OB	3	
B	Flowering dove	S	1	
B	House wren	S	1	
B	Alder flycatcher	S	1	
B	Grey catbird	S	1	
B	Willow flycatcher	S	1	
M	E. chipmunk	OB	1	
B	Clouded sulphur	OB	1	
B	Barn swallow	OB	1	
B	Clay-coloured sparrow	S	2	
B	Hybrid V. 100	S	1	
M	White-tailed deer	CATTK	1	
M	Coyote.	SC	1	

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

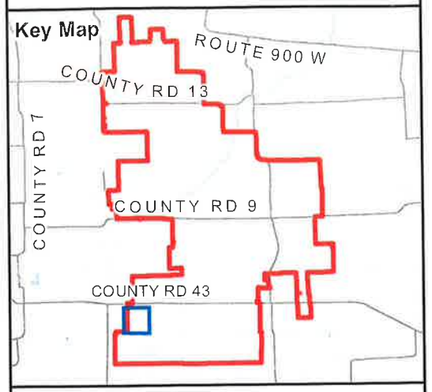
WOD-044

Dec 9, 2016 CMH, CJC

Nation Rise Wind Project

Natural Features Field Map

Area 97



Legend

- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-044

Site: Nation Rise	1756
Polygon: 100103007A-A	ARM 97
UTM:	
Date: Dec. 9 2016	Time: 1155 – 12.15
Surveyor(s): Christy Humphrey	
Weather: -6°C CC 100% Wind 3 No precip	

Community Classification

	Vegetation Type:	WODM5 F-M Deciduous Woodland
X	Inclusion:	FODM4 Dry-Fresh Upland Deciduous Forest
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	X Carb. Bedrock	X Tableland	Sand Dune	Swamp	X Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
X Treed	X Bedrock	Floating-Lvd	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	6	—
1	Canopy	2	1	Basswood > Trembling Aspen > Bur Oak > Ironwood (Incl.)
2	Sub-canopy	3	3	White Elm > Common Buckthorn > Trembling Aspen > White Ash > Crack Willow
3	Understorey	4/5	3	N. Prickly-Ash > Tall Goldenrod > Riverbank Grape > Tartarian Honeysuckle.
4	Groundcover	6		tufted vetch, others not visible.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	D	10 - 24	R	25 - 50	R	> 50
Snags	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer — 710 2-10 0.5-2 <0.5

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Bur Oak	O	O			
White Ash		O			
White Elm		O			
Bitternut Hickory	R	O			
Trembling Aspen	O	O			
Ironwood	R	O	O		
Basswood	O				
Juglans sp.		O			
Crack Willow		O			
HR Norway Spruce	O				
Common Apple		O			
Hawthorn sp.		O			
Red Osier		O		O	
Tartarian Honeysuckle		O	O		
N. Prickly-Ash			O		
Common Buckthorn		O			
Riverbank Grape		O	O		

Species	Layer 1	2	3	4	Sample
Tufted Vetch				O	
Virginia Bower			O		
tall Goldenrod			O		
Reed Canary			O		
Canopy layer 1 zero - Inclusion					

Wildlife and Other Notes

Shallow soil over bedrock.
Bouldery at surface

Photos: 0536
539
540
Incl: 537

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-044

Site: Nature Rise	1756
Polygon: 60\030074-B	Area 97
UTM:	
Date: Dec. 9 2016	Time: 1215 - 1230
Surveyor(s): Christine Hrenchuk, Christine Carter	
Weather: -4°C, 80% CC, WD 1 No precip.	

Community Classification

Vegetation Type:	FODM2-3 D-F. Hickory Decid. Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Planktion	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	3	Bitternut Hickory > Trembling Aspen > White Ash > Juglans SP
2	Sub-canopy	3	4	Bitternut Hickory > Ironwood > (common) Beaked Hazelnut > Alt Lvd Dogwood
3	Understorey	4	1	N. Prickly Ash.
4	Groundcover	4	3	Toxicodendron radicans

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O < 10	O 10 - 24	O 25 - 50	O > 50
Snags	R < 10	R 10 - 24	R 25 - 50	R > 50
Deadfall/Logs	A < 10	O 10 - 24	R 25 - 50	R > 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young		Mid-age	X Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Trembling Aspen	O										
Manitoba Maple		R									
Bitternut Hickory	O	O									
Juglans sp.	O										
Sugar Maple		R									
Ironwood		O									
White Ash	O										
Basswood	O	O									
Alt-Wd Dogwood		O									
Toxicodendron radicans				O							
N. Prickly Ash			O								
Common Ruckthorn		O									

Wildlife and Other Notes

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise WP.	1756
Polygon: 100103007A-C	DNA97
UTM:	
Date: Dec. 9 2016	Time: 11:40 - 11:50
Surveyor(s): Christy Humphrey	
Weather: -6°C, CC 100%, Wind 2 No precip	

Community Classification

Vegetation Type:	MEMM4 FM Mixed Meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
X Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	X Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep.	Floating-Lvd	Bryophyte	
	Bedrock	X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	0	—
3	Understorey	3/4	4	tall goldenrod > Reed canary > Asters sp. > Wild carrot
4	Groundcover	4/1	4	Cleavers, others not visible.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Red Osier				D	

Species	Layer 1	2	3	4	Sample
Tall Goldenrod			A		
Reed Canary			A		
Wild Carrot			O		
Cleavers				O	
Symphyotrichum sp.			O		
Wild Parsnip			O		

Wildlife and Other Notes

Photo: 535.

Old horsetrack.

WOD-044

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** Area 97	601050074
Date: Dec. 9/16	**Start Time:** 11:50	**End Time:** 12:35	**Observers:** CH, CaC
Weather Conditions: −4°C, 80% CC, wind 1, snow on ground			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor Trail WOD	✓		
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc)
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest	✓	✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah	✓		Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)	✓	✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community	✓		Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Project Name:	Nation Rise	Project #:	1756	Date:	Dec. 9/16	Area and/or Polygon ID:	Area 97	601030074

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Trail	1	—	—	snowmobile, walking trail runs throughout property	White-tailed Deer tracks, see below.
Savannah	1	Refer to ELC map.	see photos 536	Habitat type.	None
Stone wall Fence	1	Refer to ELC map.	—	~1.5m wide, medium-large sized rocks, 0.5m tall. (too shallow for SNH)	None
Woods	1	see map	538 – 540.	see ELC sheet. Quite thicketty (tall) with regrowth. Patchy. Trails thru on this property	None
FODM2-3 Bitternut Hickory Dom Forest.	1	see map.	—	common buckthorn prevalent. Large mix of species, Bitternut Hickory most dominant but many other trees too.	NA

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Snow Goose	OB	~200	flying over towards S, 2 flocks					
M	White-tailed Deer	TK	1	tracks in snow					
B	Canada Goose	OB	~60						
M	Squirrel (red)	OB	3						
B	Black-capped Chickadee	S	10						
B	White-breasted Nuthatch	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

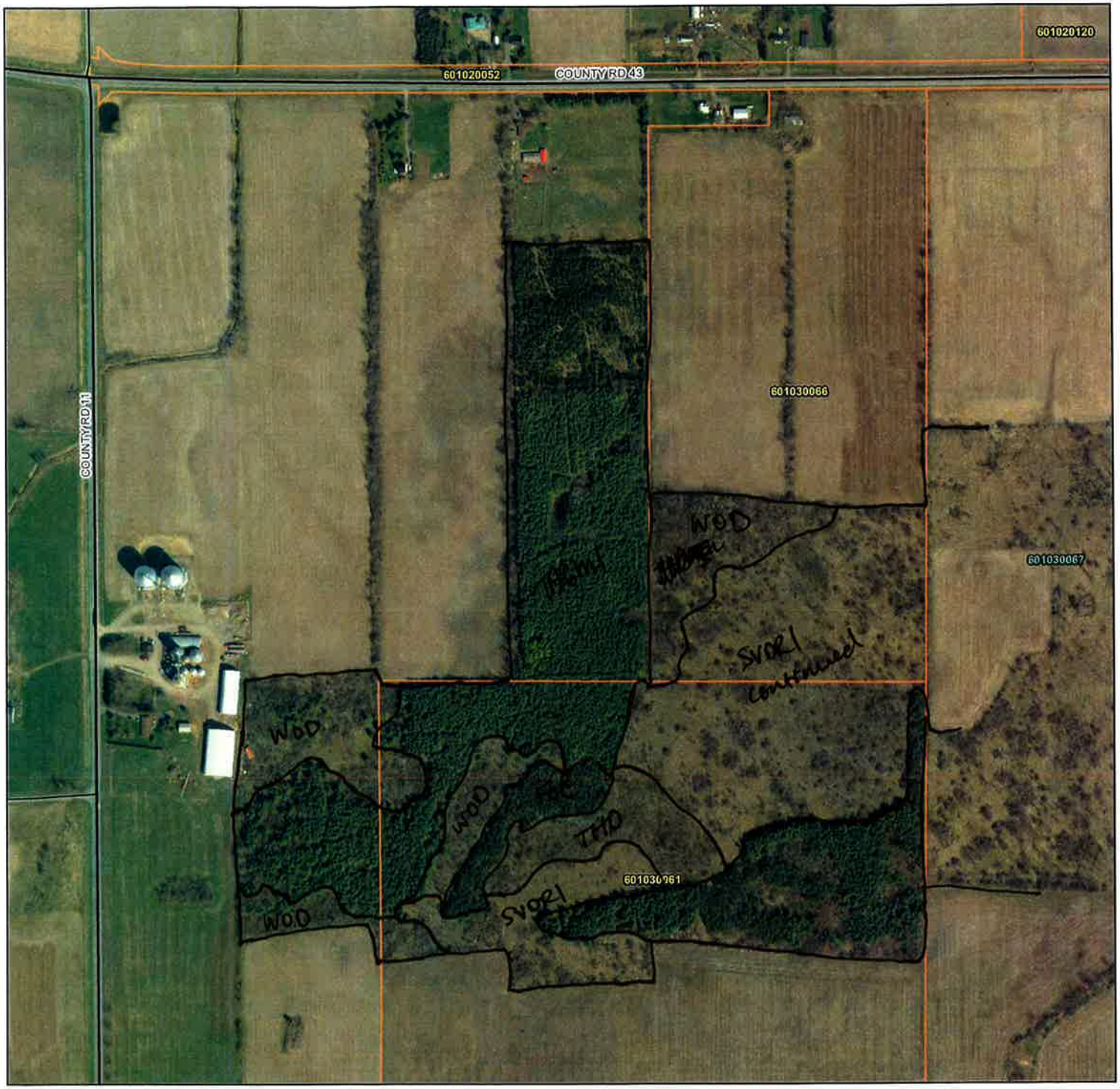
Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young

FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

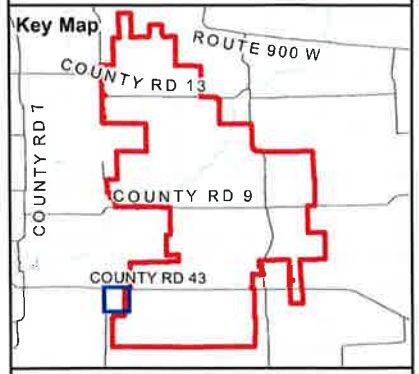
CLH



Nation Rise Wind Project

Natural Features Field Map

Area 97



Legend

- Primary Road
- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

air photo interpretation

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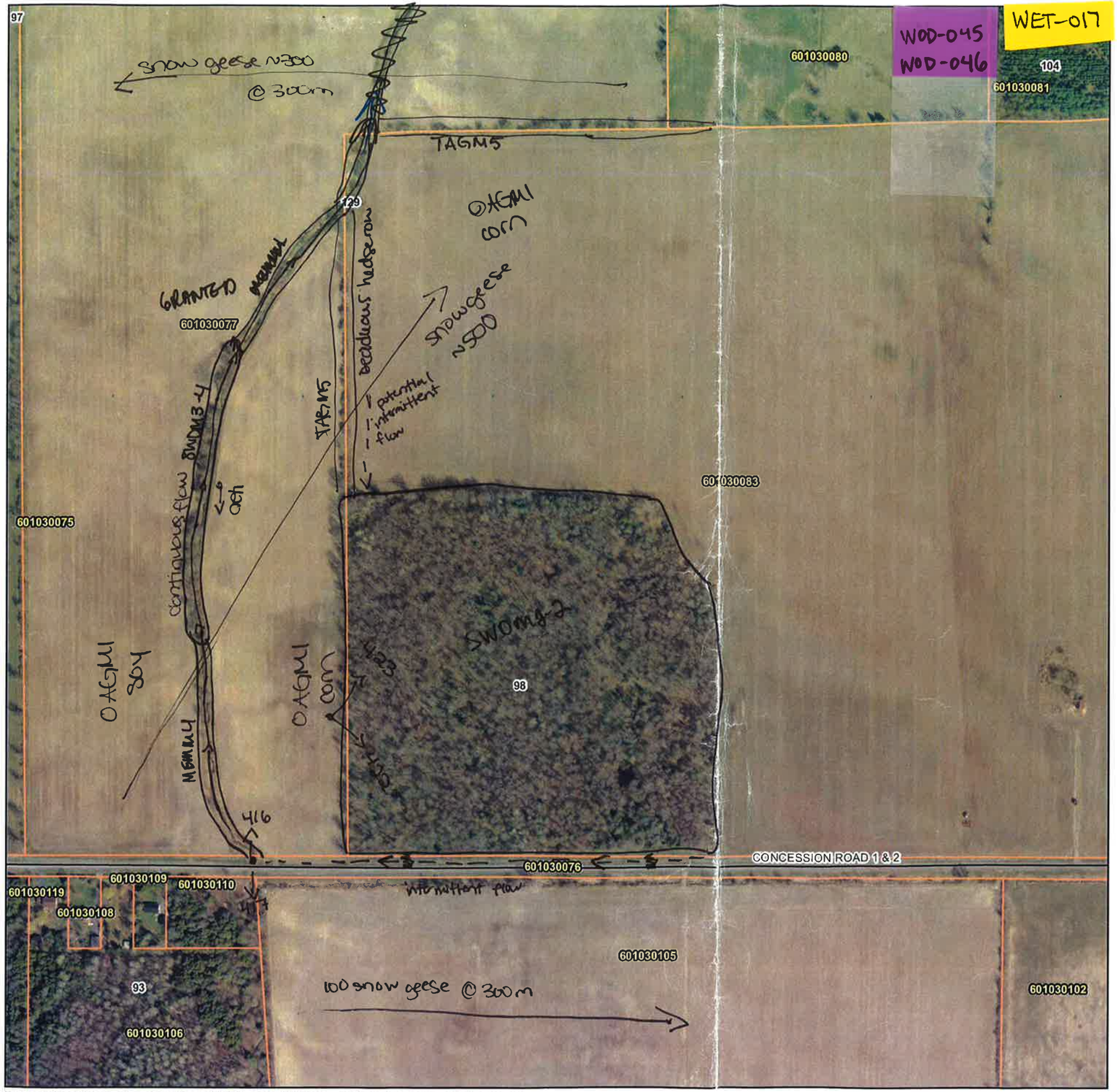
Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

Dec 7 2016
EMB KLB



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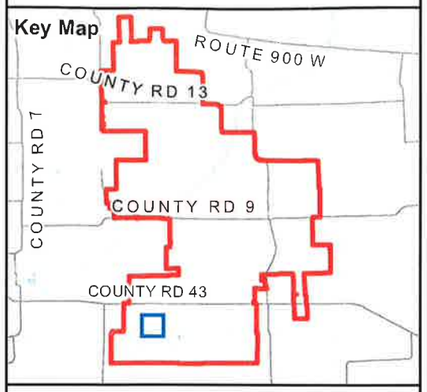
Nation Rise Wind Project

Natural Features Field Map

Area 98 & 129



Legend

- Secondary Road
- Land Parcel

601030077 Granted

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:5,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

WOD-045

Site:	1756 Nation Rise Wind Project
Polygon:	Feature 129 - 601030077
UTM:	
Date:	Dec 7 2016 Time: 9:25-10:40
Surveyor(s):	~~PWD~~ EMB KLB
Weather:	1°C 100% CC Wind 2E Precip: None

Community Classification

	Vegetation Type:	SWDM 3-4 Manitoba Maple Mineral Deciduous Swamp
X	Inclusion:	MEMM4 Fresh-Moist Mixed Meadow
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	X Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	3	Green Ash > Manitoba Maple
2	Sub-canopy	3	3	Manitoba Maple > Green ash
3	Understorey	4	2	Manitoba maple > Silky dogwood
4	Groundcover	6	3	meadow ~~fescue~~ tall goldenrod > marsh grass

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	R	25 - 50	R	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
tall goldenrod			O		
marsh grass			O		
late goldenrod			R		
wild carrot			R		
grass sp.			O		
riverbank grape			R	R	
jumpseed				R	
cow parsnip			R		
~~narrow leaved cattail~~			R		
common milkweed			R		
thistle sp				R	
Manitoba maple	D	D			
Green Ash	D	D			
silky dogwood			O		

Species	Layer 1	2	3	4	Sample
white elm		P			
Silky dogwood			R		
juglans sp		R			
~~manitoba maple~~		R	R		
Sandbar willow			R		
greenash		R	R		
red raspberry			R		
fowl meadow grass				O	
meadow fescue			O		
tall goldenrod			O		
riverbank grape			R		
rose sp.				R	
black raspberry			O		
prickly cucumber			R	R	
~~manitoba~~ burdock			R		
cow parsnip			O		
jumpseed				R	
sedge sp				O	

Wildlife and Other Notes

soil = silty clay loam >100cm depth, wet
riparian along creek inflow north

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Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-017

hS3-A

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601030077
Observer(s): EmB KLB		**ELC Code:** SWDM3-4
Date: Dec 7 2016	**Time (24h):** 9:25-10:40	
Wetland #: WET-017	**Weather:** Precipitation: None	Temp (° C): 1°C
Veg Community #: hS3-A	Wind Speed & Direction: 2 SE	Cloud %: 100%
Wetland Type: Swamp	**Site Type:** Riverine	**Dominant Form:** Treed h
Permanent Open Water: 20 %	**Check one:** ⊗ central area ○ spread out in ponds	
Photos: 416, 417, 420, 421		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%60)	Manitoba maple > Green Ash
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:20)	Silky dogwood
ls (%:)	
gc (%:10)	tall goldenrod
ne (%:40)	grass sp. > fowl meadow grass
be (%:)	
re (%:5)	narrow-leaved cattail
≥10% ff (%:0)	
≥10% f (%: 0)	
≥10% su (%: 0)	
m (%:)	
u (%:)	

Soil type: SICL Mineral ☒ Organic ☐ Depth of organics: 2 cm Organic Type: F M (H) Depth to bedrock: 75+ cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

snow geese ~50 flying overhead (see map) @ ~300 m
black-capped chickadee observed

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: S=swamp; M=marsh; W=open water marsh; B=bog; F=fen

Site Type: L=lacustrine (lake at least 8ha); P=palustrine; R=riverine; IS=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ☒ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  See field notes
- ☒ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  snow geese flying overhead, Canada Geese
- ○ plant species (wild rice, cranberries)
- ☒ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  permanent inflow & outflow via creek
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  hunting heard in adjacent lot
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ☒ surrounding topography (flat, rolling, hilly, steep)
  flat
- ☒ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ☒ dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ☒ crops; ☒ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ☒ fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ☒ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  permanent swamp
- ○ vernal pools
  None observed
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-045

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** Feature 179	
Date: Dec. 7/16	**Start Time:** 9:25	**End Time:** 10:40	**Observers:** KLR PWD EMB
Weather Conditions: Temp 1°C Wind 2E CC: 100% Precip: None			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians.
Spring Flooded Field		X	
Vernal Pool		X	
Pond		X	
Shallow Marsh (MAS) or Open Water		X	
Swamp	X		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		X	
Meadow	X		
Thicket, Woodland, Hydro Corridor		X	
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles	X		Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		X	
Old Rock or Debris Pile, Old Stone Fence		X	
Abandoned Road or Rail Bed		X	
Abandoned Well		X	
Old Foundation		X	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		X	
Medium		X	
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec 7, 2016

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Feature 129

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Meadow	1	see map	416, 417	Refer to ELC sheet - adjacent small riparian meadow inclusion (MEMM4)	None
Banks	1	see map	421	too small to provide habitat	None
Swamp	1	see map	420	SWDMB-4 Manitoba Maple Mineral Deciduous Swamp	None.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Black Capped Chickadee	S	"						
B	Canada Geese	OB	165	Flying Overhead					
B	Snow Geese	OB	500	Flying Overhead					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM, SWD, SWM

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Project Name: Nation Rise Project #: 1756

Start Time 14:51 End Time 15:24 Date: Feb 2, 2017 Observer(s): JBB, AMC

Area # 129 Parcel Numbers 601030077 Weather Conditions: -5°C, ~100%, w | W, light snow

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: ____)	Comments
Plot 1			
Plot 2			
Plot 3			too narrow for plots
Plot 4			
Plot 5			inventory conducted, see below
Plot 6			
Plot 7			
Plot 8			
Plot 9			
Plot 10			
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots)
Plots = 0.05ha or 12.6m radius
Select plots randomly

Identification of Suitable Candidate Wildlife Trees for Evaluation of Significance

Identify the best candidate wildlife trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 25

Tree #	Species	# of Cavities	DBH (cm)	18T UTM	Photo Number(s)
1	Manitoba maple	3	≥40	0488607 4995136	186-187
2	White Ash	1	≥100	0488577 4995465	188-189
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Candidate Trees / ~~(# Plots × 0.05~~ ha)

Final Wodland Tally = 2 / 0.904ha = 2.21 **> or = 10/ha? Yes / No**

If >10/ha: BMA-____

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Forest Composition

Forest Description (e.g. ELC Ecosite):

Tree Species	Abundance D= dominant (>50%) A=abundant (35-50%) O = occasional (2-35%) R = rare (<2%)

Woodland Photos

Photo Number	Photo Number
184-189	

Community Age

X Young ___ Mid-Age ___ Mature ___ Old-Growth

Supplementary Information, Incidentals

Poor cavities, large majority of trees far too young

Description of general character of snags/cavity trees

Sketch candidate trees with multiple cavities, identifying the location of cavities

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 601030077 Area 129

Date: Dec 7 2016 **Start Time:** 14:50 **End Time:** 1524 **Observers:** JBB

Weather Conditions: 1°C 100% CC, WNW 2E No precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb 2, 2017

Project Name: Natron Rise Project #: 1756 Area and/or Polygon ID: 601030077 Area 129

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp	1			Small riverine green ash swamp community. No stick nests	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PROPERTY LINE ASSESSMENT WOD-046

Site:	1756 Nation Rise Wind Project
Polygon:	Area 9B - 6d6208B3 - Roadside & Adjacent Property
UTM:	
Date: Dec 7 2016	Time: 10:45 - 12:00
Surveyor(s): ~~PWD~~ EMB KLB	
Weather: 10C	cl: 100% Precip: none wind 3SW

Community Classification

Vegetation Type:	CUDM2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		X Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd	Bryophyte	
			Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	-	NA	NA
1	Canopy	2	4	Green Ash > Sugar Maple
2	Sub-canopy	3	4	Green Ash > Hop Hornbeam
3	Understorey	4	3	E Buckthorn
4	Groundcover	7	2	

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	B	10 - 24	R	25 - 50	R	> 50
Snags	N	< 10	N	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	R	< 10	O	10 - 24	O	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		X Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of 1

PLANT SPECIES LIST

Site:	1756 Nation Rise Wind Project
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	PWD
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	O	R			
Green Ash	D	O			
Manitoba Maple		R			
White Elm		R			
Hophornbeam	R	O			
Bur oak	O	O			
Bitternut Hickory		R			
white cedar		R			
Eastern Cottonwood	R	R			
E. Buckthorn			R		

Species	Layer 1	2	3	4	Sample
riverbank Grape			R		
Common Ninebark			R	R	
Red osier				R	

Wildlife and Other Notes

See Wildlife Form and Wetland Form

Signs of higher water levels on tree root flare

moss present on root flare

photos 422, 423

PROPERTY LINE ASSESSMENT — Roadside / Adjacent Property

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-017

hS3-B

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 17576 **Parcel #:** 60103-083 – Area 4A

Observer(s): EMR KLB **ELC Code:** SWDM2-2

Date: Dec 7 2016 **Time (24h):** 10:45 – 12:00

Wetland #: WET-017 **Weather:** Precipitation: None Temp (° C): 1°C

Veg Community #: hS3-B Wind Speed & Direction: 2 SW Cloud %: 100 %

Wetland Type: Swamp **Site Type:** ~~Palustrine~~ **Dominant Form:** Deciduous Treed

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 422-423

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:95)	Green Ash (60%) > Bur oak (20%) > Hop Hornbeam (10%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 5)	E. Buckthorn
ls (%: 0)	
gc (%:)	
ne (%: 25)	grass sp? sedge sp.
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%: 5)	moss sp.
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: ~2 cm Organic Type: F M H Depth to bedrock: 760 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

snow geese flying overhead (~300 @ 300m)
black capped chickadee
grey squirrel

* see wildlife form

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: S=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ⊗ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  200 small geese, canada geese (flying overhead)
- ○ plant species (wild rice, cranberries)
- ⊗ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  See map - late, bitterot
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; ⊗ dec. forest; O recent cutover or clearcut (<5yr); ⊗ conif. forest; ⊗ mixed forest; ⊗ crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ⊗ fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-046

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Wabamik SC	**Project #:** 1756	**Area and/or Polygon ID:** Feature 92	
Date: Oct 7/16	**Start Time:** 10:45	**End Time:** 12:20	**Observers:** EMS PWD KLS
Weather Conditions: Temp 1°C Wind 2E CC=100% Precip=None			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		X	Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		X	Vegetation species, woody debris/basking logs within water Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp		X	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation Size of site Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		X	Evidence of small mammals Frequency and source of disturbance Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		X	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		X	Age Depth into the ground Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size Vegetation present Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		X	Diameter of entrance Soil Type Availability of aquatic vegetation or fish
Medium		X	Ecosite of location Proximity to water and type of water Evidence of use, or tracks or digging marks
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs)
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: December 7/16

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Feature 98

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
None observed from property line.					

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Canada Goose	OB	45	Flying Overhead					
B	Snow Geese	OB	500	Flying Overhead					
B	Woodpecker sp	S	1	Heard tapping in trees					
B	Black-Capped Chickadee	OB	4						
M	Grey Squirrel	OB	1						
M	Red Squirrel	OB	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

PROPERTY LINE ASSESSMENT

Dec. 7 2016 Christy Humphrey Christina Carter

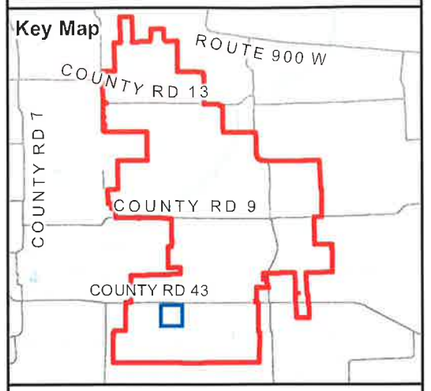
WET-018

WOD-047

Nation Rise Wind Project

Natural Features Field Map

Area 104



Legend

— Secondary Road

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:5,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02.LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-047

Site: Nation Rise	1756
Polygon: 601030092	Area 104
UTM:	
Date: Dec 7 2016	Time: 13:44 - 14:00
Surveyor(s): Christy Humphrey, Christina Caster	
Weather: 3°C, cc 75%, wind 1, No precip	

Community Classification

Vegetation Type:	FoDM5-8 Dry-Fresh Sugar maple-white Ash Deciduous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
-	Super-canopy	1	0	—
1	Canopy	2	4	Sugar Maple >> White Ash > Am Beech.
2	Sub-canopy	3	4	Sugar Maple > White Ash > White Elm > Basswood
3	Understorey	4/5	1	very open understory.
4	Groundcover	6/7		Not visible.

HT Codes: 1 >25m 2 25 10m 3 10 2m 4 2 1m 5 1 0.5m 6 0.5 - 0.2m 7 <0.2m

Cover Codes: 0 none 1 0 - 10% 2 10 - 25 3 25 60% 4 >60%

Size Class Analysis	A	< 10	R	10 - 24	O	25 - 50	O	> 50
Snags		< 10		10 - 24		25 - 50		> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes N: None R Rare O Occasional A Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth
				X	

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Sugar Maple	D	D			
Norway Spruce	R				
White Elm		O			
Am Beech.	O	O			
White Ash	O	O			
Basswood		R			
White Cedar		R			
White Pine	R				
Staghorn Sumac		R			
Riverbank Grape		O	O		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Surveyed from Roadside
Several large DBH Sugar Maples with cavities.
photos: 509-510

WOD-047

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation River	**Project #:** 1756	**Area and/or Polygon ID:** Area 104	601030092
Date: Dec. 7/16	**Start Time:** 13:44	**End Time:** 14:00	**Observers:** CH, CSC
Weather Conditions:			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth) Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation Size of site Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals Frequency and source of disturbance Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age Depth into the ground Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size Vegetation present Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance Soil Type Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location Proximity to water and type of water Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag	✓		Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)	✓		Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 7/16

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 104 601030092

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Cavity trees	Multiple	—	—	Sugar Maple. Multiple cavity trees observed from roadside. 1 dead snag observed. All large DBH trees.	None observed

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	White-breasted Nuthatch	S	1						
B	Black-capped Chickadee	S	1						
B	Downy Woodpecker	S	1						
B	American Crow	S	2						
B	American Gold Finch	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

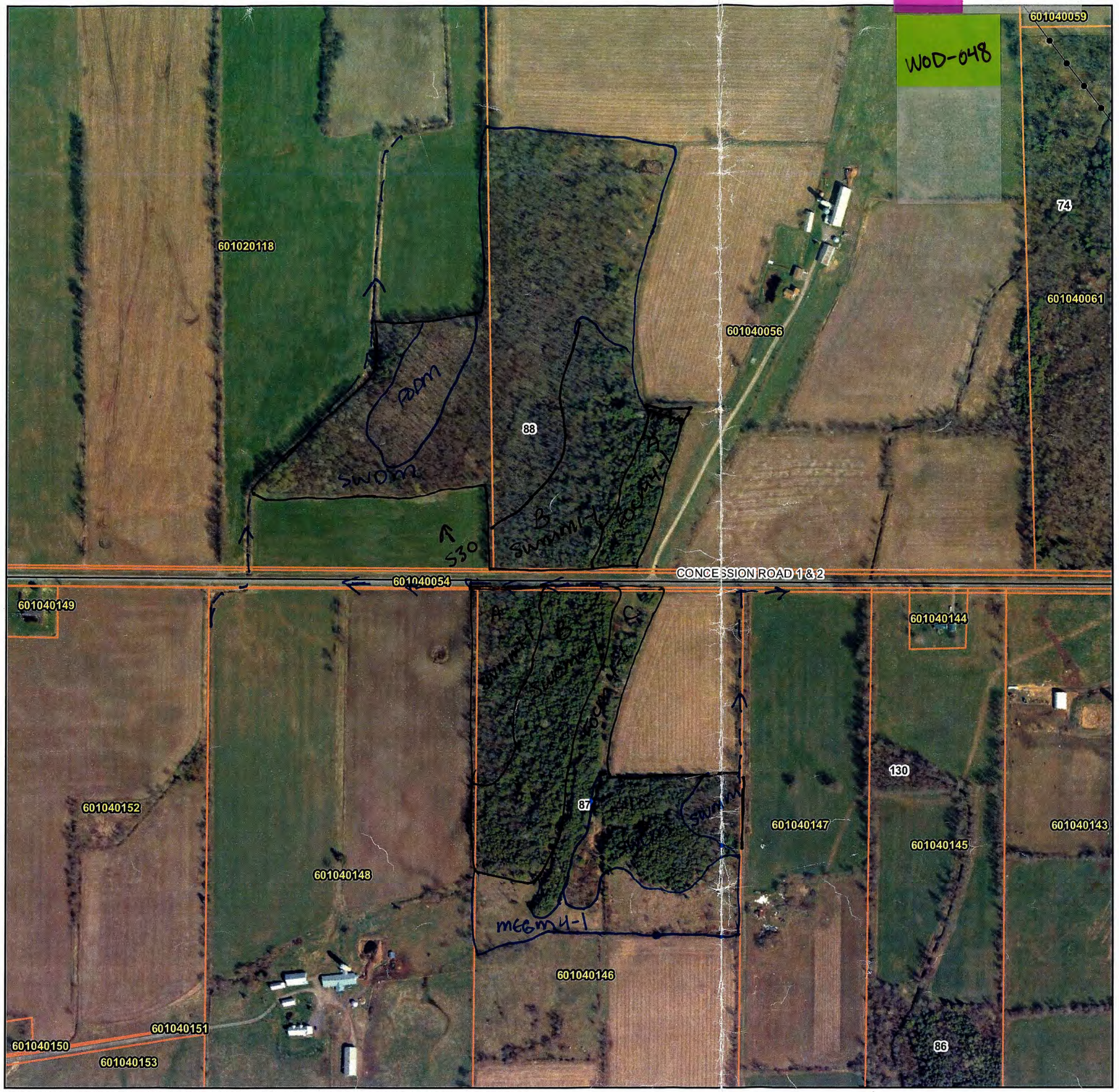
PROPERTY LINE ASSESSMENT

WET-018

WOD-048

Dec 9 2016
Christy H. Caroline C.

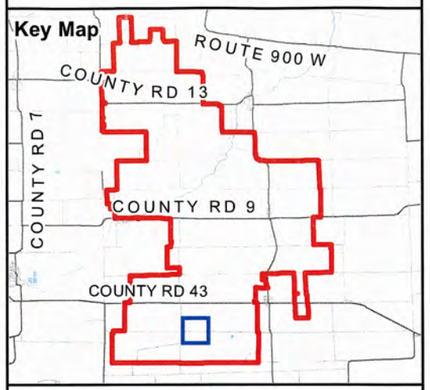
— air photo interp



Nation Rise Wind Project

Natural Features Field Map

Area 87 & 88



Legend

- Utility Line
- Secondary Road
- Land Parcel

Property Line Assessment

— air photo interp.

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Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT — WOD-048

Site:	Nation Rise — 1756
Polygon:	601040446 - A. — A120 87
UTM:	
Date:	Dec. 9 2016 — Time: 10:40 - 1045
Surveyor(s):	Christy Humphrey
Weather:	-6°C, 4cm, Wind 2. No precip.

Community Classification

Vegetation Type:	SWmm1-1 White Cedar-Hardwood mineral mixed Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep.	Submerged	Lichen	X Mixed
X Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	0	0	—
1	Canopy	1	3	Green Ash
2	Sub-canopy	2	4	White Cedar
3	Understorey	3	0	—
4	Groundcover	5	< 1	White Cedar

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 70 2-10 0.5-2 <0.5. — 1=canopy 2=sub-canopy 3=understorey 4=ground layer

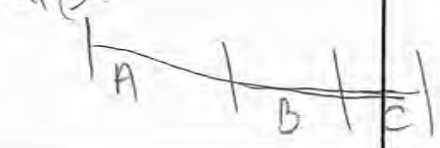
Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Green Ash	O										
White Cedar		D		R							
Juglans sp.		R									

Wildlife and Other Notes

Photo: 534

Surveyed from Roadside.



PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-018

CS4

Wetland Vegetation Communities

area 87-A

Project Name: Nation Rise WP. **Project #:** 1756 **Parcel #:** 60104 0146

Observer(s): Christy Humphrey, Christine Carter **ELC Code:** SWmm1-1

Date: Dec. 9 2016 **Time (24h):** 1040-1045

Wetland #: WET-018 **Weather:** Precipitation: — Temp (° C): -6

Veg Community #: CS4 Wind Speed & Direction: 2 Cloud %: 0

Wetland Type: S. **Site Type:** P **Dominant Form:** C

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 537

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 40)	Green Ash (90)
c (%: 70)	White Cedar (100)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟿)
  none. Isol.
- ○ human related disturbances (fill, docks, houses, etc)
  (clearing of ROW occurred at edge of feature recently)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
  yes. cedar.
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  gently rolling / flat.
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  Unknown.
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT WOD-048

Site: Nation Rise	1756
Polygon: 601040146-B	Area 87
UTM:	
Date: Dec. 9 2016	Time: 10:45 - 10:55
Surveyor(s): Christy Humphrey, Christina Carter	
Weather: -6°C, CC0%, wind 2, No precip.	

Community Classification

Vegetation Type:	SWCM1-1 White Cedar mineral Coniferous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	X Coniferous
Shrub	X	Surficial Dep.	Submerged	Lichen	Mixed
X Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	4	White Cedar (dense)
3	Understorey	4/5	0	—
4	Groundcover	6/7	<1	White Cedar, bare

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
White Cedar		D		R							

Wildlife and Other Notes

Photo 532
Surveyed from Roadside.

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-018

cS2

area 87-B

Wetland Vegetation Communities

Project Name: Nathan Rise	**Project #:** 1756	**Parcel #:** 60104 0146.	
Observer(s): Christy Humphrey, Christina Carter.		**ELC Code:**	
Date: Dec. 9, 2016	**Time (24h):** 1045-1055.		
Wetland #: WET-018	**Weather:** Precipitation: —	Temp (° C): -6	
Veg Community #: cS2	Wind Speed & Direction: 2	Cloud %: 0	
Wetland Type: S.	**Site Type:** P	**Dominant Form:** C	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos: 532			

Forms (>25% absolute cover)		Dominant Species (give % relative cover)
h (%:)		
c (%: 95)		White Cedar (100).
≥10%	dc (%:)	
	dh (%:)	
ds (%:)		
ts (%:)		
ls (%:)		
gc (%:)		
ne (%:)		
be (%:)		
re (%:)		
≥10%	ff (%:)	
	f (%:)	
	su (%:)	
m (%:)		
u (%:)		

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

dense.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  none. Isol
- ○ human related disturbances (fill, docks, houses, etc)
  road ROW was cleared recently - edge.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
  cedars.
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat - rolling gently
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  unknown - unlikely, very dense.
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-048

Site: Natron Rise		1756
Polygon: 601040146 - C		Area 87
UTM:		
Date: Dec 9 2016	Time: 10:55 - 11:02	
Surveyor(s): Christy Humphrey, Christine Carter		
Weather: -6°C, 0% CC, Wind 2 No precip.		

Community Classification

Vegetation Type:	FOCM4-1 Fresh-Moist White Cedar Coniferous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
[X] Terrestrial	[ ] Organic	[ ] Lacustrine	[ ] Talus	[ ] Lake	[ ] Barren
[ ] Wetland	[X] Mineral Soil	[ ] Riverine	[ ] Crevice/Cave	[ ] Pond	[ ] Meadow
[ ] Aquatic	[ ] Parent Min.	[ ] Bottomland	[ ] Alvar	[ ] River	[ ] Prairie
	[ ] Acidic Bedrock	[ ] Terrace	[ ] Rockland	[ ] Stream	[ ] Thicket
History	[ ] Basic Bedrock	[ ] Valley Slope	[ ] Beach/Bar	[ ] Marsh	[ ] Savannah
[X] Natural	[ ] Carb. Bedrock	[ ] Tableland	[ ] Sand Dune	[ ] Swamp	[ ] Woodland
[ ] Cultural		[X] Roll. Upland	[ ] Bluff	[ ] Fen	[X] Forest
	Site	[ ] Cliff		[ ] Bog	[ ] Plantation

Cover		Open Water	Plant Form		
[ ] Open	[ ] Shallow Water	[ ] Plankton	[ ] Forb	[X] Coniferous	
[ ] Shrub	[X] Surficial Dep.	[ ] Submerged	[ ] Lichen	[ ] Mixed	
[X] Treed	[ ] Bedrock	[ ] Floating-Lvd.	[ ] Bryophyte		
		[ ] Graminoid	[ ] Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	2	Trembling Aspen
2	Sub-canopy	3	4	White Cedar >> White Ash.
3	Understorey	4 5		not visible
4	Groundcover	5		not visible

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags			< 10		10 - 24		25 - 50		> 50
Deadfall/Logs			< 10		10 - 24		25 - 50		> 50

not visible

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth
	[ ]	[X]	[X]	[ ]	[ ]

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

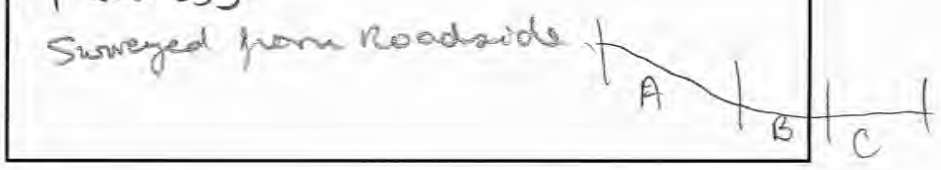
Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen	O				
White Cedar		D			
White Ash		O			

Species	Layer 1	2	3	4	Sample
Wild Parsnip					

Wildlife and Other Notes

Photo 533
Surveyed from Roadside



WOD-048

Wildlife Habitat Field Data Collection — Property Line Assessment

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** Area 87	601040146
Date: Dec. 9/16	**Start Time:** 10:35	**End Time:** 10:43	**Observers:** CH, CJC
Weather Conditions: −8°C, 50% cc, wind 1, snow on ground			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation. Size of site. Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals. Frequency and source of disturbance. Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor Trail	✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age. Depth into the ground. Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size. Vegetation present. Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use. Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance. Soil Type. Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location. Proximity to water and type of water. Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 9/16

Project Name: Watson Rise | Project #: 1756 | Area and/or Polygon ID: Area 87 601040 146

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Trail	1	—		Trail ~1.5m wide runs through habitat.	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Dark-eyed Junco	OB	2						
B	American Crow	S	1						
M	White-tailed Deer	OB	3	crossing street from S to N					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

PROPERTY LINE ASSESSMENT

WOD-048

Site: Nations Rise	1756
Polygon: 601040056-A	Area BB
UTM:	
Date: Dec. 9 2016	Time: 10:27 - 1035
Surveyor(s): Christy Humphreys, Christina Carter	
Weather: -6°C, 80%, wind 0, No precip.	

Community Classification

Vegetation Type:	FOCM4-1 fresh-moist White Cedar Coniferous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	<1	Trembling Aspen
2	Sub-canopy	3	4	White Cedar > White Ash > Trembling Aspen > Sugar maple
3	Understorey	4		not visible
4	Groundcover	5		white cedar, others not visible

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	N	25 - 50	N	> 50
Snags		< 10		10 - 24	N	25 - 50	N	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

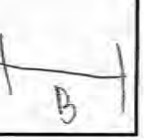
Species	Layer 1	2	3	4	Sample
White Cedar		A		O	
White Spruce		R			
White Ash		O			
Trembling Aspen	R	O			
Sugar Maple		R			
Staghorn Sumac		R			
N. Prickly Ash		O			

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Photo 528

Surveyed from Roadside



NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-048

Site: Nation Rise	17516
Polygon: 601040056-B	Area 88
UTM:	
Date: Dec. 9 2016	Time: 10:35 - 10:40 , 11:05 - 1110
Surveyor(s): Christy Humphrey, Christina Carter	
Weather: -6°C CC 0% wind 2 No precip	

Community Classification

Vegetation Type:	SWMM1-1 White Cedar-Hardwood mineral mixed Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	X Shallow Water	Submerged	Lichen	X Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	3	Green Ash > Trembling Aspen
2	Sub-canopy	3	4	White cedar > Green Ash > Trembling Aspen > Balsam Fir.
3	Understorey	4/5	1	White Cedar > Red Osier
4	Groundcover	6/7	3	Sedges > White Cedar > Balsam Fir.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5 (1=canopy 2=sub-canopy 3=understorey 4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar		A	O	D	
Trembling Aspen	O	O			
Green Ash	O	O			
Balsam Fir.		O		O	
Red Osier		R			
Common Buckthorn		R			

Species	Layer 1	2	3	4	Sample
Sedges				O	
Wild Parsnip			R		

Wildlife and Other Notes

Surveyed from Roadside (5) C

Photo. 529

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-018

hS3

Wetland Vegetation Communities

Area 88-B

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 600104056	
Observer(s): Christy Humphrey, Christina Carter		**ELC Code:** SWMM1-1	
Date: Dec. 9 2016	**Time (24h):** 1035 - 1040. 1105-1110		
Wetland #: WET-018	**Weather:** Precipitation: —	Temp (° C): -6	
Veg Community #: hS3	Wind Speed & Direction: 2	Cloud %: 0	
Wetland Type: S	**Site Type:** P.	**Dominant Form:** h	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos: 529			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 65)	Green Ash >> Trembling Aspen, others
c (%: 35)	White Cedar (100)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; F=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ⊘ active beaver lodges/dams
- ⊘ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ⊘ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ⊘ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  See map.
- ⊘ human related disturbances (fill, docks, houses, etc)
- ⊘ evidence of recreational activities (nature appreciation, fishing, hunting)
- ⊘ locations of seeps or springs, lagg
- ⊘ iron precipitates, marl deposits
- ○ winter cover for wildlife
  yes cedars.
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- ⊘ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  generally flat, gently rolling at times (meanders)
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  unknown
- ○ invasive species (plant, aquatic)
  wild parsnip

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection — Property Line Assessment — WOD-048

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** Area 68 EO1040056	
Date: Dec. 9/16	**Start Time:** 10:27	**End Time:** 10:35	**Observers:** CH, CJC
Weather Conditions: -8°C, 5% CC, wind 1, snow on ground			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor Trail	✓		
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag N/A			Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead) N/A			Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Dec. 9/16

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: Area 88 601040056

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Trail	1	—		Trail ~1.5m wide through habitat.	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Dark-eyed Junco	OB	10						
M	White-tailed Deer	OB	3	crossing street from S to N					

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Feb 2 2017
JBB, AWE

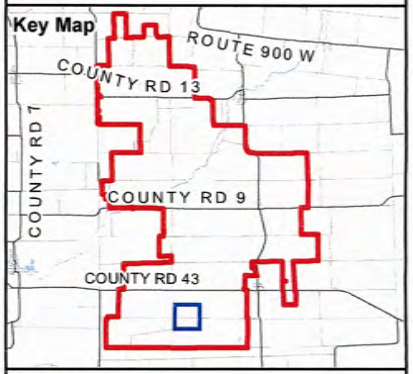
WOD-048

WET-018

Nation Rise Wind Project

Natural Features Field Map

Area [redacted] 88



Legend

- Utility Line
- Secondary Road
- Land Parcel

NATURAL RESOURCE SOLUTIONS INC.
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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756	NAD83 - UTM Zone 18
Date: November 2, 2016	Size: 8.5 x 11"
	1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-048

Site: NATION RISE	1756
Polygon: 601020118	Area88
UTM:	
Date: Feb 2, 2017	Time: 13:05-13:45
Surveyor(s): JBB, AMC	
Weather: -12, cc 10%, w 3W, no precip	

Community Classification

Vegetation Type:	SWDM3-1 Red Maple Mineral Deciduous Swamp type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	red maple, green ash, american basswood
2	Sub-canopy	3	2	red maple, green ash, american basswood
3	Understorey	4-5	1	common buckthorn, green ash
4	Groundcover	6-7	-	Snow Covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	A	25 - 50	O	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
red maple 1	A	A	O		
green ash 2	A	A	O		
white elm		O	O		
white cedar		O	O		
american basswood 3					
black ash					
yellow birch					
white ash					
large tooth aspen					
eastern hemlock 4		R			
white birch		O			
blue beech		R			
red osier dogwood			O		
riverbank grape			O		
chokecherry			O		
hawthorn sp.			O		
alt. leaved dogwood			O		
common buckthorn			O		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

- significant snow cover cannot assess topography and ground cover.
- SWDM community on adjacent property is suspected to be the same.

Photos: 164-175

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-018

hS1-A

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60102 0118

Observer(s): JBB **ELC Code:** SWDM3-1

Date: Feb 2, 2017 **Time (24h):** 13:45-14:15

Wetland #: WET-018 **Weather:** Precipitation: None Temp (° C): -12°C

Veg Community #: hS1-A Wind Speed & Direction: 3 W Cloud %: 10%

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos:

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	red maple > green ash > american basswood
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SL, SC Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ⊗ winter cover for wildlife
  coniferous cedar forest nearby
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  relatively flat topography
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; ⊗ crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ⊗ vernal pools
  not observed due to snow cover, however area appeared to have potential pooling areas
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-018

1756

Site: Nation Rise	
Polygon:	
UTM:	
Date: Feb 2, 2017	Time: 13:45 - 14:15
Surveyor(s): JBB	
Weather: -12°C, cc 10%, w3W, no precip	

Community Classification

Vegetation Type:	FODM5-8. D-E. Sugar maple - White Ash Acid. Forest.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	2	4	sugar maple > white ash
2	Sub-canopy	3	2	Sugar maple > white ash
3	Understorey	4-7	1	common buckthorn > chokecherry > sugar maple
4	Groundcover	6-7	/	Snow, Covered - Cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	A	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____ of ____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
sugar maple	A	A			
white ash	O	O			
bitternut hickory			O		
Juglans sp.	R				
large tooth aspen	R				
yellow birch		O			
Hackberry	R				
ash sterry		R			
American beech		R			
european buckthorn			O		
chokecherry			O		
alternate-leaved dogwood			O		

Species	Layer 1	2	3	4	Sample
blue cohosh				R	
Dryopteris sp.				R	

Wildlife and Other Notes

- significant snowcover - cannot assess topography or ground cover.

Photos: 176-183

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:			
Aspect:			
%			
Type:			
Class:			

Strata:	Texture	vfSL		
	Depth	43cm		
Strata:	Texture	LSC		
	Depth	59cm		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture				
Surface Stoniness				
Surface Rockiness				
Depth to:				
	Mottles	43cm		
	Gley	999		
	Bedrock	59		
	Water table	?		
	Carbonates	999		
Depth of Organics				
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		2W-MW		

Polygon: FODMS-8

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

WOD-048

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE **Project #:** 1756- **Area and/or Polygon ID:** Area 88, 60102011 8

Date: Feb 2, 2017 **Start Time:** 13:05 **End Time:** 14:30 **Observers:** JBB, AMC

Weather Conditions: -12°C, cl 10%, w3W, no precip

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool	✓		Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation Size of site Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals Frequency and source of disturbance Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age Depth into the ground Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size Vegetation present Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance Soil Type Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location Proximity to water and type of water Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb2, 2017

Project Name: NATION RISE Project #: 1756 Area and/or Polygon ID: Area 88, 60102018

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pools	unknown	N/A	N/A	None observed, due to snow covers Areas in SWDM community appear to likely support thes	None
Swamp	1	See ELC Map	164-175	no heron or stick nests observed	None

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes

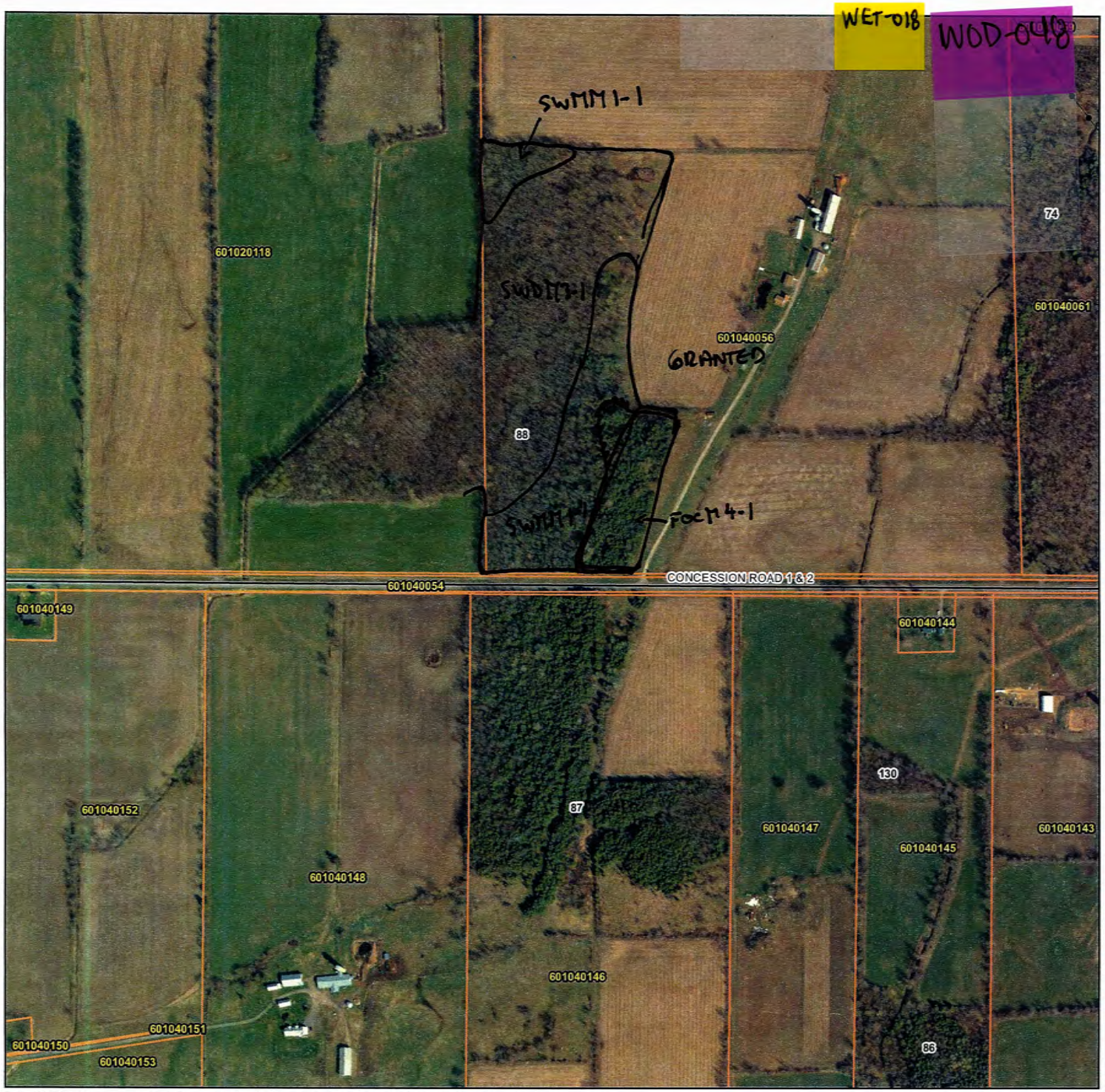
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

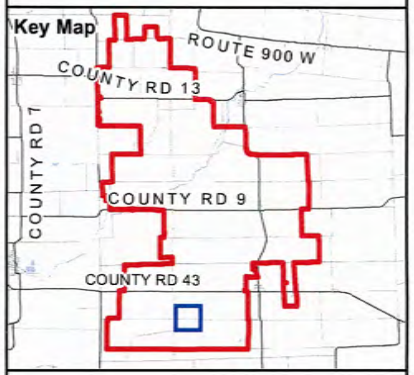
Feb 10, 2017
Ken Burrell, James Booker



Nation Rise Wind Project

Natural Features Field Map

Area [redacted]88



Legend

- Utility Line
- Secondary Road
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756	NAD83 - UTM Zone 18
Date: November 2, 2016	Size: 8.5 x 11"
	1:6,000

0 50 100 150 Meters

N

P:\Projects_X\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-048

Site:	Area 88
Polygon:	White Cedar - Hardwood Min. Mixed Swamp Type (SWMM1-1)
UTM:	—
Date:	Feb 10/17 — Time: 1000-1115
Surveyor(s):	KGB, JDRB
Weather:	-15°C, 0% CC, wind 2-W, no precip

Community Classification

Vegetation Type:	White Cedar - Hardwood Mixed Swamp (SWMM1-1)
Inclusion:	—
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	/ Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—		
1	Canopy	1-2	4	White Cedar > Green Ash > Sugar Maple ≥ White Elm
2	Sub-canopy	3	3	Green Ash > White Cedar > Sugar Maple
3	Understorey	1-3	2	RO Dogwood > Riverbank Grape
4	Groundcover	6	—	—

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	Area 88
Polygon:	~~SWMM1-1~~ SWMM1-1
UTM:	—
Date:	Feb 10/17 — Time: 1000-1115
Surveyor(s):	KGB, JDRB
Weather:	-15°C, 0% CC, wind 2-W

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar	O	O	R		
White Elm	O	R	R		
Ash sp. (Green?)	O	O	O		
Sugar Maple	O	O	R		
White Spruce	R	R			
White Pine	R				
Yellow Birch	R	R			
Trembling Aspen	O	O			

Species	Layer 1	2	3	4	Sample
Riverbank Grape			R		
RO Dogwood			O		

Wildlife and Other Notes

2277, 2278

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-048

Site:	Area 88
Polygon:	Fresh-Moist Wht. Cedar Coniferous Forest Type
UTM:	—
Date:	Feb 10/17 — Time: 1000 - 1115
Surveyor(s):	KGB, JDRB
Weather:	-15°C, Ø% cc, Wind 2-NW

Community Classification

Vegetation Type:	White Cedar Upland	(FOCM4-1)
✓ Inclusion:	TAGM1 Coniferous Plantation	
Complex:		

Polygon Description

System	Substrate	Topo Feature		Community	
✓ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
✓ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		✓ Roll. Upland	Bluff	Fen	✓ Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	✓ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
✓ Treed	✓ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—		
1	Canopy	1-2	4	White Cedar > Trembling Aspen
2	Sub-canopy	3	3	White Cedar > Trembling Aspe
3	Understorey	4-5	2	RO Dogwood > Red Raspberry
4	Groundcover	6	1	—

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		< 10		10 - 24		25 - 50		> 50
	O		A		R		N	
Snags	A		O		R		N	
Deadfall/Logs	A		O		R		N	

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	✓ Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	Area 88
Polygon:	FOCM4-1
UTM:	—
Date:	Feb. 10/17 — Time: 1000 - 1115
Surveyor(s):	KGB, JDRB
Weather:	-15°C, Ø% cc, wind 2-W, no precip.

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Norway Spruce		O									
White Cedar	D	D	D								
Trembling Aspen	O	O									

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-048

Site:	Area 88
Polygon:	Red Maple Min. Deciduous Swamp Type
UTM:	—
Date:	Feb 10/17 — Time: 1000-1115
Surveyor(s):	KGB, JDRB
Weather:	-15°C, 0% CC, wind 2-W, no precip

Community Classification

Vegetation Type:	Red Maple Mineral Decid. Swamp (SWDM3-1)
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—	—	
1	Canopy	1	4	Red Maple > Green Ash > Bur Oak
2	Sub-canopy	2-3	3	Red Maple > Green Ash > White Cedar
3	Understorey	4-5	2	RO Dogwood > Red Maple > C. Buckthorn
4	Groundcover	6	—	Fern sp

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth
			/		

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	Area 88
Polygon:	SWDM3-1
UTM:	/
Date:	Feb 10/17 — Time: 1000-1115
Surveyor(s):	KGB, JDRB
Weather:	-15°C, 0% CC, wind 2-W, no precip.

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
E. Tamarack			R		
White Cedar		R			
Red Maple	A	O	O		
Ash sp. (Green)	O	O	R		
White Elm					
Bur Oak	R				
C. Buckthorn			O		
RO Dogwood			O		
Fern sp (2275)			R	O	
Elderberry sp.			R		
Riverbank Grape			R		

Wildlife and Other Notes

2276

WOD-048

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE	**Project #:** 1756-	**Area and/or Polygon ID:** 88-	
Date: 10/02/17	**Start Time:** 1000-	**End Time:** 1050	**Observers:** J. BARRIE K. BURRELL
Weather Conditions:			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2 Incidental Wildlife Observations on Page 2

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		X	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		X	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		X	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		X	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography			
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		X	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		X	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		X	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		X	
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest (Mature Forest)		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics). Any cut stumps in the mature/old growth component.
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 10/02/17

Project Name: NATION RISE WP Project #: 1756- Area and/or Polygon ID: 88

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp		See map	2277, 2278 2276.	No stick nests observed	—

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	WBNU	H	1						
B	BCCH	H	2						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

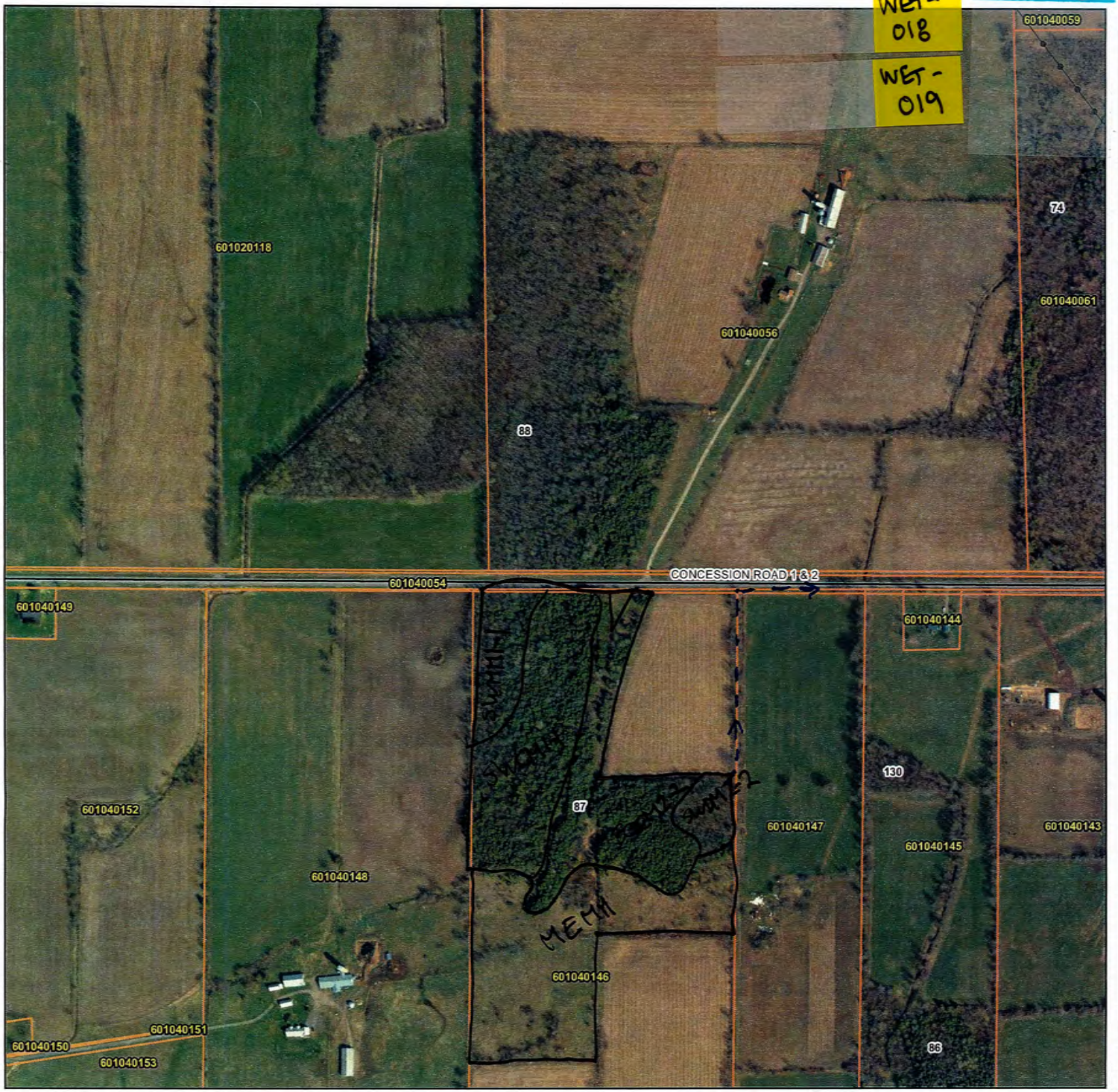
Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

WOD-048

Feb 4 2017
JBB, AMC

WET-018

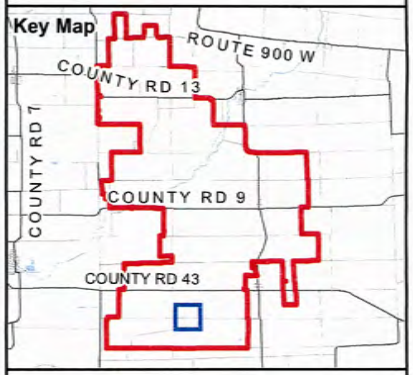
WET-019



Nation Rise Wind Project

Natural Features Field Map

Area 87 & 88



Legend

- Utility Line
- Secondary Road
- Land Parcel

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-048

Site: Nation Rise	1756
Polygon: 601040146	Area 87.
UTM:	
Date: Feb 4, 2017	Time: 12:11 - 12:15 (10:40-10:55)
Surveyor(s): JBB, KMC	
Weather: -10°C, cc100%, w3W, no precip	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Dec Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	green ash > white elm
2	Sub-canopy	3	3	green ash > white elm
3	Understorey	4-5	1	green ash > white cedar
4	Groundcover	6-7	/	Snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	/ Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	A	A			
White Elm	O	O			
Man. Maple	O	O			
White Cedar	O	O			
Sugar Maple	R	O			
R.O Dogwood			O		
Hawthorn sp.			O		

Species	Layer 1	2	3	4	Sample

Wildlife and Other Notes

Cannot assess below snow cover

Photos: 12:11 - 12:15, 10:40-10:55

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

hSI-A

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601041046 Area87
Observer(s): JBB, AMC		**ELC Code:** SWDM2-2
Date: Feb 4, 2017	**Time (24h):** 12:11-12:15, 10:40-10:55	
Wetland #: WET-019	**Weather:** Precipitation: None	Temp (° C): -10
Veg Community #: hSI-A	Wind Speed & Direction: 3W	Cloud %: 100
Wetland Type: S	**Site Type:** P	**Dominant Form:** h
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds	
Photos: 12:11-12:15, 10:40-10:55		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	green ash >> white elm > manitoba maple
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SL, SC Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
- ◯ human related disturbances (fill, docks, houses, etc)
- ◯ evidence of recreational activities (nature appreciation, fishing, hunting)
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ◯ winter cover for wildlife
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ◯ surrounding topography (flat, rolling, hilly, steep)
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); ⊗ conif. forest; O mixed forest; O crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ⊗ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ⊗ vernal pools
  unable to accurately access due to snow cover, however aerial and topography suggests presence
- ◯ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-048

Site: Nation Rise	1756
Polygon: 661040146	Area 87
UTM:	
Date: Feb 4, 2017	Time: 12:16 - 12:40
Surveyor(s): JBB, AMC	
Weather: -10°C, <<100%, ~3W, no precip	

Community Classification

Vegetation Type:	FOCM2-2 D-F White Cedar Coniferous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	white cedar
2	Sub-canopy	3	4	white cedar
3	Understorey	4-5	1	white cedar
4	Groundcover	6-7	/	Snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	D	10 - 24	O	25 - 50	G	> 50
Snags	0	< 10	0	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	X Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	Layer 2	Layer 3	Layer 4	Sample
White Cedar	D	D	D		
White Elm		R			
White Spruce		R			
Tremb. Aspen		O			
Lagetoothaspen		O			
R.O. Dogwood			O		
Hawthorn sp.			O		

Species	Layer 1	Layer 2	Layer 3	Layer 4	Sample
Raspberry sp.				R	

Wildlife and Other Notes

Snow covered ground layer - cannot assess below
Almost entirely eastern white cedar

Photos: 12:16 - 12:40

FOCM.

Modified ELC Community Description

Page __ of __

Parcel Area 87

Soils	1	2	3
Position:			
Aspect:			
%			
Type:			
Class:			

Polygon: FOCM 2-2

Strata:	Texture	vfSL		
	Depth	25cm		
Strata:	Texture	vfSC		
	Depth	41cm.		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture				
Surface Stoniness		—		
Surface Rockiness		—		
Depth to:				
	Mottles	999		
	Gley	999		
	Bedrock	41cm		
	Water table	frozen		
	Carbonates	26cm.		
Depth of Organics		5cm.		
Pore Size Disc #1				
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		1/R.		

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-048

Site: Nation Rise	1756
Polygon: 60140146	Area87
UTM:	
Date: Feb7, 2017	Time: 12:40-13:00
Surveyor(s):	
Weather: -10°C, cl100%, w3W, no precip	

Community Classification

Vegetation Type:	SWCM1-1 White Cedar Mineral Coniferous Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	/ Coniferous
Shrub		/ Surficial Dep.	Submerged	Lichen	Mixed
/ Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	4	white cedar
2	Sub-canopy	3	4	white cedar 77 whitelm
3	Understorey	4/5		White Cedar 77 R.O. dogwood
4	Groundcover	6?	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
White cedar	D	D	D								
white elm		O									
R.O. Dogwood			O								

Wildlife and Other Notes

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-018

CS2

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 60104046 Area 87
Observer(s): JBB, AMC		**ELC Code:** SWCM1-1
Date: Feb 7, 2017	**Time (24h):** 12:40-13:00	
Wetland #: WET-018	**Weather:** Precipitation: no precip	Temp (° C): -10°C
Veg Community #: CS2	Wind Speed & Direction: 3W	Cloud %: 100%
Wetland Type: S	**Site Type:** P	**Dominant Form:** C
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds	
Photos:		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%: 95)	white cedar
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SC, SZ Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟿)
- ○ human related disturbances (fill, docks, houses, etc)
- ⊗ evidence of recreational activities (nature appreciation, fishing, hunting)
  deer stand observed, no clear evidence of use
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ⊗ winter cover for wildlife
  cedar cover.
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat, slight depression
- ⊗ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); ⊗ conif. forest; O mixed forest; O crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-048

Site: Nation Rise	1756
Polygon: 601040146	Area 87
UTM:	
Date: Feb 4, 2017	Time: 13:00-13:20
Surveyor(s): JBB, AMC	
Weather: -10°C, ~100%, w 3W, no precip	

Community Classification

Vegetation Type:	SWMM1-1 White Cedar Hardwood Mineral
Inclusion:	Mixed Swamp Type
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/Wetland	/Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/Natural	Carb. Bedrock	Tableland	Sand Dune	/Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	/Mixed
/Treed	/Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	4	white cedar > green ash
2	Sub-canopy	3	3	white cedar > green ash
3	Understorey	4S	2	white cedar
4	Groundcover	69	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____of____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
white cedar	D	D	D								
green ash	O										

Wildlife and Other Notes

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-018 CS4

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60104046 Area 87

Observer(s): JBB, AMC **ELC Code:** SWMM1-1

Date: Feb 4, 2017 **Time (24h):** 13:00-13:20

Wetland #: WET-018 **Weather:** Precipitation: none Temp (° C): -10

Veg Community #: CS4 Wind Speed & Direction: 3W Cloud %: 100

Wetland Type: S **Site Type:** **Dominant Form:** C

Permanent Open Water: % **Check one:** ○ central area ○ spread out in ponds

Photos:

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%30)	green ash
c (%70)	white cedar
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: SC, SC Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
- ◯ human related disturbances (fill, docks, houses, etc)
- ◯ evidence of recreational activities (nature appreciation, fishing, hunting)
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ⊗ winter cover for wildlife
  white cedar provides winter cover
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat, slight depression
- ◯ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ◯ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ◯ vernal pools
- ◯ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

Site: Nation Rise	1756 Area 87
Polygon: 601040146	
UTM:	
Date: Feb 4 2017	Time: 12:03 - 12:10
Surveyor(s): JBB, AMC	
Weather: -10°C, ~100%, w3W, no precip	

Community Classification

Vegetation Type:	MEMM Mixed Meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	/ Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
/ Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	/	Surficial Dep.	Submerged	Lichen	Mixed
Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	12	0	
2	Sub-canopy	3	1	common buckthorn > apple
3	Understorey	45	2	tall goldenrod > smooth brome
4	Groundcover	17	/	likely >60%, snow covered, cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Apple		R			
C. Buckthorn			O		
Riverbank Grape			R		
Red Raspberry			O		

Species	Layer 1	2	3	4	Sample
Smooth Brome			A		
Tall Goldenrod			A		
C. Milkweed			O		
Grass-leaved Gold.			O		
Viper's Bugloss			O		

Wildlife and Other Notes

Snow-covered ground layer, cannot assess below

Photos: 12:03-12:10

WOD-049

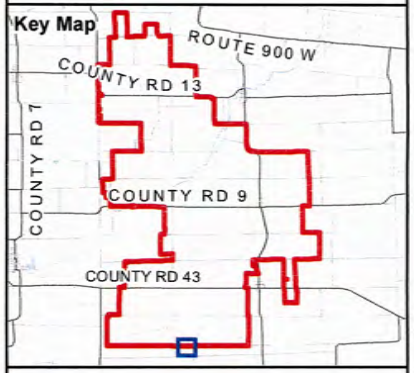
May 16, 2016
Clit, AB

WET-019

Nation Rise Wind Project

Natural Features Field Map

Area 90



Legend

- Land Parcel
- Parcel with Access
- Parcel without Access

No trees >25cm DBH in A polygon

NATURAL RESOURCE SOLUTIONS INC.
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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756	NAD83 - UTM Zone 18
Date: May 13, 2016	Size: 8.5 x 11"
	1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-049

Site: Nation Rise	1756
Polygon: Area 90-A	601040147
UTM:	
Date: May 16, 2016	Time: 16:05 - 16:50
Surveyor(s): Christy Humphreys, Amanda Bichel	
Weather: 9°C 100% CC Wind 4 No precip.	

Community Classification

Vegetation Type:	SWDM4-5 Poplar Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland -	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beech/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	4	Trembling Aspen > Manitoba Maple = Eastern Cottonwood > Green Ash
3	Understorey	4/5	2	Common Buckthorn > Nannyberry > Ribes americanum > Red Osier
4	Groundcover	6/7	3	Wild Ginger > Sensitive Fern > Sanicula sp. > Common Blue Violet

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	6	10 - 24	N	25 - 50	N	> 50
Snags	A	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	D	< 10	D	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site: Nation Rise	1756
Polygon: Area 90-A	
UTM:	
Date: May 16, 2016	Time: 16:05 - 16:50
Surveyor(s): CH, ASB.	
Weather: 9°C, 100% CC Wind 4 No precip	

Layers: 710 (1=canopy) 2-10 (2=sub-canopy) 0.5-2 (3=understorey) 0-5 (4=ground layer)

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen		O	O		
Green Ash		O			
Manitoba Maple		O			
E. Cottonwood		O			
Basswood		O	O		
E. White Cedar			R		
White Elm		O	O		
Riverbank Grape				O	
Swamp Red Raspberry				O	
Common Buckthorn			O		
Red Osier			O	O	
Ribes americanum			O		
Nannyberry			O	O	

Species	Layer 1	2	3	4	Sample
Sanicula sp.				O	
Common Blue Violet				O	
Carex sp.				O	
Dandelion				O	
Sensitive Fern				O	
Wild Ginger				O	
Bedstraw				O	
Virg. Waterleaf				O	
Downy Yellow Violet				O	
Baneberry sp.				O	
Foamflower				O	
Lady Fern				O	
Ostrich Fern				O	
Woodland Anemone				R	
Sarsaparilla				R	
Jack-in-the-pulpit				R	
Hairy Solomon's Seal				R	

Wildlife and Other Notes

Big Vernal Pool but completely dry. Photo 28
Photos: 38-

Historically - Cleared all regrowth. No trees on 601040147 are >25cm DBH
this area may have been excavated historically - especially where large pool area is.

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

ES S6-B

Wetland Vegetation Communities

Area 90-A

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 601040147

Observer(s): Christy Humphrey + Amanda Bichel **ELC Code:** SWDM4-5

Date: May 16, 2016 **Time (24h):** 16:05-16:50

Wetland #: WET-019 **Weather:** Precipitation: None Temp (° C): 9

Veg Community #: ES S6-B Wind Speed & Direction: 4 Cloud %: 100

Wetland Type: S **Site Type:** P **Dominant Form:** ES

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 38-40

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 90)	Trembling Aspen (60%) > Manitoba Maple (20%) = E. Cottonwood (20) > Common Buckthorn
ls (%:)	
gc (%: 30)	Wild Ginger (20) Sensitive Fern (15) Sanicula sp. (5)
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) likely CL from wetland to the East

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  See map.
- ○ human related disturbances (fill, docks, houses, etc)
  Excavated Area, previously all cleared, re-growth.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); ○ abandoned ag. field; ○ utility corridor; ○ dec. forest; O recent cutover or clearcut (<5yr); ○ conif. forest; ○ mixed forest; O crops; ○ row crop; ○ abandoned pit/quarry; ○ pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ○ fence rows; ○ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-049

Site: NATION RISE	1756
Polygon: Area 90-B	
UTM:	
Date: May 16 2016	Time: 16:30 - 17:00
Surveyor(s): CLH, AFB	
Weather: 9°C 100% CC wind 4 No precip	

Community Classification

Vegetation Type:	SWOM4-5 Poplar Mineral meadow Swamp.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1		
1	Canopy	2	4	Trembling Aspen, Green Ash.
2	Sub-canopy	3		Continuation of A polygon but slightly Sides
3	Understorey	4/5		
4	Groundcover	5/7		

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	R	25 - 50	M	> 50
Snags		< 10		10 - 24		25 - 50	M	> 50
Deadfall/Logs		< 10		10 - 24		25 - 50		> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 1=canopy; 2-10 2=sub-canopy; 0.5-2 3=understorey; <0.5 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Whitebirch		O			
—	R				
Trembling Aspen	O				
White Ash		R			
Green Ash	O				
Basswood	O	O		R	
Red maple	O				
Red Raspberry					
Ribes americanum					
Alt-lvd Dogwood					

Species	Layer 1	2	3	4	Sample
Lady Fern					
Ostrich Fern					
Wild Ginger					

Wildlife and Other Notes

Photos: 44, 45, 46 PROPERTY LINE ASSESSMENT

Red maple / Green Ash Swamp.

PROPERTY LINE ASSESSMENT

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

hS1-B

Area 90-B

Wetland Vegetation Communities

Project Name: NATION RISE **Project #:** 1756 **Parcel #:** unknown.

Observer(s): CLH, AB **ELC Code:** SWDM4-5

Date: May 16 2016 **Time (24h):** 1650 - 1700 "B"

Wetland #: WET-019 **Weather:** Precipitation: — Temp (° C): 9

Veg Community #: hS1-B Wind Speed & Direction: 4 Cloud %: 100

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 44-46

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Trembling Aspen (40) Green Ash (25) Red maple, Basswood
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

likely CL based on nearby communities.

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ⊘ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  unknown
- ⊘ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ⊘ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  see map.
- ○ human related disturbances (fill, docks, houses, etc)
  Watercourse is dug/dredged
- ⊘ evidence of recreational activities (nature appreciation, fishing, hunting)
- ⊘ locations of seeps or springs, lagg
- ⊘ iron precipitates, marl deposits
- ⊘ winter cover for wildlife
- ⊘ ungulate summer habitat, moose aquatic feeding habitat
- ⊘ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); ~~O abandoned ag field~~; ~~O utility corridor~~; ~~O dec. forest~~; O recent cutover or clearcut (<5yr); ~~O conif. forest~~; ~~O mixed forest~~; O crops; ~~O row crop~~; ~~O abandoned pit/quarry~~; ~~O pasture~~; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ~~O fence rows~~; ~~O fence row with deep cover or shelterbelt~~; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools ?
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

WOD-049

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 90	
Date: May 10, 2016	**Start Time:** 4:15pm	**End Time:** 4:50pm	**Observers:** Amanda Richard, Christy Humphrey
Weather Conditions: 9°C 100% CC W:SW 4 No precip.			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture	✓		Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 16, 2016

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 90

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal pool (but dried up already) Cavity trees	NA		38	Air photo shows as flooded No trees are >25cm DBH on 6010401 47 property.	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	BC Chickadee	S	;						
B	Am Crow	S	;						
B	Am. Robin	S	:·						
M	WT Bear	T							
B	Bunny WP	S	·						
B	N. Flicker	S	:						
B	Red-winged Blackbird	S/OB	:.						
B	Blue Jay	S	·						
B	Song Sparrow	S	::						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

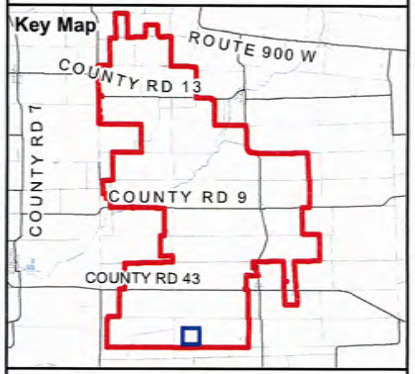
Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Feb 4 2017
JBB, AmC

Nation Rise Wind Project

Natural Features Field Map

Area 89



Legend

- Land Parcel
- Parcel with Access
- Parcel without Access

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps\1-31_NatFeatures_2016_05_13_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-050

Site: Nation Rise	1756
Polygon: 601040146	Area: 8
UTM:	
Date: Feb 4, 2017	Time: 1105 - 1140
Surveyor(s): JBB, AMC	
Weather: -10°C, cc 100, W3W. no precip.	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Dec. Sw. Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy		3	green ash 77 white elm 7 L-T aspen
2	Sub-canopy		4	green ash 77 white elm
3	Understorey		4	willow 7 white elm 7 green ash
4	Groundcover		/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	D	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	G	10 - 24	F	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash.	O	A	A		
White Elm		O			
Black Ash		O			
Tremb. Aspen	O	O			
Large Tooth Aspen		O			
White Cedar		O			
Basswood	O	O			
Bitternut			R		
White Birch			R		
Nanny Berry			R		
Black Raspberry			O		
Glossy Buckthorn			O		
R.O. Dogwood			O		
Tart Honeysuckle			O		
Riverbank Grape			O		
C. Buckthorn.			O		

Species	Layer 1	2	3	4	Sample
Tall Goldenrod			O		
Phragmites			O		
Bracken Fern			R		
Ostrich Fern			R		

Wildlife and Other Notes

- Common Raven.

Photos: 110835639 - 113613137

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

hS3

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60104014 6 Area 89

Observer(s): JBB, AMC **ELC Code:** SWD M2-2

Date: Feb 4, 2017 **Time (24h):** 11:05-11:40

Wetland #: WET-019 **Weather:** Precipitation: None Temp (° C): -10

Veg Community #: hS3 Wind Speed & Direction: 3W Cloud %: 100

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 110835639-113613137

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:75)	green ash > white elm > trembling aspen
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:25)	willow sp. > common buckthorn
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ◯ active beaver lodges/dams
- ◯ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ◯ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ◯ plant species (wild rice, cranberries)
- ◯ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
- ⊗ human related disturbances (fill, docks, houses, etc)
  minor debris observed on east side
- ◯ evidence of recreational activities (nature appreciation, fishing, hunting)
- ◯ locations of seeps or springs, lagg
- ◯ iron precipitates, marl deposits
- ◯ winter cover for wildlife
- ◯ ungulate summer habitat, moose aquatic feeding habitat
- ◯ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  relatively flat
- ◯ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); ⊗ conif. forest; O mixed forest; O crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ◯ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ◯ vernal pools
- ⊗ invasive species (plant, aquatic)
  C. buckthorn, tartarian honeysuckle, minor common reed

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-050

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise	**Project #:** 1756	**Area and/or Polygon ID:** 89	
Date: May 16, 2016	**Start Time:** 3:30pm	**End Time:** 4:00 pm	**Observers:** Amanda Bischel, Christy Humphrey
Weather Conditions:			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2!

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture	✓		Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow	✓		Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence	✓		Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 16, 2016

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 89

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Rock pile	1	0491505 4995128 (18T)	37	• 8m x 3-5m wide x 1.5m tall (long) • no snakes observed ⟷	• may provide protection from frost for snakes. • 80% canopy cover • trembling aspen growing from it and moss growing on some. • shrubs + small trees

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Yellow Warbler	OB	1						
B	Song Sparrow	S	1						
B	Northern Harrier	OB	1						
M	Deer	TK	1						
B	Grey Catbird	S	1						
B	Red-winged blackbird	S	1						
B	Am. Goldfinch	S	1						
B	Downy Woodpecker	OB	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

May 16, 2016 Christy Humphrey Amanda Bichel

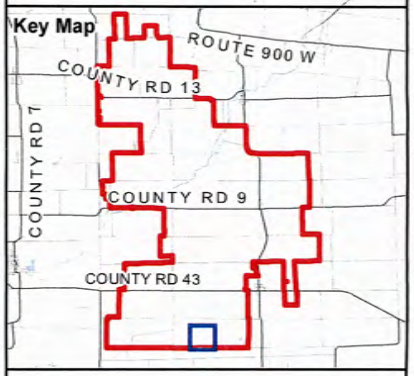
WOD-051

WET-019

Nation Rise Wind Project

Natural Features Field Map

Area 86



Legend

- Utility Line
- Land Parcel
- Parcel with Access
- Parcel without Access

airphoto interp.

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Map Produced by Natural Resource Solutions Inc.
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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

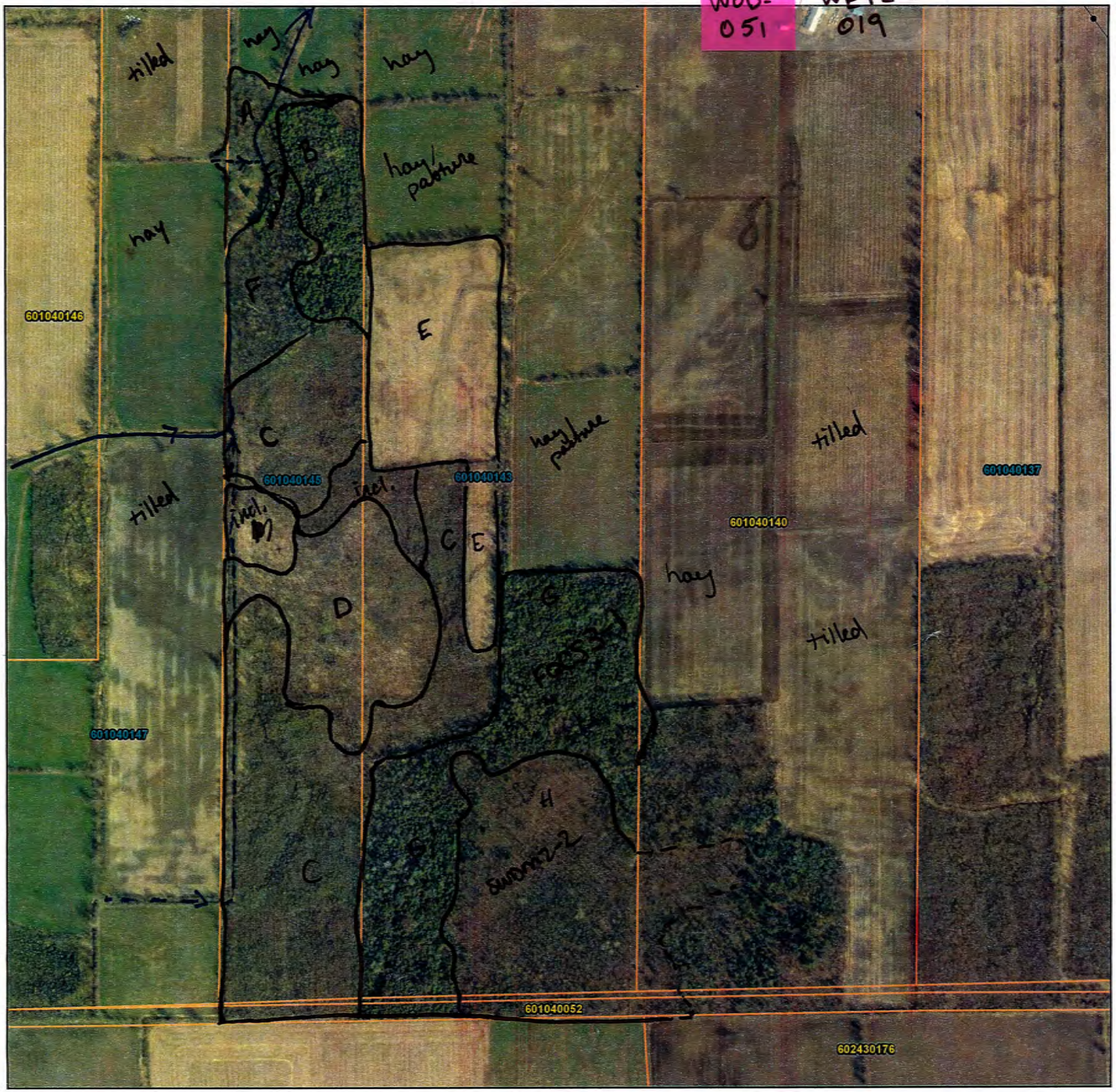
0 50 100 150 Meters

N

Path: K:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps\1-31_NatFeatures_2016_05_13_LEH.mxd

May 16, 2016 Christy H, Amanda B.

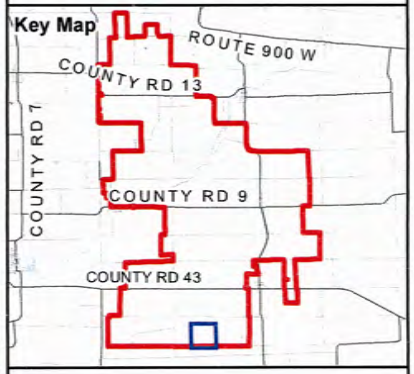
WOD-051 WET-019



Nation Rise Wind Project

Natural Features Field Map

Area 86



Legend

- Utility Line
- Land Parcel
- Parcel with Access
- Parcel without Access

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:5,000

0 50 100 150 Meters

N

HH

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page 1 of __

WOD-051

Site: Nation Rise	1756
Polygon: Area 86 - A	(601040145, 601040143, 601040147)
UTM:	
Date: May 16, 2016	Time: 0853 - 0915
Surveyor(s): Christy Humphrey, Amanda Binkel	
Weather: 5°C 100% CC Wind 4, No precip.	

Community Classification

Vegetation Type:	SWDM 4-2 White Elm Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
X Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	6	—
1	Canopy	2	0	—
2	Sub-canopy	3	4	White Elm > Manitoba Maple > Common Buckthorn > Green Ash
3	Understorey	4 5	3	Common Buckthorn > Choke Cherry > Silky Dogwood > Red Raspberry
4	Groundcover	5 6	4	Canada Fragaria virginiana > Common Blue Violet > Goldenrod sp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site: Nation Rise	1756
Polygon: Area 86-A	
UTM:	
Date: May 16, 2016	Time:
Surveyor(s): CLH, ASB	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer — 710 2-10 0.5-2 <0.5

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Elm		O			
Manitoba Maple		O			
E. Cottonwood		R			
Green Ash		O			
E. White Cedar		R			
Swamp Raspberry				R	
Red Raspberry			O		
Tartarian Honeysuckle		O	O		
Silky Dogwood			O		
Chokecherry			O		
Ribes cynosbati			O		
Hawthorn sp.		O			
Ribes americanum			O		
Riverbank Grape			O		
Common Buckthorn		O			

Species	Layer 1	2	3	4	Sample
Virginia Waterleaf				O	
C. Blue Violet				O	
Wild Parsnip				O	
Carex sp.				O	
Fragaria virginiana				O	
Yarrow				R	
thimbleweed				O	
Goldenrod sp.				O	
Reed Canary				O	

Wildlife and Other Notes

Photos: 001-007 - Drain

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Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

hS8

Wetland Vegetation Communities

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 60104 0145
Observer(s): Christy Humphreys, Amanda Bichel		**ELC Code:** SWDM4-2 86-A
Date: May 16, 2016	**Time (24h):** 0853-0948	
Wetland #: WET-019	**Weather:** Precipitation: —	Temp (° C): 5
Veg Community #: hS8	Wind Speed & Direction: 4.	Cloud %: 100
Wetland Type: S	**Site Type:** R	**Dominant Form:** h
Permanent Open Water: 5 %	**Check one:** ⊗ central area ○ spread out in ponds	
Photos: 001, 002		

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 80)	White Elm (40), Manitoba Maple (35), Green Ash (20)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 40)	Common Buckthorn (50), Hawthorn sp. (30), Tartarian Honeysuckle (10), Silky Dogwood (10)
ls (%:)	
gc (%: 70)	Fragaria virginiana (30), Common Blue Violet (20), Goldenrod sp. (15)
ne (%: 70)	Carex sp. (70), Reed Canary (30)
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: — cm Organic Type: F M H Depth to bedrock: 60 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- Ø locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- Ø wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  See separate data form
- Ø plant species (wild rice, cranberries)
- ✓ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----➤)
  on map
- Ø human related disturbances (fill, docks, houses, etc)
  rock piles.
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- Ø locations of seeps or springs, lagg
- Ø iron precipitates, marl deposits
- ✓ winter cover for wildlife
  ~~Dodge Street~~
- Ø ungulate summer habitat, moose aquatic feeding habitat
- Ø suitability for waterfowl breeding, staging, moulting
- ✓ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; ✓ utility corridor; ✓ dec. forest; O recent cutover or clearcut (<5yr); ✓ conif. forest; ✓ mixed forest; O crops; ✓ row crop; O abandoned pit/quarry; ✓ pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; ✓ fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ✓ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  "permanent swamp" ⇒ permanent watercourse thru community
- Ø vernal pools
- ○ invasive species (plant, aquatic)
  Common Buckthorn.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

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Modified ELC Community Description

Page __ of __

WOD-051

Site: Notion Rise	1756
Polygon: NRd 86-B	
UTM:	
Date: May 16 2016	Time: 10:50-11:15
Surveyor(s): Christy Humphrey Amanda Bichel	
Weather: 6°C, 100% CC Wind 4 Nopreip	

Community Classification

Vegetation Type:	FOCM4-1 Fresh-Moist White Cedar Coniferous Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	P.ankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	White Cedar >> Trembling Aspen
2	Sub-canopy	3	1	White Cedar >> White Elm > White Birch
3	Understorey	4/5	1	Common Buckthorn > White Birch
4	Groundcover	6/7	3	Moss > Common Buckthorn > Canada mayflower > Sarsaparilla

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	O	10 - 24	A	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 7/0 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
E. White Cedar	D	O			
White Elm		R			
White Birch		R	R		
Trembling Aspen	R				
Balsam Poplar		R			
Balsam Fir		R			

Species	Layer 1	2	3	4	Sample
Horsetail sp.				O	
Downy Yellow Violet				O	
Snakeroot sp.				R	
Hairy Solomon's Seal				R	
Wild Ginger				R	
Carex sp 1				R	Tooearly
Carex sp 2.				R	
Sweet Cicely				R	
Canada mayflower				O	
Bracken Fern				O	
Kidney-leaved Violet				O	photos
Spinulose Wood Fern				R	
Marsh Fern				R	
Moss				A	
Sarsaparilla				O	
White Trillium				O	
Heal-All				R	
Red Trillium				R	
Common Blue Violet				R	
Riverbank Grape			R		
Common Buckthorn			O	D	
Alternate-lvd Dogwood				R	
Red-osier Dogwood				O	
Foamflower				R	-
Bowleberry				R	

Wildlife and Other Notes

Photos: 009 - 0011

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-051

Site: Nation Rise	1756
Polygon: Area BG-C	
UTM:	
Date: May 16 2016	Time: 0930-1015 & 1135-1210
Surveyor(s): Christy Humphrey, Amanda Bickel	
Weather: 6°C, 100% Cl, Wind 4 No precip	

Community Classification

Vegetation Type:	SWDM4-5 Poplar Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	4	Trembling Aspen >> Green Ash > Red maple > white birch
3	Understorey	4/5	1	Choke Cherry > Ribes americanum > Lady Fern > Silky Dogwood
4	Groundcover	6/7	4	Fragaria virginiana > Carex sp. > common blue violet > Canada Mayflower

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X	Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen		D			
Red maple		R		O	
Green Ash		O			
White Birch		R			
E-White Cedar		R			
Bur Oak		R			
Ribes americanum				O	
Salix sp.					
Meadowsweet					
Choke Cherry				O	
Toxicodendron radicans				R	
Silky Dogwood				O	

Species	Layer 1	2	3	4	Sample
Reed Canary				O	
Yarrow				O	
Carex sp.				O	
Goldenrod sp.				O	
Sensitive Fern				O	
Horsetail sp.				O	
Lady Fern			O		
Fragaria virginiana				O	
Common Blue Violet				O	
Canada Mayflower				O	
Carex sp.				O	
Marsh Fern				O	
Phragmites			R		
Typha latifolia					
Bracken					
Thimbleweed					
Blue Flag Iris					
Downy Yellow Violet				R	
White Trillium				R	
Baneberry sp.				O	

inclusion of Polygon

regeneration of polygon

Wildlife and Other Notes

Photos: 003-004 005 006.

Regeneration from previous clear-cut.

No trees 725cm DBH

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	6		
Aspect:	—		
%	0		
Type:	Si		
Class:	A		

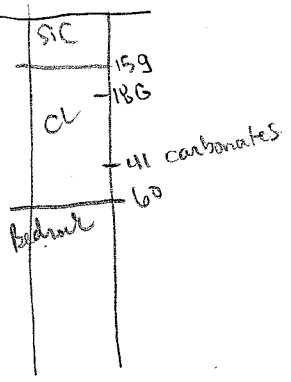
Strata:	Texture	SiC		
	Depth	15		
Strata:	Texture	CL		
	Depth	60		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		CL		
Surface Stoniness		0		
Surface Rockiness				
Depth to:				
	Mottles	15		
	Gley	18		
	Bedrock	60		
	Water table	—		
	Carbonates	41		
Depth of Organics		—		
Pore Size Disc #1		15		
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		6		

Polygon: Area 86-C

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:



NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

~~TS~~ S6-A
06-C

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 6004 0145

Observer(s): Christy Humphrey, Amanda Bichel **ELC Code:** SWDM4-5

Date: May 16 2016 **Time (24h):** 0930-1015

Wetland #: WET-019 **Weather:** Precipitation: — Temp (° C): 6

Veg Community #: ~~TS~~ S6-A Wind Speed & Direction: 4 Cloud %: 100

Wetland Type: S **Site Type:** R **Dominant Form:** ts.

Permanent Open Water: 2 % **Check one:** ⊗ central area ○ spread out in ponds

Photos: 003-006.

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
(ts) (%:95)	Trembling Aspen (80), Green Ash > Red Maple, White Birch, wh. Cedar, Bur Oak.
ls (%:)	
(gc) (%:60)	~~Fragaria virginiana~~ (40) > ~~Common blue violet~~ (20) > Canada mayflower (10)
ne (%:10)	Carex sp., Reed Canary.
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: — cm Organic Type: F M H Depth to bedrock: 60 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- O active beaver lodges/dams
- O locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- O wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles) see separate sheet
- O plant species (wild rice, cranberries)
- O location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶) see map
- O human related disturbances (fill, docks, houses, etc) Regeneration
- O evidence of recreational activities (nature appreciation, fishing, hunting)
- O locations of seeps or springs, lagg
- O iron precipitates, marl deposits
- O winter cover for wildlife
- O ungulate summer habitat, moose aquatic feeding habitat
- O suitability for waterfowl breeding, staging, moulting
- O surrounding topography (flat, rolling, hilly, steep) flat
- O surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- O fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  "permanent swamp" – permanent watercourse, "seasonal swamp" intermittent watercourse
- O vernal pools
- O invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: Area 8b - D	601046145
UTM:	
Date: May 16, 2016	Time: 1015 - 1040
Surveyor(s): Christa Humphreys, Amanda Kidd	
Weather: 6°C, 100% CC, Wind 0, No precip	

Community Classification

Vegetation Type:	SWTM3-3 Slender Willow Mineral Deciduous thicket Swamp
X Inclusion:	MAMM1-16 mixed Graminoid mineral meadow Marsh
X ~~Complex~~ Inclusion	Speckled Alder Mineral Deciduous thicket Swamp.

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	✓ Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep.	Floating-Lvd	Bryophyte	
	Bedrock	X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	Trembling Aspen
2	Sub-canopy	3	4	Slender Willow >> Trembling Aspen > Speckled Alder
3	Understorey	4/5	2	Slender Willow > Reed Canary > Typha latifolia > Speckled Alder
4	Groundcover	4/5	4	Moss > Horsetail sp. > Canada Anemone > Fragaria virginiana

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis							
	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Freeman's Maple		R			
Trembling Aspen	O	R			
Downy Serviceberry			R		
Speckled Alder		O	O		
Red Oaier				O	
Slender Willow		A	A		
Red Raspberry					

Species	Layer 1	2	3	4	Sample
Reed Canary			O		
Carex sp. / Lilly	Lake, Pond			O	
Typha latifolia			O		
Phragmites			R		
Fragaria virginiana				O	
Canada Anemone				O	
Goldenrod sp.				O	
Horsetail sp.				O	
moss				A	
Common Blue Violet				O	
Sarsaparilla				R	
Bearberry sp.				R	
Meadowsweet					
Bracken					
Blue Flag					

> inclusion MAMM1-16.

Wildlife and Other Notes

Photo 7 – Inclusion Thicket Swamp 0035 0003 0004

Soils: quick auger 12cm Humic Organic over gleyed SiC

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

ts57

Wetland Vegetation Communities

Area 86-D.

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 601040145, 601040143

Observer(s): Christy Humphrey, Amanda Bichel **ELC Code:** SWTM 3-3

Date: May 16, 2016 **Time (24h):** 1015 - 1040

Wetland #: WET-019 **Weather:** Precipitation: None Temp (° C): 6.

Veg Community #: ts57 Wind Speed & Direction: 4 NW Cloud %: 100

Wetland Type: S **Site Type:** P (R) **Dominant Form:** ts

Permanent Open Water: 0 % **Check one:** ○ central area ~~○ spread out in ponds~~

Photos: 0035

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
(ts) (%: 80)	Slender Willow (80%) Trembling Aspen (20%)
ls (%:)	
gc (%: 20)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
(m) (%: 70)	moss sp.
u (%:)	

Soil type: SC/CL Mineral ☒ Organic ☐ Depth of organics: 12 cm Organic Type: F M (H) Depth to bedrock: >60 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None

Wildlife Notes:

See separate page

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
  —
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  WT deer.
- ○ plant species (wild rice, cranberries)
  —
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  ✓
- ○ human related disturbances (fill, docks, houses, etc)
  —
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  deer stands
- ○ locations of seeps or springs, lagg
  —
- ○ iron precipitates, marl deposits
  —
- ○ winter cover for wildlife
  —
- ○ ungulate summer habitat, moose aquatic feeding habitat
  —
- ○ suitability for waterfowl breeding, staging, moulting
  —
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); Ø abandoned ag. field; ✓ utility corridor; Ø dec. forest; O recent cutover or clearcut (<5yr); Ø conif. forest; O mixed forest; O crops; Ø row crop; O abandoned pit/quarry; Ø pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; Ø fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  —
- ○ invasive species (plant, aquatic)
  —

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1786
Polygon: Area 86-E	60104 0143
UTM:	
Date: May 16, 2016	Time: 10:40 – 10:50
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 6°C, 100% CC, wind 4, No precip.	

Community Classification

Vegetation Type:	MEGM4-1 F-M Open Graminoid meadow
[ ] Inclusion:	
[ ] Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
[X] Terrestrial	[ ] Organic	[ ] Lacustrine	[ ] Talus	[ ] Lake	[ ] Barren
[ ] Wetland	[X] Mineral Soil	[ ] Riverine	[ ] Crevice/Cave	[ ] Pond	[X] Meadow
[ ] Aquatic	[ ] Parent Min.	[ ] Bottomland	[ ] Alvar	[ ] River	[ ] Prairie
	[ ] Acidic Bedrock	[ ] Terrace	[ ] Rockland	[ ] Stream	[ ] Thicket
History	[ ] Basic Bedrock	[ ] Valley Slope	[ ] Beach/Bar	[ ] Marsh	[ ] Savannah
[X] Natural	[ ] Carb. Bedrock	[X] Tableland	[ ] Sand Dune	[ ] Swamp	[ ] Woodland
[ ] Cultural		[ ] Roll. Upland	[ ] Bluff	[ ] Fen	[ ] Forest
	Site	[ ] Cliff		[ ] Bog	[ ] Plantation

Cover	Site	Plant Form		
[X] Open	[ ] Open Water	[ ] Plankton	[ ] Forb	[ ] Coniferous
[ ] Shrub	[X] Surficial Dep.	[ ] Submerged	[ ] Lichen	[ ] Mixed
[ ] Treed	[ ] Bedrock	[ ] Floating-Lvd.	[ ] Bryophyte	
		[X] Graminoid	[ ] Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	0	—
3	Understorey	4/5	1	Smooth Brome > Goldenrod sp. > Reed Canary
4	Groundcover	6/7	4	Smooth Brome > Goldenrod sp. > Wild Parsnip

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	[X] Pioneer	[ ] Young	[ ] Mid-age	[ ] Mature	[ ] Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Speckled Alder				R	
Silky Dogwood			R	R	
Trembling Aspen			R		
Nanny berry				R	

Species	Layer 1	2	3	4	Sample
Smooth Brome			O	D	
Wild Parsnip				O	
Goldenrod sp.			O	O	
Reed Canary			O		
Wool-grass			R		
Carex sp.				R	

Wildlife and Other Notes

Photo: 0008 No old milkweed stems noted. very heavily grass-dominated.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-051

Site: Natton Rise	1756
Polygon: Area 86-F	601040145
UTM:	
Date: May 16 2016	Time: 1115 - 1135
Surveyor(s): Christy Humphreys, Amanda Bickel	
Weather: 6°C, 100% CC, Wind 4 No precip.	

Community Classification

Vegetation Type:	SWDM4-2 White Elm Mineral Deciduous Swamp.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	6	—
1	Canopy	2	4	White Elm > Green Ash > White Cedar > Balsam Poplar
2	Sub-canopy	3	3	White Cedar > Green Ash > Speckled Alder > White Elm
3	Understorey	4/5	2	White Cedar > Manny berry > Silky Dogwood > Meadowsweet.
4	Groundcover	5	4	Carex sp. > Sensitive Fern > Fragaria virginiana

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	O	O			
White Cedar	R	O	O		
Balsam Poplar	R				
White Elm	A	O			
Meadowsweet			O		
Silky Dogwood			O		
Nannyberry			O		
Speckled Alder		O			

Species	Layer 1	2	3	4	Sample
Dewberry				O	
Sensitive Fern				O	
Blue Flags				O	
Carex sp				A	
Fragaria virginiana				O	
Buttercup				R	
Swamp Milkweed				R	
Carex aquatilis?				O	

Wildlife and Other Notes

0012.
h, ts, ne.
much richer than A polygon.

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

hS9
86-F

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60/040145

Observer(s): Christy Humphreys, Amanda Bichel **ELC Code:** SWDM4-2

Date: May 16/2016 **Time (24h):** 1115 - 1135

Wetland #: WET-019 **Weather:** Precipitation: — Temp (° C): 6

Veg Community #: hS9 Wind Speed & Direction: 4 Cloud %: 100

Wetland Type: S **Site Type:** R **Dominant Form:** h

Permanent Open Water: 5 % **Check one:** ○ central area ○ spread out in ponds

Photos: 0012

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	White Elm (90) > Green Ash (7) >> Balsam Poplar (3)
c (%: 5)	White Cedar
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 50)	White Cedar (60) > Green Ash (25) > Speckled Alder (15)
ls (%: 10)	Meadowsweet Silky Dogwood
gc (%: 20)	Sensitive fern Fragaria virginiana
ne (%: 60)	Carex sp. (90)
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ⊘ active beaver lodges/dams
- ⊘ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ⊘ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ⊘ plant species (wild rice, cranberries)
- ⊘ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟿)
  See map. ⟶
- ⊘ human related disturbances (fill, docks, houses, etc)
- ⊘ evidence of recreational activities (nature appreciation, fishing, hunting)
- ⊘ locations of seeps or springs, lagg
- ⊘ iron precipitates, marl deposits
- ○ winter cover for wildlife
  adjacent cedar forest; cedar component there.
- ⊘ ungulate summer habitat, moose aquatic feeding habitat
- ⊘ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  "permanent swamp" → permanent watercourse
- ⊘ vernal pools
  vernally flooded. (no pools at this time).
- ⊘ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-051

Site: Nation Rise	1756
Polygon: Area 86-6	
UTM:	
Date: May 16, 2016	Time: 12:10-13:35; 14:00-14:10.
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 7°C, Wind 4, 100% CC No precip	

Community Classification

Vegetation Type:	FOCM2-2 D-FWhite Cedar Coniferous forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	1	White Pine
1	Canopy	2	4	White Cedar >>, Trembling Aspen > White Birch
2	Sub-canopy	3	1	Alternate-leaved Dogwood
3	Understorey	3	0	
4	Groundcover	4	1	oak fern, sweet cicely, Sanicula sp., Canada mayflower

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7:<0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	O	10 - 24	A	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young		Mid-age	X	Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 05-2 C05
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
W. Cedar	D				
W. Birch	O				
Green Ash	R				
Trembling Aspen	O				
Sugar maple	R				
White Pine	R				
Basswood	R				
Alt-lvd Dogwood		O			

Species	Layer 1	2	3	4	Sample
Wild Ginger				R	
Sweet Cicely				R	
Botrychium virginianum				R	
White Trillium				R	
Lady Fern				R	
False Solomon's Seal				R	
V. Waterleaf				R	
Sanicula sp.				R	
Sarsaparilla				R	
Canada mayflower				R	
Trout Lily				R	
Rock Polypody				R	
Oak Fern				O	
Blue Cohosh				R	
Long-flowered Rattlewort				D	

Wildlife and Other Notes

1 very large DBH, outstanding super canopy White Pine, the only White Pine in the natural area. In the transition zone to adjacent polygon

Photos: 0016-0027, 0031-0034.

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	6		
Aspect:	—		
%	0		
Type:	Simple		
Class:	A		

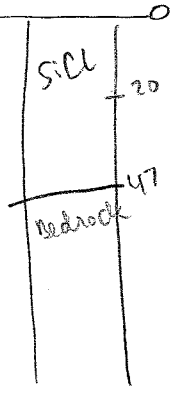
Strata:	Texture	SiCL		
	Depth	20		
Strata:	Texture	SiCL		
	Depth	47		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		SiCL		
Surface Stoniness				
Surface Rockiness				
Depth to:				
	Mottles	—		
	Gley	—		
	Bedrock	47		
	Water table	—		
	Carbonates	42		
Depth of Organics		—		
Pore Size Disc #1		—		
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		1		

Polygon: Area 86-G

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:



NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-051

Site: NATIONTRUST	17516
Polygon: Area 96 - H	
UTM:	
Date: May 16, 2016	Time: 13.35 - 1400
Surveyor(s): CHRISTY HUMPHREY, AMANDA RICHEL	
Weather: 7°C, Wind 4, 1009, CC, NO precip	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Green Ash >>> Basswood > Largetooth Aspen > Sugar Maple
2	Sub-canopy	3	2	Green Ash > Sugar Maple > Eastern Hemlock > Yellow Birch
3	Understorey	4/5	1	Ostrich Fern > Green Ash
4	Groundcover	4	4	Sensitive Fern > Lady Fern >> Trout Lily > Swamp Violet

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	A	O	O	D	
Largetooth Aspen	O				
E. Hemlock		R			
Basswood	O		O		
E White Cedar			R		
Yellow Birch		R			
Sugar Maple	O	O			
Balsam Fir			R	R	
Wild leek				R	
White Trillium				R	
River bank Grape				O	
Mountain maple			R		

Species	Layer 1	2	3	4	Sample
Ostrich Fern			O		
Wild Ginger				O	
Lady Fern				A	
Sensitive fern				A	
Foamflower				O	
Pyrola elliptica				O	
Jack in the Pulpit				R	
Sanicula sp				O	
Downy Yellow Violet				O	
Blue Cohosh				O	
Dutchman's Breeches				R	
Oak Fern				O	
Botrychium virg.				O	
Sweet Cicely				O	
Zig Zag Goldenrod				R	
Trout Lily				O	
Virg Waterleaf				O	
Maidenhair Fern				O	
Large-flowered Bellwort				O	
Barberry sp.				O	
Wood Nettle				O	
Carex spp.				O	
Sharp-lobed Hepatica				R	

Wildlife and Other Notes

0028

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

h54

Wetland Vegetation Communities

mea 86-H

Project Name: NATION RISE **Project #:** 1756 **Parcel #:** 601040143

Observer(s): CHRISTY HUMPHREY, AMANDA BICHEL **ELC Code:** SWDM2-2

Date: May 16, 2016 **Time (24h):** 13:35-1400

Wetland #: WET-019 **Weather:** Precipitation: — Temp (° C): 7

Veg Community #: h54 Wind Speed & Direction: 4 SW Cloud %: 100

Wetland Type: Swamp **Site Type:** R **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 0028

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Green Ash (80%)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%: 30)	Sensitive Fern (25) Lady Fern (15).
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: CL Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; F=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  see wildlife sheet
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  none noted in field; air photo review for entire wetland
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; ☒ utility corridor; ☒ dec. forest; O recent cutover or clearcut (<5yr); ☒ conif. forest; ☒ mixed forest; O crops; ☒ row crop; O abandoned pit/quarry; ☒ pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; ☒ fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  pooling in SW area
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

WOD-051

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 86

Date: May 16, 2016 **Start Time:** 8:45am **End Time:** 5:00pm **Observers:** Amanda Pichel, Christy Humphrey

Weather Conditions:

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture	✓		
Meadow	✓		
Thicket, Woodland, Hydro Corridor	✓		
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest *		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 16, 2016

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 86

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal pools (would be present in spring, but already dried up)	N/A		28	Green Ash swamp	V
Swamp	N/A	—	—		No nest boxes observed
Hay - polygon E Meadow.				20m long x 5m wide x 1.6m tall	older. ✓
Rock Pile	2	17T 491639 4995154	49 + 50 57	5m x 3m x 1.3m - this one is newer, little to no veg growing out. Too shallow + too new, not suitable.	
cavity trees.	—	—	—	No trees >25cm DBH in C polygon. H polygon >120m from turbine.	—
* old growth	1	491995 4995350	—	mature. Lack of non-native species. One large supercanopy White Pine.	NA.

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Northern Harrier	OB	1		B	White-throated Sparrow	S	1	
B	Gray Catbird	S	1			Common yellowthroat	S	1	
B	Song Sparrow	S	11			Great Crested Flycatcher	S	1	
B	Blue Jay	OB	1			Am. Robin	S/OB	11	
B	Red-winged Blackbird	OB	8			Downy Woodpecker	S	1	
M	White-tailed Deer	TK	1			Wild Turkey	OB	1	
B	Savannah Sparrow	S	1			Am. Goldfinch	S	2	
B	Ruffed Grouse	D	1			Yellow Warbler	S	1	
B	Northern Flicker	S	1		✓	Black + White Warbler	S	11	

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Black-capped Chickadee OB 1; Rose-br. Grosbeaks; Am. Crow; Ovenbird S; Am. Redstart OB; Baltimore Oriole;

Feb 16 2017 CLH

1756 May 16 2016
Christy Humphreys, Amanda Bidwell

Ministry of Natural Resources and Forestry

Ontario

Make-a-Map: Natural Heritage Areas

Area 130

Notes:
Enter map notes

-TEW P10

WOD-052

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland
- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)
- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan
- Boundary
- River Valley Connections

Land Use Designations
- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area

Niagara Escarpment Plan (NEP)
- Boundary
- Parks and Open Space System

Land Use Designations
- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)
- Boundary

Land Use Designations
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0 0.2 km

Projection: Web Mercator

The Ontario Ministry of Natural Resources and Forestry shall not be liable in any way for the use of, or reliance upon, this map or any information on this map. This map should not be used for: navigation, a plan of survey, routes, nor locations.

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NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-052

Site: Nation Rise	1756
Polygon: Area 130 -A	601040145
UTM:	
Date: May 16 2016	Time: 17:25 - 17:45
Surveyor(s): Christy Hawthorn, Amanda Bickel	
Weather: 9°C 100% Cl Wind 4 No precip.	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Mineral Decid. Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep	Floating-Lvd	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1		
1	Canopy	2	4	Green Ash >> White Elm
2	Sub-canopy	3	1	Manitoba Maple > Common Buckthorn
3	Understorey	4/5	3	Common Buckthorn > Choke Cherry > Red Raspberry > Red Elderberry
4	Groundcover	9	3	Common Blue Violet > Carex sp. > Fragaria virginiana > Toxicodendron rydbergii

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	A	25 - 50	O	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	D				
Manitoba Maple		O			
White Elm	O		O		
Toxicodendron rydbergii				O	
Red Elderberry			O		
Red Raspberry			O		
Choke Cherry			O	O	
Hawthorn sp.			R		
Ribes americanum				O	
Common Buckthorn		O	O		

Species	Layer 1	2	3	4	Sample
Ranunculus abortivus				O	
Baneberry sp.				R	
Pimpleweed				O	
Common Blue Violet				O	
Downy Yellow Violet				O	
Carex sp.				O	
White trillium				R	
Red Straw				O	
Fragaria virginiana				O	
Sweet Cicely				R	

Wildlife and Other Notes

0052, 0053
h. bs

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

hS2

Wetland Vegetation Communities

Area 130.

Project Name: Nation Rise | Project #: 1756 | Parcel #: 60104 0145

Observer(s): Christa Humphrey, Amanda Richel | ELC Code: SWDM2-2

Date: May 16 2016 | Time (24h): 17:25-1745

Wetland #: WET-019 | Weather: Precipitation: None | Temp (° C): 9

Veg Community #: hS2 | Wind Speed & Direction: 4 | Cloud %: 100

Wetland Type: S | Site Type: R | Dominant Form: h

Permanent Open Water: 10 % | Check one: ⊗ central area ○ spread out in ponds

Photos: 0052, 0053

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Green Ash > White Elm.
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%: 50)	Common Buckthorn > Choke Cherry.
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, Sl-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees (>6m); c=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: S=swamp; M=marsh; W=open water marsh; B=bog; F=fen

Site Type: L=lacustrine (lake at least 8ha); P=palustrine; R=riverine; IS=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- Ø locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- Ø wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- Ø plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  See map.
- Ø human related disturbances (fill, docks, houses, etc)
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- Ø locations of seeps or springs, lagg
- Ø iron precipitates, marl deposits
- Ø winter cover for wildlife
- Ø ungulate summer habitat, moose aquatic feeding habitat
- Ø suitability for waterfowl breeding, staging, moulting
- Ø surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; Ø utility corridor; Ø dec. forest; Ø recent cutover or clearcut (<5yr); Ø conif. forest; Ø mixed forest; O crops; Ø row crop; O abandoned pit/quarry; Ø pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; Ø fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  permanent "swamp" (watercourse)
- Ø vernal pools
  none
- ○ invasive species (plant, aquatic)
  Common Buckthorn,

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

WOD-052

Wildlife Habitat Field Data Collection

Area 130

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 17576 **Area and/or Polygon ID:** 6010401145

Date: May 16, 2016 **Start Time:** 5:25pm **End Time:** 5:45pm **Observers:** Amanda Bisbee, Christy Humphrey

Weather Conditions:

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians. **All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp	✓		
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size.
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence		✓	
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks.
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: may 16 2016

Project Name: Notion Rise | Project #: 1756 | Area and/or Polygon ID: 130

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Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp				No stick nests observed No deciduous sapling growth for WOTH habitat only mature & mid age trees with heavy shrub layer (non-tree).	—

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Red-winged Bb	DD	☒						
B	Common Grackle	S	1						
B	American Robin	S	1						
B	American Crow	S	1						
B	Song Sparrow	S	1						
B	Warbling Vireo	S	1						
B	Northern Cardinal	S	1						
B	Northern Flicker	S	1						
B	Brown-thrasher	S	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

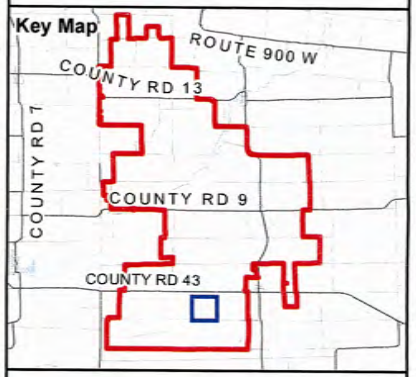
Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

May 18, 2016 - May 19
Christy Humphrey, Amanda Bichel

Nation Rise Wind Project

Natural Features Field Map

Area 74



Legend

- Utility Line
- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756	NAD83 - UTM Zone 18
Date: May 13, 2016	Size: 8.5 x 11"
	1:5,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-053

Site: Nation Rise	TSG
Polygon: Area 74-A	
UTM:	
Date: May 18 2016	Time: 13:10-14:25
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 18°C, CC70%, Wind 1, No precip.	

Community Classification

Vegetation Type:	FOMM7 FM White Cedar-Hardwood mixed Forest
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	O	—
1	Canopy	2	4	White Cedar = Green Ash > Juglans sp > Sugar Maple
2	Sub-canopy	3	3	Green Ash > Maitain Maple > Basswood > White Cedar
3	Understorey	5/6	2	Choke Cherry > Basswood > Alt-lvd Dogwood
4	Groundcover	9	4	Ostrich Fern > Trout Lily > White Trillium > Virginia Waterleaf

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	O	> 50
Snags	R	< 10	R	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	R	< 10	R	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth
			X		

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Juglans sp.					
White Cedar	O	O			
Green Ash	O	O			
Basswood	O	O	O		
Blue Oak.		R			
Sugar Maple	O	O	O		
Manitoba Maple			R		
Norway Spruce	R				
Blue Beech		R			
Common Buckthorn		R			
Maitain Maple		O			
Red Elderberry		O	O		
Alt-lvd Dogwood		O	O		
Choke Cherry			O		
Red Raspberry			O		

Species	Layer 1	2	3	4	Sample
Reed Canary				R	
Cottonwood sp.				O	
Fragaria virginiana				O	
Ostrich Fern				O	
Trout Lily				O	
Lady Fern				O	
Banaberry sp.				O	
Red Trillium.				O	
Wild Ginger				R	
Dutchman's Breeches				O	
Virginia Waterleaf				O	
Sensitive Fern				R	
White Trillium				O	
Blue Cohosh.				O	
Jack in the Pulpit				R	
Buggell's Plantain				R	

Wildlife and Other Notes

~70% canopy closure
Fairly open community as a result of small amount of on-going clearing, trails into the Bush

0164-0188

No Toothwort observed.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-053

Site:	Nation Rise 1756
Polygon:	Area 74-B
UTM:	
Date:	May 18 2016 Time: 14:25 - 16:45
Surveyor(s):	Christy Humphrey Amanda Bichel
Weather:	18°C CC 70% Wind 1, No Precip

Community Classification

Vegetation Type:	SWDM3-1 Red Maple Mineral Deciduous Swamp
Inclusion:	
Complex:	

Also May 19, 2016 10:30 - 1130

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	X Shallow Water	Submerged	Lichen	Mixed
X Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
-	Super-canopy	1	0	
1	Canopy	2	4	Red Maple > Green Ash > White Elm
2	Sub-canopy	3	3	Red Maple > Green Ash > White Elm > White Cedar
3	Understorey	5	1	Choke Cherry > Rose) americanum
4	Groundcover	9	4	Ostrich Fern = Sensitive Fern > Trout Lily > Meadow Horsetail

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	A	25 - 50	R	> 50
Snags	R	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 70 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Red Maple	D	O			
Green Ash	O	O			
White Cedar		O	R	R	
White Elm	R	O			
E. Cottonwood	R				
Yellow Birch		R			
Aster sp.				O	
Ranunculus abortivus				O	
Reed Canary				R	
Water Parsnip				R	
Swamp Milkweed				R	
Carex sp.				O	
Blue Beech		R			
Choke Cherry			O	O	
Virgin's Creeper				O	
Toxicodendron rydbergii				O	
Red Raspberry				O	
Red Elderberry			6		
Nannyberry			O	O	
Ribes americanum			O		

Species	Layer 1	2	3	4	Sample
Toothwort				R	
Ostrich Fern				O	
White Trillium				O	
Trout Lily				O	
Oak Fern				R	
Sensitive Fern				O	
Baneberry				O	
Canada Mayflower				O	
Virginia Berver				R	
Lady Fern				O	
Wild Ginger				O	
Downy Yellow Violet				O	
Jack-in-the-pulpit				O	
Hairy Solomon's Seal				O	
Spinulose Wood Fern				O	
Foamflower				O	
Sarsaparilla				O	
Dutchmania Bracteata				O	
Red Trillium				O	
Meadow Horsetail				O	
Wood Nettle				O	
Caltha palustris				O	
Impatiens sp.				R	

Wildlife and Other Notes

h, gc 099, 0192, 267-270

Modified ELC Community Description

Page __ of __

Soils	1	2	3
Position:	6		
Aspect:	—		
%	0		
Type:	Simple		
Class:	A		

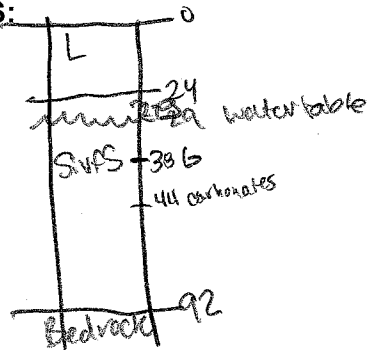
Strata:	Texture	L		
	Depth	24		
Strata:	Texture	SiVFS		
	Depth	92		
Strata:	Texture			
	Depth			
Strata:	Texture			
	Depth			
Effective Texture		SiVFS		
Surface Stoniness				
Surface Rockiness				
Depth to:				
	Mottles	27		
	Gley	38		
	Bedrock	92		
	Water table	29		
	Carbonates	44		
Depth of Organics		—		
Pore Size Disc #1		24		
Pore Size Disc #2				
Pore Size Disc #3				
Moisture Regime		6		

Polygon: Area 74-B

Tree Tally

Species	Tally 1	Tally 2	Tally 3
Total:			
Basal Area			
Snags			

NOTES:



NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-020

h53

Wetland Vegetation Communities

Area 74-B

Project Name: Nation Rise **Project #:** 17556 **Parcel #:** 60104006|

Observer(s): Christy Humphrey + Amanda Bichel **ELC Code:** SWDM3-1

Date: May 18, 2016 **Time (24h):** 14:25 - 16:45

Wetland #: WET-020 **Weather:** Precipitation: None Temp (° C): 18

Veg Community #: h53 Wind Speed & Direction: 1 Cloud %: 70

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 0189, 0192, 1268-270

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 95)	Red Maple (40) Green Ash (30) White Elm (10)
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%: 60)	Ostrich fern (30) Sensitive fern (30) Trout Lily (10) Meadow Horsetail (5)
ne (%: 10)	Carex sp.
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: S-VFS Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: 92 cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- Ø locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- Ø wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  see separate data form
- Ø plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----->)
  See map. NONE
- Ø human related disturbances (fill, docks, houses, etc)
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- Ø iron precipitates, marl deposits
- Ø winter cover for wildlife
- Ø ungulate summer habitat, moose aquatic feeding habitat
- Ø suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  hilly - esker
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); Ø abandoned ag. field; Ø utility corridor; Ø dec. forest; Ø recent cutover or clearcut (<5yr); Ø conif. forest; Ø mixed forest; O crops; Ø row crop; O abandoned pit/quarry; Ø pasture; O ravine; Ø terrain appreciatbly undulating, hilly or with ravines; Ø fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- Ø vernal pools
  mapped
- Ø invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site:	Nation Rise 1756
Polygon:	Pria 74-C
UTM:	
Date:	May 18, 2016 Time: 14:55 - 15:00 15:10 - 15:20
Surveyor(s):	Christy Humphreys, Amanda Reid
Weather:	18°C, CC 70%, wind [No precip

Community Classification

Vegetation Type:	SwTM3 Willow Mineral Deciduous Thicket Swamp
X Inclusion:	MAMM1-2 Cattail Graminoid Mineral meadow marsh
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	4	Willow sp. = Trembling Aspen > Typha latifolia
3	Understorey	3-4	1	Willow sp. > Red Raspberry > Ribes Cynosbati > Juncus effusus.
4	Groundcover	3-4	4	Reed Canary >> Wool-grass > Sensitive Fern > Virginia Waterleaf

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	N	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	O	< 10	R	10 - 24	R	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen		O	O		
White Elm		O	O		
Balsam Poplar		R	O		
Red maple		O	O		
Hemlock	R				

Species	Layer 1	2	3	4	Sample
Red Canary				O	
Typha latifolia			O		
Sensitive fern				D	
Virginia waterleaf				O	
Field Horsetail				O	
Bishop's Cap				O	
Goldenrod sp.				O	
Juncus effusus			O		
Wool-grass				O	
Phragmites		O			
Foam Flower				O	

Species	Layer 1	2	3	4	Sample
Willow sp.		A	O		
Red Raspberry			O		
Swamp Red Currant			R		
Ribes Cynosbati			O		

Species	Layer 1	2	3	4	Sample
Moss sp.				A	
Re					

Wildlife and Other Notes

Photos 190, 191 Regeneration after clear-cut
ts gc me, m

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-020

~~ES~~ S8

Wetland Vegetation Communities

Area 74-C

Project Name: Nation Rise	**Project #:** 1756	**Parcel #:** 601040061	
Observer(s): Christy Humphrey + Amanda Bichel		**ELC Code:** SWTM3	
Date: May 18, 2016	**Time (24h):** 14:55 - 15:10		
Wetland #: WET-020	**Weather:** Precipitation: None	Temp (° C): 18	
Veg Community #: ~~ES~~ S8	Wind Speed & Direction: 1	Cloud %: 70	
Wetland Type: S	**Site Type:** P	**Dominant Form:** ES.	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos: 190, 191			

Forms (>25% absolute cover)		Dominant Species (give % relative cover)
h (%:)		
c (%:)		
≥10%	dc (%:)	
	dh (%:)	
ds (%:)		
ts (%: 80)		Willow sp (45) Trembling Aspen (40) Red maple (10)
ls (%:)		
gc (%: 40)		Sensitive fern (50) Virginia Waterleaf (30) Field Horsetail (20)
ne (%: 60)		Reed Canary (70) Wool-grass (20) Juncus effusus (10)
be (%:)		
re (%: 15)		Typha latifolia
≥10%	ff (%:)	
	f (%:)	
	su (%:)	
m (%: 50)		Moss spp.
u (%:)		

Soil type: Silt S. Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: 92 cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----→)
  see map.
- ○ human related disturbances (fill, docks, houses, etc)
  Regeneration after clearing
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer.
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  rolling - esker.
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-053

Site: Nation River	1756
Polygon: Area 74-D	
UTM:	
Date: May 18 2016	Time: 16:45 – 18:15
Surveyor(s): Christy Humphrey, Amanda Bickell	
Weather: 18°C, CC 10%, Wind 1 N spring	

Community Classification

Vegetation Type:	FOMM7-2 Fresh-Moist White Cedar-Hardwood mixed	
X	Inclusion:	THOM2-3 Raspberry Deciduous Shrub Thicket
	Complex:	

Also May 19 2016 11:30 – 12:10

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	X Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	White Cedar, Sugar Maple > Yellow Birch, White Elm — 70%
2	Sub-canopy	3	4	Yellow Birch > Red Maple > White Cedar > Alt-lvd Dogwood — 95%
3	Understorey	4/5	2	Common Buckthorn > Alt-lvd Dogwood > Sugar Maple > White Cedar
4	Groundcover	9	4	Canada mayflower > Violet spp. > Gallium triflorum > White Trillium

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	0	< 10	A	10 - 24	0	25 - 50	0	> 50
Snags	R	< 10	0	10 - 24	0	25 - 50	R	> 50
Deadfall/Logs	0	< 10	0	10 - 24	0	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

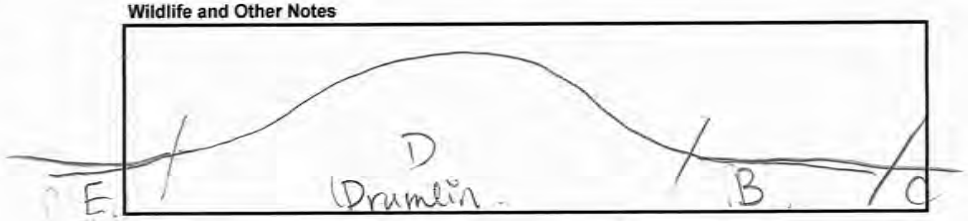
Layers: >10 2-10 0.5-2 <0.5.
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Yellow Birch	R	O			
White Cedar	R	O	O		
Red maple		O	O		
Burozk		O			
Trembling Aspen	O	O			
White Elm	O	O			
Basswood	O	O			
Bitternut Hickory		R			
Sugar Maple	O	O	O		
Ironwood		R			
Hemlock	R				
Alt-lvd Dogwood		O	O		
Silky Dogwood		O			
Staghorn Sumac		R			
Common Buckthorn		O	O		

Species	Layer 1	2	3	4	Sample
Red Canary				R	
Dary Yellow Violet				O	
Lady Fern				O	
Canada mayflower				O	
Sensitive Fern				O	
Smooth Whit Violet				R	
Oak Fern				R	
Hairy Solomon's Seal				O	
Virgin's Bower				O	
Gallium triflorum				O	
Baneberry				O	
Bloodroot				O	
Ground Pine			*	O	
Canada Yew			O		
Canada Violets				O	
White Trillium				O	

Wildlife and Other Notes



No Toothwort Obs.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-053

Site: Nation Rise	1756
Polygon: Area 74 - E	
UTM:	
Date: May 18 + 19, 2016	Time: 18th: 1600-1645/19th: 0920-1030
Surveyor(s): Christy Humphrey	
Weather: 18°, CC 70%, Windy, No precip.	

Community Classification

	Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
X	Inclusion:	SWTM2-1 Red Osier Dogwood Mineral Deciduous Thicket Swamp; 1
	Complex:	

Polygon Description

System		Substrate		Topo Feature			Community			
	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
X	Wetland	X	Mineral Soil		Riverine		Crevice/Cave		Pond		Meadow
	Aquatic		Parent Min		Bottomland		Alvar		River		Prairie
			Acidic Bedrock		Terrace		Rockland		Stream		Thicket
History			Basic Bedrock		Valley Slope		Beach/Bar		Marsh		Savannah
X	Natural		Carb. Bedrock	X	Tableland		Sand Dune	X	Swamp		Woodland
	Cultural				Roll. Upland		Bluff		Fen		Forest
		Site			Cliff				Bog		Plantation

Cover		Site		Plant Form		
	Open		Open Water		Plankton		Forb		Coniferous
	Shrub	X	Shallow Water		Submerged		Lichen		Mixed
X	Treed		Surficial Dep.		Floating-Lvd.		Bryophyte		
			Bedrock		Graminoid	X	Deciduous		

Stand Description

	Layer	HT	Cover	Species
	Super-canopy	1	0	—
1	Canopy	2	3	Green Ash ≥ White Elm > White Cedar > Red Maple
2	Sub-canopy	3	4	White Elm > Red Maple > White Cedar = Green Ash
3	Understorey	4/5	2	Common Buckthorn > Choke Cherry > White Cedar > Red Maple
4	Groundcover	5	4	Carex spp. > Sensitive Fern > Sarsaparilla > Virginia Waterleaf

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	0	< 10	0	10 - 24	0	25 - 50	0	> 50
Snags	0	< 10	0	10 - 24	0	25 - 50	0	> 50
Deadfall/Logs	0	< 10	0	10 - 24	0	25 - 50	0	> 50

Abundance Codes: N None R Rare O Occasional A Abundant

Community Age		Pioneer		Young		Mid-age	X	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

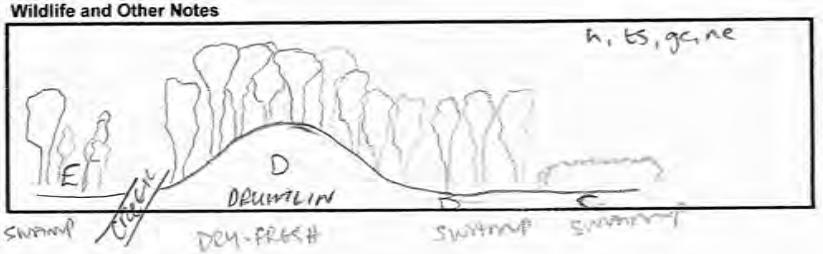
Layers: 1=canopy 7-10 2=sub-canopy 2-10 3=understorey 0.5-2 4=ground layer <0.5

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Bur Oak	R	O	O	R	
Green Ash	O	O	O		
White Elm	O	O	O		
White Cedar	O	O	O	O	
Trembling Aspen	R	O	O		
Manitoba Maple		O	O		
Basswood	R	O	O		
Red maple	O	O	O	O	
Yellow Birch	R	O	O		
Sugar maple		O	O		
Willow SP.		O	O		
Toxicodendron radicans				O	
Choke Cherry			O	O	
Red Raspberry			O		
Common Buckthorn		O	O		

Species	Layer 1	2	3	4	Sample
Common Blue Violet				O	
Dandelion				O	
Sensitive Fern				O	
Carex spp.				O	
White Trillium				O	
Canada mayflower				O	
Oak fern				R	
Lady Fern				O	
Virginia Waterleaf				O	
Red Trillium				O	
Viola macloskeyi				R	
Baneberry sp.				O	
Bloodroot				O	
Blue Cohosh				O	
Wild Ginger				O	
Galium triflorum				O	
Sarsaparilla				O	
Bishop's Cap				O	

Wildlife and Other Notes



NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-019

hS10

Wetland Vegetation Communities

Area 74-E

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60104 0061

Observer(s): Christy Humphrey + Amanda Bichel **ELC Code:** SWDM 2-2

Date: May 18 + 19, 2016 **Time (24h):** 18th 1600-1645 / 19th: 09:20-10:30

Wetland #: WET-019 **Weather:** Precipitation: None Temp (° C): 18

Veg Community #: hS10 Wind Speed & Direction: 1 Cloud %: 70

Wetland Type: S **Site Type:** R **Dominant Form:** h

Permanent Open Water: 5 % **Check one:** ☒ central area ○ spread out in ponds

Photos:

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 50)	Green Ash (35) White Elm (35) Red maple (10)
c (%: 20)	White Cedar (100)
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 70)	White Elm (30) Red maple (20) White Cedar (15) Green Ash (15)
ls (%:)	
gc (%: 60)	Sensitive Fern (20) Sarsaparilla (10) Virginia Waterleaf (5) Common Blue Violet (5)
ne (%: 25)	Carex spp.
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: S. S. Mineral ☐ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- Ø active beaver lodges/dams
- Ø locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- Ø wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
  See separate data form.
- Ø plant species (wild rice, cranberries)
- Ø location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map ⟶
- Ø human related disturbances (fill, docks, houses, etc)
- Ø evidence of recreational activities (nature appreciation, fishing, hunting)
- Ø locations of seeps or springs, lagg
- Ø iron precipitates, marl deposits
- ○ winter cover for wildlife
  cedar.
- Ø ungulate summer habitat, moose aquatic feeding habitat
  deer
- Ø suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  rolling - eskers
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: (Yes) No (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  "see permanent swamps" - permanent watercourse.
- Ø vernal pools
- Ø invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

Site: Nation Rise	1756
Polygon: Area 74 - F	
UTM:	
Date: May 19 2016	Time: 12:10 - 12:20
Surveyor(s): Crosby Humphrey, Amanda Bichel.	
Weather: 20°C, Wind 1, CC 30%, No precip	

Community Classification

Vegetation Type:	MEGM3-5 Smooth Brome Graminoid Meadow
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	X Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		X Roll. Upland	Bluff	Fen	Forest
	Site	Cliff Drumlin		Bog	Plantation

Cover	Site	Plant Form		
X Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	X Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1	<1	White Elm
2	Sub-canopy	3	1	Sumac > White Elm
3	Understorey	4/5	1	Red Raspberry > Sumac
4	Groundcover	6/7	4	Smooth Brome >>> Tansy > Goldenrod sp. > Dandelion

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0: none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	X Young	Mid-age	Mature	Old Growth

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Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Basswood			R		
Staghorn Sumac		O	O		
Red Raspberry			O		
White Elm	R	R			

Species	Layer 1	2	3	4	Sample
Smooth Brome				A	
Goldenrod sp.				O	
Butter n Eggs				O	
Tufted Vetch				O	
Wild Carrot				O	
Dandelion				O	
Motherwort				O	
Tansy				O	

Wildlife and Other Notes

Photos 271

No Milkweed Noted. (no old stems obs.)

Small gravel area in this meadow. — gravel is dense likely too dense for turtle nesting. may be suitable for nighthawk resting.

Field rock pile also present

Weather May 18 - 20°C, 1=wind, 50% cloud cover, no precip
May 19 - 20°C, 1=wind, some cloud cover, no precip.

WOD-053

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rising **Project #:** 1756 **Area and/or Polygon ID:** 74

Date: May 18, 2016 + May 19 **Start Time:** 1:15pm 9:00am **End Time:** 6:40pm 12:00pm (May 19th) **Observers:** Amanda Bichel, Christy Humphrey

Weather Conditions:

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool	✓		
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow	✓		
Thicket, Woodland, Hydro Corridor	✓		
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	
Old Foundation		✓	
Burrows or Dens			**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 18, 2016

Project Name: Nation Rise | Project #: 756 | Area and/or Polygon ID: 74

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	1	0491300 4996517 ±7	192	• lots of sticks • some sedges • might not last until July • spread out into 5 to 6 pools	
Vernal pool	1	0491294 4996786 ±7	267-269	• may last until July but heavily vegetated • small-medium area • 10cm deep	• wood frog (3) • phrag • green frog (1) • ~600 tadpoles (picture 270) – Spring Peeper.
Rock pile	1	0491207 ±5 4997188	271-	• 20m long x 5m wide x 2m high. • old.	
meadow	1	see map F	271	Drumlin. Small projection, few perches. Some rock piling.	
Hydro Corridor	1	see map.			

sign. Amph. woodland breeding hab.

TY	Species	EV	#	Notes
B	Downy	OB	:	
	Flicker	OB	:	
N	Cardinal	S	:	
	Chipping Sparrow	S	:	
	American Goldfinch	S	:	
	Red-winged Blb	S/H	:	
	Song Sparrow	S	:	
V	Crow	S	:	
D	Azure	OB	:	
B	Black & white Warbler	OB/S	:	
	Grey Catbird	S	:	
	Yellow-bellied sapsucker	FE	•	
	Red-tailed Hawk	OB	•	
	Alder Flycatcher	S	:	
	Wood Thrush	S	:	
	Turkey Vulture	OB	•	

TY	Species	EV	#	Notes
M	Robin	S/H	:	
M	Raccoon	TK	•	
B	Ovenbird	S	:	
M	Jumping Mouse	OB	:	
B	Warbling Vireo	S	:	
B	Common Yellowthroat	S	:	
B	Eastern kingbird	S	:	
	Garter Snake	OB	:	
M	Deer	OB/TK	:	
B	Yellow warbler	S	:	
	Grey catbird	S	:	
	Mourning Dove	S	:	
	Blue Jay	OB/S	:	
	Killdeer	S	:	
	Rose-breasted grosbeak	S	:	
V	Ruffed Grouse	S	:	
	Chickadee	S	:	
D	Mourning Cloak	OB	•	
B	Eastern Wood Peewee	S	•	

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Great Crested Flycatcher S :
White nuthatch S :
M Red squirrel OB/S
B N. Parula S •
Wild Turkey TK • Black-throated Blue warblers •

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

Project Name: Nation Rise Project #: 1756

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Start Time 9:55 End Time 2:00pm Date: May 19, 2016 Observer(s): Amanda Bichel, Christy Humphrey

Polygon or Area ID (74 (Northside) Weather Conditions: 15°, 30% cloud, 0 wind, no precip.

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	0	0491109, 4996793 ± 7	
Plot 2	2	0491160, 4996769 ± 5m	
Plot 3	1	0491183, 4996732 ± 6m	
Plot 4	1	0491225, 4996803 ± 7m	
Plot 5	1	0491229, 4996839 ± 7m	
Plot 6	0	0491190, 4996814 ± 5m	
Plot 7	0	0491222, 4996899 ± 7m	
Plot 8	0	0491284, 4996726 ± 6m	
Plot 9	0	0491329, 4996700 ± 8m	
Plot 10	0	0491333, 4996741 ± 7m	
Plot 11	2	0491337, 4996785 ± 8m	
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Total 11

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

...fect Manager Use Only

...ally

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

= 11 / (11 x 0.05) = 11 / 0.55 = 20

> or = 10/ha? (Yes) / No

If >10/ha: BMA- 003

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Project Name: National Grid Project #: 1750

Start Time 2:35 End Time 6:35 pm. Date: May 18, 2016 Observer(s): Amanda Bichel, Christy Humphrey

Polygon or Area ID (74) South of T-line Weather Conditions:

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	0	0491270, 4996245 ± 7m	
Plot 2	1	0491296, 4996322 ± 6m	
Plot 3	1	0491295, 4996367 ± 5m	
Plot 4	1	0491246, 4996474 ± 7m	
Plot 5	0	0491210, 4996491 ± 7m	
Plot 6	0	0491217, 4996419 ± 4m	
Plot 7	0	0491254, 4996367 ± 7	
Plot 8	1	0491277, 4996342 ± 5	
Plot 9	0	0491204, 4996517 ± 5	
Plot 10	1	0491259, 4996572 ± 6	
Plot 11	2	0491148, 4996675 ± 8	
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Combining N + S of T-Line as one unit (T-line treated as inclusions)
Cavity tree density is as follows:

$(11 + 11) / ((11 + 11) \times 0.05)$

$22 / (22 \times 0.05)$

$22 / 1.1 = 20$ cavity trees / ha.

Total: 11

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

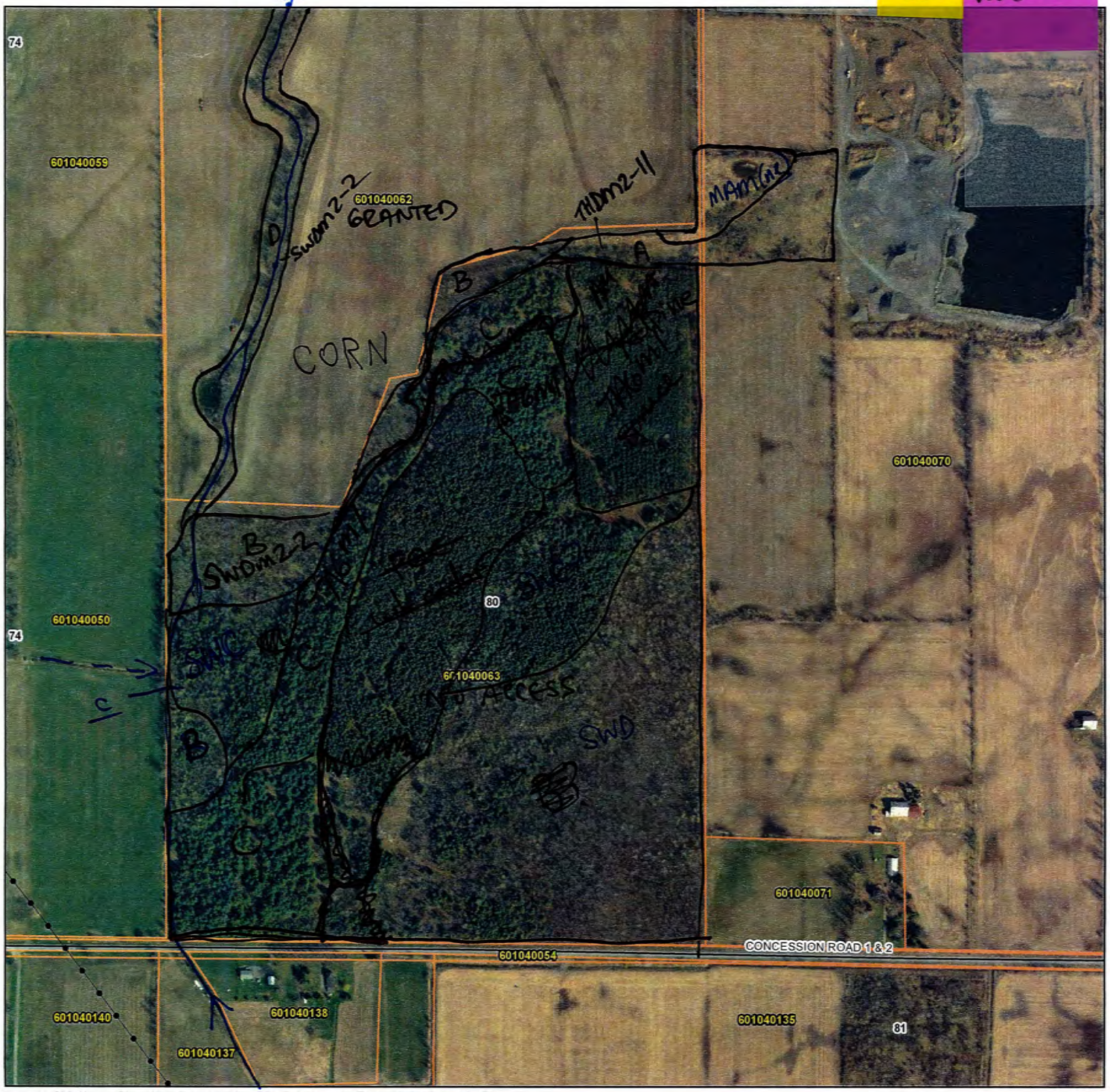
Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = $11 / (11 \times 0.05) = 11 / 0.55 = 20$ > or = 10/ha? (Yes) / No If >10/ha: BMA- 003

WET-020

WOD-054

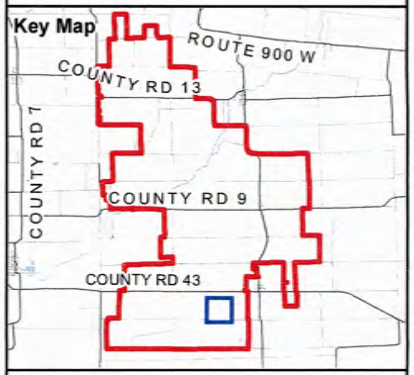
Feb 2 2017
JBB, AMC



Nation Rise Wind Project

Natural Features Field Map

Area 80



Legend

- Utility Line
- Secondary Road
- Land Parcel

– air photo interp.

601040062 – access granted

No access to 601040063 at this time

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: November 2, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:6,000

0 50 100 150 Meters

N

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Modified ELC Community Description Page __ of __

WOD-054

★PROPERTY LINE ASSESSMENT★

Site: NATION RISE		1756
Polygon: 601040063-B, Assessed from 601040062		Area 80
UTM:		
Date: Feb 2, 2017	Time: 08:18 - 08:30	
Surveyor(s): JBB, AMC		
Weather: -15°C, cc 5%, w 2W, no precip		

Community Classification

Vegetation Type:	SWDM 2-2 Green Ash Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	/ Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy		4	sycamore > manitoba maple > black ash
2	Sub-canopy		3	green ash > black ash > manitoba maple
3	Understorey		1	common buckthorn > red raspberry > R.O. dogwood
4	Groundcover		/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	A	10 - 24	O	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Green Ash	O	A	A		
White Cedar		O	O		
Manitoba Maple	O	O	O		
Tremb. Aspen	O	O			
Black Ash	O	O			
White Pine	O	O			
C. Buckthorn			O		
R.O. Dogwood			O		
Red Raspberry			O		
Nanny Berry			O		
Hawthorn sp.			O		

Species	Layer 1	2	3	4	Sample
Smooth Bone.				O	
Sp. Dogband			R		
Tall Graminoid			O		

Wildlife and Other Notes

- Snow covered ground layer, cannot assess below
- soil/moisture regime unknown.
- assessed from property line

Photos: 137-139

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-020

WS1

Wetland Vegetation Communities

Project Name: NATION RISE **Project #:** 1756 **Parcel #:** 601040062-B

Observer(s): JBB, AMC **ELC Code:** SWDM2-2

Date: Feb. 2, 2017 **Time (24h):** 8:18 830

Wetland #: WET-020 **Weather:** Precipitation: NONE Temp (° C): -15°C

Veg Community #: WS1 Wind Speed & Direction: 2 W Cloud %: 5%

Wetland Type: S **Site Type:** R **Dominant Form:** h

Permanent Open Water: 25 % **Check one:** ⊗ central area ○ spread out in ponds creek

Photos: 137-139

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Green Ash > Manitoba Maple > Black Ash
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None

Wildlife Notes:

Assessed from property line. Snow covered ground layer, cannot assess below. Soil/moisture regime unknown.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----⟶)
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat agriculture to each side. steep slope to creek
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; Ø crops; Ø row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; Ø creek floodplain; O rock outcrop
  con. plantation
- ○ fish habitat present: (Yes) (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
  creek through center
- ○ vernal pools
- ⊗ invasive species (plant, aquatic)
  common buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

★ PROPERTY LINE ASSESSMENT ★ WOD-054

Site: NATION RISE	1756
Polygon: 601040063-C Assessed from 601040062	AREA 80
UTM:	
Date: Feb 2, 2017	Time: 0930-843
Surveyor(s): JBB, AMC.	
Weather: -15°C, cc 5%, w 2W, no precip	

Community Classification

Vegetation Type:	TAGM - Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Site	Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous	
Shrub	Shallow Water	Submerged	Lichen	Mixed	
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte		
	Bedrock	Graminoid	Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	4	white pine >7
2	Sub-canopy	3	1	white pine
3	Understorey	4-5	1	common buckthorn
4	Groundcover	6-7	—	snow covered - cannot assess.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	0	< 10	A	10 - 24	A	25 - 50	R	> 50
Snags	0	< 10	0	10 - 24	0	25 - 50	N	> 50
Deadfall/Logs	0	< 10	0	10 - 24	0	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___of___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Whiteline	A	A	O								
Black Ash		R									
Man. Maple		R									
common buckthorn			O								

Wildlife and Other Notes

Goldfinch (VO)
BCCH (VO)
Coyote (TK)

- snow covered ground layer cannot assess below.
- soil/moisture regime unknown
- assessed from property line.

Photos: 141

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

WOD-054

Site: NATION RISE	1756 AREA 20
Polygon: 601040062-D	
UTM:	
Date: Feb 2, 2016	Time: 8:45 - 9:15
Surveyor(s): JBB, AMC	
Weather: -15°C, cc 5%, w2W, no precip.	

Community Classification

Vegetation Type:	SWDM2-2 Green Ash Dec. Swamp Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
/ Wetland	/ Mineral Soil	/ Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	/ Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	/ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2		green ash > manitoba maple > american basswood
2	Sub-canopy	3		green ash > manitoba maple > american basswood
3	Understorey	4-5		common buckthorn > red raspberry > riverbank grape
4	Groundcover	6-7	/	snow covered - cannot assess.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	C	< 10	A	10 - 24	O	25 - 50	O	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	R	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Man. Maple	O	O	O		
Green Ash	A	A	O		
Bur Oak		R			
Sugar Maple		O			
Am. Basswood	O	O			
White Ash	R				
White Elm		O			
Red Maple		O			
Black Raspberry			O	O	
Red Raspberry			O	O	
Nanny Berry			O		
C. Buckthorn			O		
R.O. Dogwood			O	O	
Riverbank Grape	O	O	O		

Species	Layer 1	2	3	4	Sample
Wild Carrot				O	
Phragmites/Reeds			R		
Tall Goldenrod				O	
Canada Thistle			O		
Evening Primrose			O		
Smooth Brome				O	
Wild Parsnip			O		
C. Burdock			O		
Can. Goldenrod			O	O	
Common Mullein			O		
C. Milkweed			O		
Cow vetch				O	
Broad-leaved Cattail			R		
Ostrich fern				R	
Reed canary grass			R		

Wildlife and Other Notes

- Raccoon tracks
- Hairy Woodpecker

- snow covered ground layer cannot assess below
- steep slope to river edge ~.5-1m
- upland spaces above, wet below, with floodplain green ash dominant

Photos 144-149

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-020

hSl

Wetland Vegetation Communities

Project Name: WATDN RISE **Project #:** 1756 **Parcel #:** 601040063-D

Observer(s): JBB, AMC **ELC Code:** SWDM2-2

Date: Feb. 2, 2017 **Time (24h):** 8:45-9:15

Wetland #: WET-020 **Weather:** Precipitation: NONE Temp (° C): 15°C

Veg Community #: hSl Wind Speed & Direction: 2W Cloud %: 5%

Wetland Type: S **Site Type:** R **Dominant Form:** h

Permanent Open Water: 1 % **Check one:** (X) central area ( ) spread out in ponds

Photos: 144-149

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 80)	Green Ash > Manitoba Maple > American Basswood.
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: ? Mineral [X] Organic [ ] Depth of organics: cm Organic Type: F M H Depth to bedrock: ? cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

None observed

Wildlife Notes:

Assessed from property line, snow covered ground layer, cannot assess below. Soils/moisture regime unknown.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----⟶)
- ⊗ human related disturbances (fill, docks, houses, etc)
  adjacent to corn field. Nearby deer stand
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ⊗ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; ⊗ row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop conif. plantation
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
- ⊗ invasive species (plant, aquatic)
  common buckthorn, ;

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

PROPERTY LINE ASSESSMENT WOD-054

Site: Nation Rise	1756
Polygon: 601040063-E, Assessed from 601040062	Area 80
UTM:	
Date: Feb 2, 2017	Time: 7:50-8:00
Surveyor(s): JBB, AMC	
Weather: -15°C, cc 5%, w 2W, no precip	

Community Classification

Vegetation Type:	TAEM1 - Coniferous Plantation
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy		4	red pine
2	Sub-canopy		3	
3	Understorey		1	
4	Groundcover		/	

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	A	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
red pine	D	D									

Wildlife and Other Notes

Assessed ~20m away from property line. clear row planting

Photos: 135, 136

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page __ of __

★ PROPERTY LINE ASSESSMENT ★

Site: NATION RISE	1756
Polygon: 601040063-A, Assessed from 601040062	Area 80
UTM:	
Date: Feb 2, 2017	Time: 8:00 - 8:30
Surveyor(s): JBB, AMC	
Weather: -15°C, cc 5%, w 2W, no precip	

Community Classification

Vegetation Type:	THDM2-1 Hawthorn Dec. Shrub Thicket Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
/ Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	/ Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy			
1	Canopy	1-2	1	green ash > white elm
2	Sub-canopy	3	2	hawthorn sp? > white cedar > apple
3	Understorey	4-5	3	hawthorn sp? > common buckthorn > bl. raisp.
4	Groundcover	6-7	/	snow covered - cannot assess

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	C	10 - 24	R	25 - 50	N	> 50
Snags	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Red Ash		O	O		
Green Ash	O	O	O		
White Cedar		O	O		
White Elm	R	O	O		
Apple		O			
Nanny Berry			O		
Black Raspberry			O		
N. Prickly Ash			O		
C. Buckthorn			O		
Tart Honeysuckle			O		
Hawthorne sp.			A		

Species	Layer 1	2	3	4	Sample
Tall Goldenrod			G		
Wild Carrot			O		
Smooth Brome				O	
C. Milkweed				O	
Velvet Leaf			R		

Wildlife and Other Notes

- Assessed from Tree-line (property line)
- snow covered ground layer, cannot assess below
- Soil/moisture regime unknown

Photos: 142

Wildlife Habitat Field Data Collection

WOD-054

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE	**Project #:** 1756	**Area and/or Polygon ID:** 601040063	
Date: Feb 2, 2017.	**Start Time:** 7:50	**End Time:** 9:15	**Observers:** JBB, AMC
Weather Conditions: -15°C, cc 5%, w 2W, no precip.			

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		✓	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation; Size of site; Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals; Frequency and source of disturbance; Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor	✓		Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:**
Abandoned Mine Shaft		✓	Age; Depth into the ground; Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size; Vegetation present; Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use; Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance; Soil Type; Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location; Proximity to water and type of water; Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: Feb. 2, 2017

Project Name: NATION RISE | Project #: 1756 | Area and/or Polygon ID: Area 80, 601040063

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
SWAMP.	2	SEE ELC MAP.		NO NEST BOWLS.	-Hairy woodpecker -Raccoon
THICKET	1	SEE ELC MAP.		Height of veg - 0.1 - 3.0m Presence of nectar producing plants (Goldenrods) -Imediatly adjacent to plantation. -No raptor perches.	NONE.

TY	Species	EV	#	Notes
B	Hairy Woodpecker	OB	1	in riparian Swamp
M	Raccoon	TK	2	Tracks in frozen creek.
B	Am. Goldfinch	VO	1	
B	Black-capped Chickadee	VO	2	
M	Coyote	TK	1	Within corn field.

TY	Species	EV	#	Notes

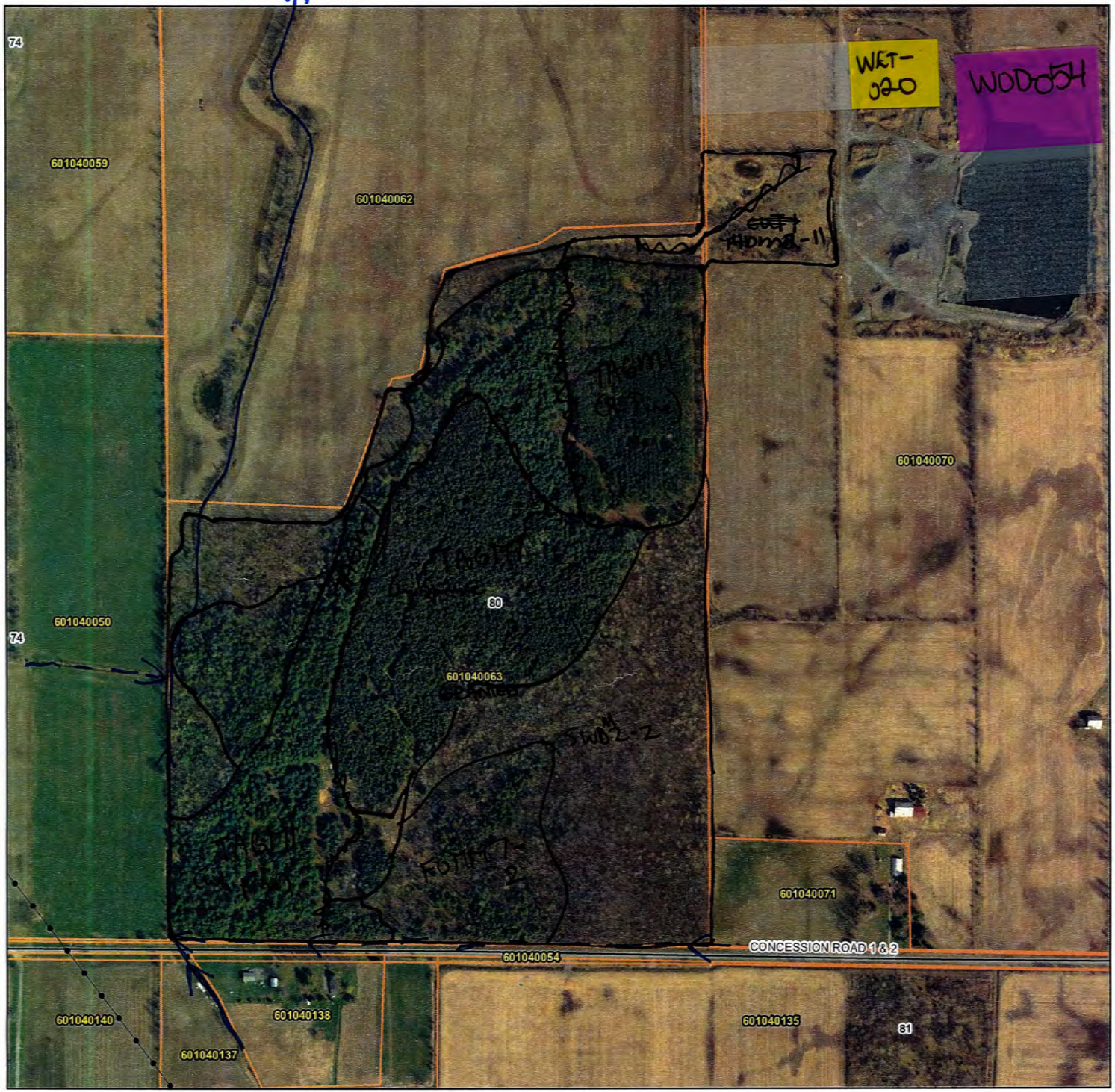
Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

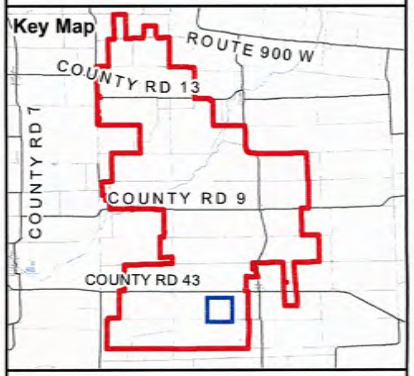
Feb. 10 2017
KGB, JORB



Nation Rise Wind Project

Natural Features Field Map

Area 80



Legend

- Utility Line
- Secondary Road
- Land Parcel

601040063 - granted

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756	NAD83 - UTM Zone 18
Date: November 2, 2016	Size: 8.5 x 11"
	1:6,000

0 50 100 150 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_FieldMaps_NatFeatures_2016_11_02_LEH.mxd

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-054

Site:	Nation Rise		1756
Polygon:	TAGM1	Area 80	60104 0063
UTM:	—		
Date:	Feb 10/17	Time:	1410 - 1635
Surveyor(s):	KGB, JDRB		
Weather:	-14°C, 80% CC, Wind 2-W		

Community Classification

Vegetation Type:	Coniferous Plantation (TAGM1)
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Mtn.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	/ Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	/ Coniferous
Shrub		/ Surficial Dep.	Submerged	Lichen	Mixed
/ Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—		
1	Canopy	2	4	Red Pine
2	Sub-canopy	3-4	2	Red Pine > Man. Maple > W. Ash
3	Understorey	5	2	C. Buckthorn > Riverbank Grape
4	Groundcover	6-7	1	—

not visible.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	O	10 - 24	D	25 - 50	N	> 50
Snags	R	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	R	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	Area 80		
Polygon:	TAGM1		
UTM:	—		
Date:	Feb 10/17	Time:	1410 - 1635
Surveyor(s):	KGB, JDRB		
Weather:	-14°C, 80% CC, Wind 2-W		

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Red Pine	D	D			
Manitoba Maple		R			
White Ash		R			
White Pine	D				
Norway					

Species	Layer 1	2	3	4	Sample
C. Buckthorn			O		
Riverbank Grape			R		

Wildlife and Other Notes

2311, 2317

Plantations of Red Pine, White Pine & White Spruce

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

WOD-054

Site:	Nation Rise		1756
Polygon:	SWDmz-2	Area 80	601040063
UTM:	—		
Date:	Feb 10/17	Time:	1410-1635
Surveyor(s):	KGB, JDRB		
Weather:	-14°C, 0% cc, Wind 2-W		

Community Classification

Vegetation Type:	SWD2-2 Green Ash Mineral Decid. Swamp Type
Inclusion:	—
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
✓ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	✓ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
✓ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		✓ Roll. Upland	Bluff	Fen	✓ Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	✓	Surficial Dep.	Submerged	Lichen	Mixed
✓ Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	✓ Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—		
1	Canopy	2	4	Green Ash > Balsam Poplar > White Elm
2	Sub-canopy	3/4	3	Green Ash > White Elm > Sugar Maple
3	Understorey	5	2	C. Buckthorn
4	Groundcover	6-7	1	—

not visible.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis		O	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	R	R	< 10	O	10 - 24	O	25 - 50	N	> 50
Deadfall/Logs		O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	✓	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

PLANT SPECIES LIST

Site:	Area 80		
Polygon:	SWD2-2		
UTM:	—		
Date:	Feb 10/17	Time:	1410-1635
Surveyor(s):	KGB, JDRB		
Weather:	-14°C, 0% cc, Wind 2-W		

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
Balsam Poplar	O	O									
Green Ash	A	A									
White Birch		R									
C. Apple	R	R									
Sugar Maple	R	O									
White Elm	O	O									
						RO Dogwood			O		
						C. Buckthorn			O		
						Riverbank Grape			O		

Wildlife and Other Notes

2313, 2314, 2315

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-020

454

Wetland Vegetation Communities

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 601040063

Observer(s): KCB, JDRB **ELC Code:** SWDM2-2

Date: Feb 10 2017 **Time (24h):** 1410-1635

Wetland #: WET-020 **Weather:** Precipitation: — Temp (° C): -14

Veg Community #: 454 Wind Speed & Direction: 2 W Cloud %: 0

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 2313 - 2315

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 50)	Green Ash > Balsam Poplar
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 40)	Green Ash > White Elm
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination) loam per Richards + Matthews - 1984

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⇢)
  see map
- ○ human related disturbances (fill, docks, houses, etc)
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
  trails
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
  No- plantation
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; ~~O utility corridor~~; ~~O dec. forest~~; O recent cutover or clearcut (<5yr); ~~O conif. forest~~; ~~O mixed forest~~; O crops; ~~O low crop~~; ~~O abandoned pit/quarry~~; ~~O pasture~~; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; ~~O fence row with deep cover or shelterbelt~~; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  unknown
- ○ invasive species (plant, aquatic)
  Buckthorn

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 1 of 2

WOD-054

Site:	Nation Rise		1756
Polygon:	FOMM7	Area 80	6010400063
UTM:	—		
Date:	Feb 10/17	Time:	1410-1635
Surveyor(s):	KGB, JDRB		
Weather:	-14°C, 60% CC, Wind 2-W		

Community Classification

Vegetation Type:		Fresh-Moist White Cedar-Hardwood mixed Forest FOMM7-2
	Inclusion:	
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
/ Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	/ Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
/ Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		/ Roll, Upland	Bluff	Fen	/ Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	/ Mixed
/ Treed	/ Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—		
1	Canopy	2	4	White Cedar > White Ash > Sugar Maple
2	Sub-canopy	3-4	3	White Cedar > White Ash > W. Elm
3	Understorey	5-6	2	Riverbank Grape > Hawthorn sp
4	Groundcover	—	—	

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	O	10 - 24	R	25 - 50	N	> 50
Deadfall/Logs	O	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	/	Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page 2 of 2

PLANT SPECIES LIST

Site:	Area 80		
Polygon:	FOMM7		
UTM:	—		
Date:	Feb 10/17	Time:	1410 - 1635
Surveyor(s):	KGB, JDRB		
Weather:	-14°C, 60% CC, Wind 2-W		

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar	A	O			
White Birch	R	O			
Sugar Maple		O			
White Ash	O	O			
Trembling Aspen	R	R			
White Elm	O	R			

Species	Layer 1	2	3	4	Sample
Riverbank Grape			O		
Hawthorn Sp.			R		

Wildlife and Other Notes

2316

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Site:	Area 80
Polygon:	CUT1
UTM:	—
Date:	Feb 10/17
Time:	1410-
Surveyor(s):	KGB, JDRB
Weather:	-14°C, 8% CC, Wind 2-W

Community Classification

Vegetation Type:	THPM2-11
Inclusion:	
Complex:	

Polygon Description

System		Substrate		Topo Feature		Community	
/	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
	Wetland	/	Mineral Soil		Riverine		Crevice/Cave		Pond		Meadow
	Aquatic		Parent Min.		Bottomland		Alvar		River		Prairie
History			Acidic Bedrock		Terrace		Rockland		Stream	/	Thicket
	Natural		Basic Bedrock	/	Valley Slope		Beach/Bar		Marsh		Savannah
/	Cultural		Carb. Bedrock		Tableland		Sand Dune		Swamp		Woodland
		Site			Roll. Upland		Bluff		Fen		Forest
					Cliff				Bog		Plantation

Cover		Site		Plant Form					
	Open		Open Water		Plankton		Forb		Coniferous
/	Shrub	/	Surficial Dep.		Submerged		Lichen		Mixed
	Treed		Bedrock		Floating-Lvd.		Bryophyte		
					Graminoid	/	Deciduous		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	—		
1	Canopy	3	3	White Ash > Manitoba Maple > Hawthorn sp.
2	Sub-canopy	4	2	RO Dogwood > White Ash > Hawthorn sp./Buckthorn
3	Understorey	5	1	Reed Canary Grass > RO Dogwood
4	Groundcover	7	1	—

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	O	10 - 24	N	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	R	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	/	Young		Mid-age		Mature		Old Growth

PLANT SPECIES LIST

Site:	Area 80
Polygon:	CUT1
UTM:	—
Date:	Feb 10/17
Time:	1410 - 1635
Surveyor(s):	KGB, JDRB
Weather:	-14°C, 8% CC, Wind 2-W

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Ash	D	O			
C. Apple	R				
Hawthorn sp.	O	O			
Manitoba Maple	O				

Species	Layer 1	2	3	4	Sample
C. Buckthorn		O			
Angelica			R		
RO Dogwood		O			
Riverbank Grape		O			
Queen Anne's Lace			O		
Reed Canary Grass			D		

Wildlife and Other Notes

2308 (NE), 2309 (N),

Wildlife Habitat Field Data Collection

WOD-054

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: NATION RISE WP	**Project #:** 1756	**Area and/or Polygon ID:** 80	
Date: 10/02/17	**Start Time:** 1415	**End Time:**	**Observers:** J. BRUSH K. DURRELL
Weather Conditions: SUNNY -13°C	WIND 5-1 FROM W		

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All**:
Spring Flooded Field		X	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool		X	Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		X	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		X	Presence of fish
Swamp	✓		**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.

Fields	Yes	No	Applicable to All:		
Non-rotational Hay or Weakly Grazed Pasture		X	Height of vegetation	Size of site	Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		X	Evidence of small mammals	Frequency and source of disturbance	Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		X		Location and abundance of raptor perches (scattered trees, snags, fenceposts)	

Substrate and Topography	Yes	No	
Sand or Fine/Loose Gravel		X	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		X	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		X	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		X	Depth of crevices
Cave		X	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		X	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		X	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		X	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		X	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.

Anthropogenic Features	Yes	No	Applicable to All:		
Abandoned Mine Shaft		X	Age	Depth into the ground	Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		X	Rock size	Vegetation present	Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		X	Evidence of Use		Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		X	**Abandoned Wells Only:** Presence and type of capping		
Old Foundation		X	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.		

Burrows or Dens	Yes	No	Applicable to Mammal Burrows or Dens:		
Small - Rodent or Snake		X	Diameter of entrance	Soil Type	Availability of aquatic vegetation or fish
Medium		X	Ecosite of location	Proximity to water and type of water	Evidence of use, or tracks or digging marks
Large		X			
Log Jams, Old Beaver Lodges		X	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).		
Crayfish Chimney (7E only)		X	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).		

Evidence	Yes	No	
Extensive Browse and/or Ungulate Scat		X	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		X	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.

Outstanding Trees	Yes	No	
Large DBH, Outstanding Tall Snag		X	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		X	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.

Rare Communities or Species	Yes	No	
Old-Growth Forest (Mature Forest)		X	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics). Any cut stumps in the mature/old growth component.
Tallgrass Prairie or Savannah		X	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		X	Soil type and depths.
Red Spruce or White Oak Forest		X	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		X	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		X	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		X	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		X	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		X	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		X	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: 10/02/17

Project Name: NATION RISE Project #: 1756 Area and/or Polygon ID: 80

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Swamp		See map	2313-2315	no stick nests observed.	

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	NORTHERN CARDINAL	OB	1						
B	DARK-EYED JUNCO	OB	2						
B	Downy Woodpecker	OB	2						
B	Hairy Woodpecker	OB	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

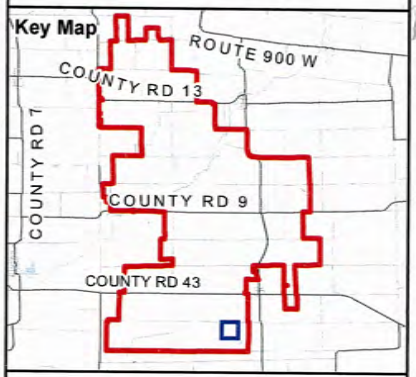
Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

may 17 2016
clh, AB

Nation Rise Wind Project

Natural Features Field Map

Area 81 & 82



Legend

- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

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Map Produced by Natural Resource Solutions Inc.
This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: Queen's Printer Ontario. Imagery: DNV GL (2014)

Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-055

Site: Nation Rise		1756
Polygon: Area B1-A		
UTM:		
Date: May 17, 2014	Time: 10:35-10:55	1345
Surveyor(s): Christy Humphrey, Amanda Bichel		
Weather: 10°C Wind 2 10% cl No precip		

Community Classification

Vegetation Type:	FOMM5-2 Dry-Fresh Poplar Mixed Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Open Water	Plant Form		
Open		Shallow Water	Plankton	Forb	Coniferous
Shrub	X	Surficial Dep.	Submerged	Lichen	X Mixed
X Treed		Bedrock	Floating-Lvd.	Bryophyte	
			Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	O	—
1	Canopy	2	4	Trembling Aspen > White Spruce > White Cedar
2	Sub-canopy	3	4	White Cedar > White Spruce > Trembling Aspen > White Birch
3	Understorey	3/4	2	White Cedar > White Birch > Silky Dogwood > White Spruce
4	Groundcover	4	1	Fragaria virginiana > Alder-leaf Buckthorn > Choke Cherry > Dewberry

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen	O	O	O		
E. White Cedar	O	A	O		
E. Cottonwood		R			
Wh. Spruce	O	O	O		
Wh. Birch		O	O		
Wh. Elm	R			R	
Balsam Poplar	R				
Tamarack	R				
Choke Cherry				O	
Ribes americanum				O	
Red Osier				O	
Dewberry				O	
Alder-lvd Buckthorn				O	
Silky Dogwood			O		
Salix sp.			R		

Species	Layer 1	2	3	4	Sample
Scouring-rush				R	
Pyrola elliptica				O	
Dandelion				O	
Fragaria virginiana				O	

Wildlife and Other Notes

No tooth wear observed
Nil ephemerals.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: area 81-B	
UTM:	
Date: May 17 2016	Time: 10:55 - 11:05
Surveyor(s): Christy Humphreys, Amanda Richel	
Weather: 10°C wind 2 10% CC No precip	

Community Classification

Vegetation Type:	SWTM3 Willow Mineral Deciduous Thicket Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Open Water	Plant Form		
Open	Shallow Water	Plankton	Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	6	—
2	Sub-canopy	3	4	Salix > Staghorn Sumac > Sweet Cherry
3	Understorey	4/5	3	Red Osier > Goldenrod sp. > Red Raspberry > Balsam Poplar
4	Groundcover	4/5	3	Goldenrod sp. >>> Lady Fern, Sensitive Fern, Canada Mayflower

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	R	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	A	< 10	O	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X Pioneer	Young	Mid-age	Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Balsam Poplar			O		
White Spruce			R		
White Cedar		R		R	
Sweet Cherry	O	R			

Species	Layer 1	2	3	4	Sample
Sensitive Fern				O	
Lady Fern				O	
Virgin's Bower			O		
Dandelion				O	
Goldenrod sp.			O	O	
Canada Mayflower				O	
Tall Buttercup				O	

Species	Layer 1	2	3	4	Sample
Red Osier			O		
* Salix sp.		A			
Ribes americanum			O		
Red Raspberry			A		
Staghorn Sumac		O			

Wildlife and Other Notes

Trees cleared from this area, regeneration.
Tall Shrub thicket.
Photos: 65, 66, Barn - 67 to 69
71

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(Office use only) Community ID: WET-020

ts 55

Wetland Vegetation Communities

Area 81-B

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 601040135

Observer(s): Christy Humphrey + Amanda Bichel **ELC Code:** SWTM3

Date: May 17, 2016 **Time (24h):** 10:55-11:05

Wetland #: WET-020 **Weather:** Precipitation: None Temp (° C): 12

Veg Community #: ts 55 Wind Speed & Direction: 2 Cloud %: 10

Wetland Type: S **Site Type:** I **Dominant Form:** ts

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 65, 66, 71 Barn 67-69.

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%: 85)	Salix sp. ( ) > Staghorn Sumac ( ) > Sweet Cherry ( )
ls (%:)	
gc (%: 30)	Goldenrod sp (15) >> Lady Fern / Sensitive Fern / Canada mayflower
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%: 80)	Moss sp.
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

area previously cleared, many old stumps

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  none. Isolated.
- ○ human related disturbances (fill, docks, houses, etc)
  previously cleared, old barn.
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife adjacent cedar forest + mixed forest
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer.
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat. small drumlin to SE.
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop by large pond to SE.
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools none.
- ○ invasive species (plant, aquatic)
  crack willow. sweet clover.

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

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Modified ELC Community Description Page __ of __

WOD-055
1756

Site:	Nation Rise
Polygon:	Area 81-C
UTM:	
Date:	May 17, 2016 Time: 10:50 - 1120
Surveyor(s):	Christy Humphreys, Amanda Bichel
Weather:	10°C Wind 2 10%CC 80 grnup

Community Classification

Vegetation Type:	FOCM2-2 Dry-Fresh Wh. Cedar Coniferous Forest Type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	X Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	X Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	
1	Canopy	2	0	—
2	Sub-canopy	3	4	white cedar > white spruce
3	Understorey	4 3	0	—
4	Groundcover	4	0	—

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	R	25 - 50	N	> 50
Snags	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	R	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 7/0 2-10 05-2 <0.5.
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample	Species	Layer 1	2	3	4	Sample
White Cedar		D									
White Spruce		O									

Wildlife and Other Notes

Photo - 0070

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: Area 81-D	
UTM:	
Date: May 17, 2016	Time: 0950-10:35
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 10°C, wind 2 / 89% CC, no precip.	

Community Classification

Vegetation Type:	THDM5 Fresh-Moist Deciduous Thicket.
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural	**Site**	Roll. Upland	Bluff	Fen	Forest
		Cliff		Bog	Plantation

Cover		Site	Plant Form		
Open	Open Water	Plankton	Forb	Coniferous	
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed	
Treed	Bedrock	Floating-Lvd.	Bryophyte		
		Graminoid	Deciduous		

large cultural influence (but not planted)

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0-1	(Trembling Aspen)
2	Sub-canopy	3	1	Trembling Aspen > E. Red Cedar > E White Cedar > White Elm.
3	Understorey	4/5	4	Goldenrod > Red Osier > Meadowsweet > Red Raspberry
4	Groundcover	6/7	4	Grass spp. > Wild Parsnip > Reed Canary > meadowsweet

106.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	A	< 10	A	10 - 24	O	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X	Pioneer		Young		Mid-age		Mature	Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Balsam Poplar			O		
Trembling Aspen	R	O	O		
Red Elderberry			O		
White birch		R			
White Elm		R			
Green Ash			R		
E. Red Cedar		O			
E. White Cedar		O	R		
Red Maple	R				
Alder-leaf Buckthorn				O	photo
Slender Willow			O		
meadowsweet				O	
Red Raspberry			O		
Red Osier			O	O	

Species	Layer 1	2	3	4	Sample
Goldenrod sp.			A	O	
Wild Parsnip				A	
Purple Loosestrife			O		
Dandelion				O	
Grass spp.				A	
tufted Vetch				O	
Reed Canary				O	
Horsetail sp.				O	

Wildlife and Other Notes

Highly Disturbed, Trees have been cleared. Some regeneration. old stumps, wounded soil.
Photos:

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Modified ELC Community Description Page __ of __

Site: Nation Rise	1756
Polygon: Area 81 - E	
UTM:	
Date: May 17 2016	Time: 1145 - 12:26
Surveyor(s): Christy Humphrey, Amanda Bickel	
Weather: 1 °C, Wind 1 CC 5% No precip.	

Community Classification Dry-Fresh

Vegetation Type:	THDM2-8 Raspberry Deciduous Shrub Thicket type
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
X Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	X Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd.	Bryophyte	
		X Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	1	Nannyberry >> White Cedar > Red cedar
3	Understorey	5	3	Red Raspberry >> Nannyberry (Goldenrod will be = or > than Red Raspberry in Summer)
4	Groundcover	6 7	4	Smooth Brome > Goldenrod > Wild Parsnip > Dandelion

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	X Young	Mid-age	Mature	Old Growth

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Modified ELC Community Description Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

710 2-10 0.5-2 <0.5

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Wh. Cedar		R			
Red Cedar		R			
Lilac			R		
Downy Serviceberry		R			
Pin Cherry		R			
Nannyberry		O	O		
common Buckthorn		R			
Tartarian Honeysuckle			R		
Red Elderberry		R			
Ribes americanum			R		
Common Apple		R			
Red Raspberry			D		
Red Osier			O		

Species	Layer 1	2	3	4	Sample
Goldenrod sp				A	
Wild Parsnip				O	
Smooth Brome				A	
Dandelion				O	

Wildlife and Other Notes

Photo 72 - 81

No old millcreed stems noted

Wildlife Habitat Field Data Collection

WOD-055

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 81

Date: May 17, 2016 **Start Time:** 9:50am **End Time:** 2:00pm **Observers:** Amanda Bethel, Christy Humphrey

Weather Conditions:

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water		✓	
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor	✓		
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation. **Abandoned Wells Only:** Presence and type of capping. **Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well	✓		
Old Foundation		✓	
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 17, 2016

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 81

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Abandoned well	1	0492588 4996702 ±4m	57-59	• not capped • depth to water is 1m, but looks to come up to 0.5m. below ground at times. • exposed to 100% sun • made of rock slabs. • well is at least 3m deep with water. not suitable as hibernaculum - too wet.	
Rock pile	1	0492651 4996646 ±4m	61-64	• Mostly large rocks • 8m long x 2m wide x 1.5m tall	>120m. None.
thicket	1			• See ELC sheet most clearing occurred in 2015 per Google imagery (cleared forest)	
Rock pile	1	0492645 4996269 ±6m	82-85	• 30m long x 2m wide x 1.8m high. • some vegetation growing on it • made of mostly (shrubs) large rocks, some small piles Taller pile is too new. Older part of pile is too short (~0.75-1m)	None. Recently had a lot of rocks added (boulders). Not suitable.
Thicket	1	0492674 4996361 ±4m	72	• 0.5m shrub average • mostly red raspberry + nanny-berry dominant •	• possible groundhog hole •

TY	Species	EV	#	Notes
B	Song Sparrow	S	8	
B	Savannah Sparrow	S	1	
B	Am. Goldfinch	OB/S	3	
B	Am. Robin	S	1	
B	Blue Jay	S	1	
A	Leopard Frog	S	1	
B	Common Yellowthroat	S	2	
B	White-throated Sparrow	S	8	
B	Am. Crow	S	1	

TY	Species	EV	#	Notes
B	Ruffed Grouse	OB	1	
B	Wood Thrush	S	1	
M	Deer	TK	1	
B	Grey Catbird	S	2	
M	Red Squirrel	S	1	
B	Chickadee	S	4	
B	Redstart	S	1	
M	Coyote	SC	1	
D	Mourning cloak	OB	1	

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

D Azure OB 1
B Yellow warbler S 1
B Hairy woodpecker OB 1
B Turkey Vulture OB 1
M ?Groundhog? HO 1
B Rose-breasted Grosbeak OB 1
B+W Warbler S 1

...ndidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

NATURAL RESOURCE SOLUTIONS INC.
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Project Manager Use Only:
Woodland Number :

Project Name: Nation Rise Project #: 1756

Start Time 12:50 End Time 1:45pm Date: May 17, 2016 Observer(s): Amanda Bichel, Christy Humphrey

Polygon or Area ID (81-A) Weather Conditions: Sunny, 18°C, 15%.cc, 2=wind, no precip.

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	0	0492840, 4996463 ± 7m	
Plot 2	0	0492792 4996464 ± 5m	
Plot 3	0	0492768, 4996497 ± 4m	
Plot 4	0	0492779, 4996524 ± 7m	
Plot 5	0	0492806, 4996530 ± 6m	
Plot 6	0	0492787, 4996577 ± 5m	
Plot 7	0	0492729 4996601 ± 6m	
Plot 8	0	0492711, 4996630 ± 5m	
Plot 9	0	0492571, 4996532 ± 4m	
Plot 10	0	0492558, 4996495 ± 5m	
Plot 11			
Plot 12			
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Total: 0

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 0 **> or = 10/ha? Yes / (No)** If >10/ha: BMA- —

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Modified ELC Community Description

Page __ of __

WOD-055

Site: Nation Rise	1756
Polygon: Area 82-A	
UTM:	
Date: May 17 2016	Time: 14:35-15:00
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 18°C, Wind 3, 50% CC, No precip.	

Community Classification

Vegetation Type:	SWTM5 Mineral Deciduous Thicket Swamp
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	X Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
X Shrub	X Surficial Dep.	Submerged	Lichen	Mixed
Treed	Bedrock	Floating-Lvd.	Bryophyte	
		Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	1	Trembling Aspen > White Elm
3	Understorey	4/5	3	Red Osier > Meadowsweet > Red Raspberry > Willow sp.
4	Groundcover	4/5	4	Red Osier > Moss > Meadowsweet > Carex spp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	A	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	X	Pioneer		Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Trembling Aspen		O	*		
Tamarack			R		
White Elm		R			
Balsam Poplar			*		
White Cedar		*	R		
Red Osier			O		
Sandbar willow			O		
Tartarian Honeysuckle			R		
Red Elderberry			R		
Nannyberry				R	
Alder-leaf Buckthorn				O	
Salix sp.				O	
Ribes americanum				O	
Red Raspberry			O		
Meadowsweet			O	O	

Species	Layer 1	2	3	4	Sample
Com. Evening Primrose			O		
Red Canary				O	
Typha latifolia				O	
Dandelion				O	
Tufted Vetch				O	
Water Plantain				O	✓
Equisetum sp.				R	
Water Dock				R	
Bull thistle				R	
Common Blue Violet				R	
Carex spp.				O	
Moss.					

Wildlife and Other Notes

area has been cleared, open to cattle

IS, NE

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(Office use only) Community ID: WET-020

1556

Wetland Vegetation Communities

Area 82-A

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60104035

Observer(s): Christy Humphrey + Amanda Bichel **ELC Code:** SWTM5

Date: May 17, 2016 **Time (24h):** 14:35 - 15:00

Wetland #: WET-020 **Weather:** Precipitation: None Temp (° C): 18

Veg Community #: 1556 Wind Speed & Direction: 3 Cloud %: 50

Wetland Type: S **Site Type:** P **Dominant Form:** TS

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: —

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%:)	
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%35)	Red Osier (20) = Meadowsweet (20) > Red Raspberry > Willow sp., others
gc (%: 15)	
ne (%: 60)	Reed Canary (35) > various Carex spp.
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%25)	Moss, sp.
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

Low regenerating

see wildlife sheet.

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ∅ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ∅ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  see map.
- ○ human related disturbances (fill, docks, houses, etc)
  cleared before.
- ∅ evidence of recreational activities (nature appreciation, fishing, hunting)
- ∅ locations of seeps or springs, lagg
- ∅ iron precipitates, marl deposits
- ∅ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
- ∅ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ∅ vernal pools
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-055

Site: Nation Rise	1756
Polygon: Area 82-B	
UTM:	
Date: May 17 2016	Time: 1500 - 16:20; 1700 - 1730
Surveyor(s): Christy Humphrey, Amanda Bickel	
Weather: 18°C, Wind 3, 50% Cl, No precip	

Community Classification

	Vegetation Type:	SWDM4-5 Poplar Mineral Deciduous Swamp
X	Inclusion:	SWDM3-7 Green Ash Mineral Deciduous Swamp
	Complex:	

Polygon Description

System		Substrate		Topo Feature				Community			
	Terrestrial		Organic		Lacustrine		Talus		Lake		Barren
X	Wetland	X	Mineral Soil		Riverine		Crevice/Cave		Pond		Meadow
	Aquatic		Parent Min.		Bottomland		Alvar		River		Prairie
			Acidic Bedrock		Terrace		Rockland		Stream		Thicket
History			Basic Bedrock		Valley Slope		Beach/Bar		Marsh		Savannah
X	Natural		Carb. Bedrock	X	Tableland		Sand Dune	X	Swamp		Woodland
	Cultural				Roll. Upland		Bluff		Fen		Forest
		Site			Cliff				Bog		Plantation

Cover		Plant Form		
	Open Water		Plankton	Forb	Coniferous
	Open		Submerged	Lichen	Mixed
	Shallow Water		Floating-Lvd.	Bryophyte	
	Shrub	X	Surficial Dep.		Graminoid	X	Deciduous
X	Treed		Bedrock		

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Trembling Aspen > White Elm > Green Ash.
2	Sub-canopy	3	3	White Elm > Green Ash > Trembling Aspen > Red Maple
3	Understorey	4 5	4	Red Osier >> Meadowsweet > Common Buckthorn
4	Groundcover	6 7	4	Moss sp. > Swamp Raspberry > Sensitive Fern

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	A	10 - 24	O	25 - 50	R	> 50
Snags	R	< 10	O	10 - 24	O	25 - 50	O	> 50
Deadfall/Logs	O	< 10	O	10 - 24	R	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5.
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Balsam Poplar	R				
White Elm	O	O			
Trembling Aspen	A	O			
Tamarack	R	R			
Green Ash	O	O			
Manitoba Maple				R	
Red Maple	R	O			
Meadowsweet			O		
Alder-lvd Buckthorn				O	
Choke cherry				R	
Ribes americanum			O		
Swamp Raspberry				A	
Common Buckthorn		O	O		
Red Osier			A		

Species	Layer 1	2	3	4	Sample
Fragaria virginiana				O	
Horsetail sp				O	
Sensitive fern				O	
Sarsaparilla				R	
Bedstraw				O	
Lady Fern				O	
Parthenocissus quinquefolia				O	
Moss sp.				A	

Wildlife and Other Notes

Photos 87-92 pooling 95,96.
Overland Flooding would spill into ditch, otherwise no outlet
h, ls

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-020

hS7

Wetland Vegetation Communities

Area 82-B

Project Name: Nation Rise **Project #:** 1756 **Parcel #:** 60104013S

Observer(s): Christy Humphrey + Amanda Bichel **ELC Code:** SWDM 4-5

Date: May 17, 2016 **Time (24h):** 15:00-16:20, 17:00-1730

Wetland #: WET-020 **Weather:** Precipitation: None Temp (° C): 18

Veg Community #: hS7 Wind Speed & Direction: 3 Cloud %: 50

Wetland Type: S **Site Type:** P **Dominant Form:** h

Permanent Open Water: 0 % **Check one:** ○ central area ○ spread out in ponds

Photos: 82-91

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 95)	Trembling Aspen (35) = White Elm (35) > Green Ash > Red Maple.
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%: 30)	Red Osier (60) > Meadowsweet (20) > Common Buckthorn (10)
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%: 30)	Moss Sp.
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: C-clay, L-loam, S-sand, SI-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; **f**=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ∅ active beaver lodges/dams
- ∅ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ∅ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ∅ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ----→)
  see map
- ○ human related disturbances (fill, docks, houses, etc)
  clearing at edges
- ∅ evidence of recreational activities (nature appreciation, fishing, hunting)
- ∅ locations of seeps or springs, lagg
- ∅ iron precipitates, marl deposits
- ∅ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- ∅ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools
  yes - see map
- ∅ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

WOD-055

Site: Nation Rise	1756
Polygon: Area 82-C	
UTM:	
Date: May 17, 2016	Time: 1425 – 1730
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 20°C Wind 3 50%CC No precip	

Community Classification

	Vegetation Type:	SWDM2-2 Green Ash Mineral Deciduous Swamp
X	Inclusion:	SWDM3-1 Red Maple Mineral Deciduous Swamp
	Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	X Tableland	Sand Dune	X Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
X Treed	X Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	X Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	4	Green Ash > White Elm > Red Maple > Trembling Aspen
2	Sub-canopy	3	3	Green Ash > White Elm > Red Maple
3	Understorey	3/5	1	Choice Cherry > Ribes americanum > Red Raspberry > Tartarian Honeysuckle
4	Groundcover	4/9	3	Swamp Raspberry > Fragaria virginiana > Sensitive Fern > Carex spp.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	O	< 10	O	10 - 24	O	25 - 50	R	> 50
Snags	R	< 10	O	10 - 24	O	25 - 50	R	> 50
Deadfall/Logs	R	< 10	O	10 - 24	O	25 - 50		> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 710 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Red Maple	O	R			
Green Ash	A	O			
White Elm	O	O			
White Cedar		R			
Trembling Aspen	R				
Manitoba Maple			R		
Tartarian Honeysuckle			R		
Choice Cherry			O		
Swamp Raspberry				O	
Red Raspberry			R		
Ribes americanum			O		

Species	Layer 1	2	3	4	Sample
Horsetail				R	
common Blue Violet				O	
Bedstraw				O	
Fragaria virginiana				O	
Carex sp.				O	
Sensitive Fern				O	
Virginia Bower				R	
Lady Fern				R	

Wildlife and Other Notes

h.
Photos: 102
Grazed, understory minimal

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

(Office use only) Community ID: WET-020

hSI

Wetland Vegetation Communities

Area 82-C

Project Name: Nation Rise	**Project #:** 1756		**Parcel #:** 60104013S
Observer(s): Christy Humphrey + Amanda Bichel			**ELC Code:** SWDM2-2
Date: May 17 2016	**Time (24h):** 14:25 - 17:30		
Wetland #: WET-020	**Weather:** Precipitation: None	Temp (° C): 20	
Veg Community #: hSI	Wind Speed & Direction: 3	Cloud %: 50	
Wetland Type: S	**Site Type:** P	**Dominant Form:** h	
Permanent Open Water: 0 %	**Check one:** ○ central area ○ spread out in ponds		
Photos: 102			

Forms (>25% absolute cover)	Dominant Species (give % relative cover)
h (%: 90)	Green Ash (50) > White Elm (25) > Red Maple > Trembling Aspen
c (%:)	
≥10% dc (%:)	
≥10% dh (%:)	
ds (%:)	
ts (%:)	
ls (%:)	
gc (%:)	
ne (%:)	
be (%:)	
re (%:)	
≥10% ff (%:)	
≥10% f (%:)	
≥10% su (%:)	
m (%:)	
u (%:)	

Soil type: Mineral ☒ Organic ☐ Depth of organics: cm Organic Type: F M H Depth to bedrock: cm

Soil type: **C**-clay, **L**-loam, **S**-sand, **SI**-silt (or any combination)

Organic= ≥40cm humic or mesic over mineral; ≥60cm fibric over mineral; ≥10cm organic over bedrock

Rare Species (Local, Regional, Provincial):	**Wildlife Notes:**

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees (>6m); **c**=coniferous trees (>6m); **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs (1-6m); **ls**=low shrubs (<1m); **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **re**=robust emergents; **ff**=free-floating plants; f=floating plants; **su**=submerged plants; **m**=mosses; **u**=unvegetated water <2m deep on the outer edge of a wetland or completely surrounded by wetland

Wetland Type: **S**=swamp; **M**=marsh; **W**=open water marsh; **B**=bog; F=fen

Site Type: **L**=lacustrine (lake at least 8ha); **P**=palustrine; **R**=riverine; **IS**=isolated

Features to look for in the field:

- ○ active beaver lodges/dams
- ○ locations of rare species (UTM needed; note habitat, abundance, behaviour, etc)
- ○ wildlife observations (furbearers, waterfowl, baitfish, bullfrogs, snapping turtles)
- ○ plant species (wild rice, cranberries)
- ○ location of and directions of water flow at all inflows and outflows (mark whether permanent ⟶ or intermittent ⟶)
  overland flows to the West (towards ditch) – no specific channels.
- ○ human related disturbances (fill, docks, houses, etc)
  clearing at edges
- ○ evidence of recreational activities (nature appreciation, fishing, hunting)
- ○ locations of seeps or springs, lagg
- ○ iron precipitates, marl deposits
- ○ winter cover for wildlife
- ○ ungulate summer habitat, moose aquatic feeding habitat
  deer
- ○ suitability for waterfowl breeding, staging, moulting
- ○ surrounding topography (flat, rolling, hilly, steep)
  flat
- ○ surrounding habitat diversity (≥0.5ha large, within 1.5km): O recent burn (<5yr); O abandoned ag. field; O utility corridor; O dec. forest; O recent cutover or clearcut (<5yr); O conif. forest; O mixed forest; O crops; O row crop; O abandoned pit/quarry; O pasture; O ravine; O terrain appreciatbly undulating, hilly or with ravines; O fence rows; O fence row with deep cover or shelterbelt; O open lake or deep river; O creek floodplain; O rock outcrop
- ○ fish habitat present: Yes (No) (circle)
  If yes, describe: low or high marsh, seasonal or permanent swamp, fish or habitat observed
- ○ vernal pools none at this time.
- ○ invasive species (plant, aquatic)

Definitions:

Flow = flow in a defined channel

High marsh = the area from the water line to the inland boundary of marsh wetland type (i.e. wet meadow - insufficient standing water to provide fisheries habitat except during high water conditions)

Lagg = the depressed zone or moat that develops at the periphery of some bogs and fens which is generally wetter than the surrounding area and often contains water

Low marsh = the marsh area from the existing water line out to the outer boundary of the wetland

Marl = white, loose, crumbling deposit consisting of a mixture of clay, calcite, dolomite or invertebrate shells under water or under a layer of peat or vegetation

Open water marsh (W) = dominated by su, f, ff, u, or wild rice or soft or hard-stemmed bulrush

Swamp = ≥25% live trees or tall shrubs; ≥70% dead trees; ≥50% low shrubs

Attach full species list and wetland map.

Wildlife Habitat Field Data Collection

WOD-055

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1756 **Area and/or Polygon ID:** 82

Date: May 17, 2016 **Start Time:** 2:45pm **End Time:** 5:30pm. **Observers:** Amanda Bichet, Christy Humphrey

Weather Conditions: Wind = 2, 60% cloud, 18°C, no precip.

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present Yes	Present No	Information to Record on Page 2
Water			**Applicable to All:**
Spring Flooded Field		✓	Draw extent of all water if not indicated through ELC. Longevity of site (if known, or estimate).
Vernal Pool	✓		Dimensions (length, width, and depth). Sources of disturbance, current use, origin (natural or anthropogenic).
Pond		✓	Vegetation species, woody debris/basking logs within water. Evidence of wildlife use including waterfowl, turtles, amphibians
Shallow Marsh (MAS) or Open Water		✓	Presence of fish
Swamp		✓	**All Swamps**: Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields			**Applicable to All:**
Non-rotational Hay or Weakly Grazed Pasture		✓	Height of vegetation. Size of site. Abundance of nectar-producing plants (e.g. goldenrods and asters)
Meadow		✓	Evidence of small mammals. Frequency and source of disturbance. Adjacency to forest and forest size
Thicket, Woodland, Hydro Corridor		✓	Location and abundance of raptor perches (scattered trees, snags, fenceposts)
Substrate and Topography			
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features			**Applicable to All:**
Abandoned Mine Shaft		✓	Age. Depth into the ground. Amount of sun exposure (or direction the slope faces)
Old Rock or Debris Pile, Old Stone Fence		✓	Rock size. Vegetation present. Substrate composition (or bedrock type)
Abandoned Road or Rail Bed		✓	Evidence of Use. Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens			**Applicable to Mammal Burrows or Dens:**
Small - Rodent or Snake		✓	Diameter of entrance. Soil Type. Availability of aquatic vegetation or fish
Medium		✓	Ecosite of location. Proximity to water and type of water. Evidence of use, or tracks or digging marks
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence			
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)	✓		Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees			
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species			
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 17, 2016

Project Name: Nation Rise Project #: 1756 Area and/or Polygon ID: 82

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Vernal Pool	1	049 2882 4996624 ± 5m		• Green Ash swamp inclusion •	• wood frog (1) •
Stick nest	1	0493017 4996776 ± 7m		• Red-tail hawk nest (feathers on ground) • In Trembling Aspen ~12m up	RTHA not observed may not be in use anymore?

TY	Species	EV	#	Notes
B	Song Sparrow	S	4	
B	Crow	OB	3	
B	Chipping sparrow	S	2	
B	Killdeer	OB	1	
B	Grackle	OB	2	
B	White-throated Sparrow	S	2	
B	Common Yellowthroat	S	1	
A	Wood Frog	OB	1	
M	Coyote	TK	1	

TY	Species	EV	#	Notes
M	Deer	TK	2	
B	Chickadee	S	3	
B	Rose-breasted grosbeak	OB	1	
B	Ruffed Grouse	OB	1	
B	Am. Goldfinch	S	1	
B	Blue Jay	S	1	
B	Robin	OB/S	4	
M	Raccoon	TK	1	
B	Yellow-rumped (Myrtle)	OB	1	

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HO- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

Candidate Bat Maternity Roost Data Form

Use this form in FOD, FOM

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Manager Use Only:
Woodland Number :

Project Name: Nation Rise Project #: 1756

Start Time 3:25 End Time 5:30pm Date: May 17, 2016 Observer(s): Amanda Bichel / Christy Humphrey

Polygon or Area ID (82B+C Weather Conditions: 18°C, 30% clouds, 2 wind, no precip

Plot Number	# live or dead cavity trees ≥ 25cm dbh	Plot Center UTM (Zone: 18T)	Comments
Plot 1	0	0492889, 4996646 ±4m	
Plot 2	•	0492882, 4996598 ±5m	
Plot 3	0	0492946, 4996530 ±5m	
Plot 4	•	0492964, 4996487 ±5m	
Plot 5	0	0492989, 4996416 ±5m	
Plot 6	0	0493016, 4996537 ±4m	
Plot 7	•	0492998, 4996594 ±5m	
Plot 8	0	0493085, 4996617 ±5m	
Plot 9	•	0493134, 4996541 ±5m	
Plot 10	0	0493037, 4996692 ±4m	
Plot 11	0	0493012, 4996763 ±5m.	
Plot 12	•	0492938, 4996724 ±5m	
Plot 13			
Plot 14			
Plot 15			
Plot 16			
Plot 17			
Plot 18			
Plot 19			
Plot 20			
Plot 21			
Plot 22			
Plot 23			
Plot 24			
Plot 25			
Plot 26			
Plot 27			
Plot 28			
Plot 29			
Plot 30			
Plot 31			
Plot 32			
Plot 33			
Plot 34			
Plot 35			

Total = 5

Number of Plots: Sites ≤10ha: 10 plots (minimum); each extra ha: 1 plot (up to max 35 plots) Plots = 0.05ha or 12.6m radius Select plots randomly

Preparation for EOS Bat Monitoring: Identification of High Quality Potential Roost Trees

Identify the best potential roost trees in the applicable woodland/polygon: <10ha in size = up to 10 >10ha in size = 1 additional for each ha up to 30

Tree #	Species	# of Cavities	DBH (cm)	UTM	Photo Number(s)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Section Project Manager Use Only

Formula: Total # Cavity Trees / (# Plots x 0.05ha)

Final Wodland Tally = 5/(12×0.05) = 5/0.6 = 8.33 > or = 10/ha? Yes / (No) If >10/ha: BMA-

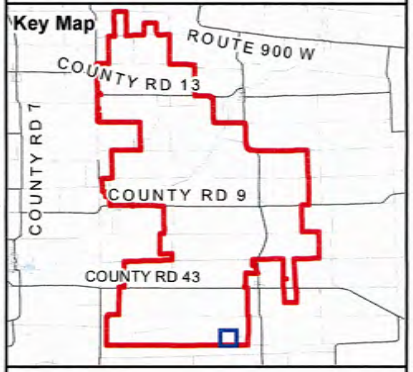
(nearby WOD-055)

May 17 2016
CLH, AB

Nation Rise Wind Project

Natural Features Field Map

Area 83 & 84



Legend

- Utility Line
- Secondary Road
- Land Parcel
- Parcel with Access
- Parcel without Access

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Aquatic, Terrestrial and Wetland Biologists

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Project: 1756 Date: May 13, 2016	NAD83 - UTM Zone 18 Size: 8.5 x 11" 1:4,000

0 50 100 150 Meters

N

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: Area B4-A	
UTM:	
Date: May 17, 2016	Time: 18:00 - 1835
Surveyor(s): Christy Humphrey, Amanda Bidel	
Weather: 10°C, CC 50%, Wind 3, No precip	

Community Classification

Vegetation Type:	TAGM4 Treed Pasture
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
Wetland	Mineral Soil	Riverine	Crevice/Cave	Pond	Meadow
Aquatic	Parent Min.	Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover		Plant Form		
Open	Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	0	—
2	Sub-canopy	3	4	White Cedar
3	Understorey	3.5	0	—
4	Groundcover	6	4	Kentucky Bluegrass > Common Plantain > Dandelion

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	A	< 10	R	10 - 24	N	25 - 50	N	> 50
Snags	0	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	0	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer	X	Young		Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: TD 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
White Cedar		D			

Species	Layer 1	2	3	4	Sample
Common Plantain				O	
Kentucky Bluegrass				D	
Dandelion				O	

Wildlife and Other Notes

Photos: 100-109

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page __ of __

Site: Nation Rise	1756
Polygon: Area 84-B	
UTM:	
Date: May 17 2016	Time: 1835 - 1845
Surveyor(s): Christy Humphrey, Amanda Bichel	
Weather: 6°C, CC50%, Wind 3, No precip.	

Community Classification

Vegetation Type:	OA Open Aquatic
Inclusion:	
Complex:	

Polygon Description

System	Substrate	Topo Feature		Community	
Terrestrial	Organic	Lacustrine	Talus	Lake	Barren
X Wetland	X Mineral Soil	Riverine	Crevice/Cave	X Pond	Meadow
Aquatic	Parent Min	X Bottomland	Alvar	River	Prairie
	Acidic Bedrock	Terrace	Rockland	Stream	Thicket
History	Basic Bedrock	Valley Slope	Beach/Bar	Marsh	Savannah
X Natural	Carb. Bedrock	Tableland	Sand Dune	Swamp	Woodland
Cultural		Roll. Upland	Bluff	Fen	Forest
	Site	Cliff		Bog	Plantation

Cover	Site	Plant Form		
X Open	X Open Water	Plankton	Forb	Coniferous
Shrub	Shallow Water	Submerged	Lichen	Mixed
Treed	Surficial Dep.	Floating-Lvd.	Bryophyte	
	Bedrock	Graminoid	Deciduous	

Stand Description

	Layer	HT	Cover	Species
*	Super-canopy	1	0	—
1	Canopy	2	1	Crack Willow
2	Sub-canopy	3	1	White Cedar
3	Understorey	0.5	1	Typha angustifolia > Reed Canary
4	Groundcover	0.3	0	dominants unknown. too early in season.

HT Codes: 1: >25m 2: 25 - 10m 3: 10 - 2m 4: 2 - 1m 5: 1 - 0.5m 6: 0.5 - 0.2m 7: <0.2m

Cover Codes: 0:none 1: 0 - 10% 2: 10 - 25 3: 25 - 60% 4: >60%

Size Class Analysis	R	< 10	R	10 - 24	R	25 - 50	R	> 50
Snags	N	< 10	N	10 - 24	N	25 - 50	N	> 50
Deadfall/Logs	N	< 10	N	10 - 24	N	25 - 50	N	> 50

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age		Pioneer		Young	X	Mid-age		Mature		Old Growth

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ____ of ____

PLANT SPECIES LIST

Site:	
Polygon:	
UTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: >10 2-10 0.5-2 <0.5
1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Species	Layer 1	2	3	4	Sample
Crack Willow		O			
Golden Willow		R			
White Cedar		D			
White Birch		R			
Basswood			R		
White Elm		O			
Tartarian Honeysuckle			R		
Nannyberry			R		

Species	Layer 1	2	3	4	Sample
Typha angustifolia			O		
Reed Canary			O		
Red Osier				R	
?					

Wildlife and Other Notes

116, 117

Wildlife Habitat Field Data Collection

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project Name: Nation Rise **Project #:** 1755 **Area and/or Polygon ID:** 84

Date: May 17, 2016 **Start Time:** 6:00pm **End Time:** 6:45pm **Observers:** Amanda Bichel, Christy Humphrey

Weather Conditions: wind=2, no precip, 12°C

Indicate whether or not the following habitat features are present within the polygon. If Yes to any, fill in Page 2. Incidental Wildlife Observations on Page 2.

Habitat Features	Present		Information to Record on Page 2
Water	**Yes**	**No**	**Applicable to All:** Draw extent of all water if not indicated through ELC. Dimensions (length, width, and depth). Vegetation species, woody debris/basking logs within water. Presence of fish. Longevity of site (if known, or estimate). Sources of disturbance, current use, origin (natural or anthropogenic). Evidence of wildlife use including waterfowl, turtles, amphibians
Spring Flooded Field		✓	
Vernal Pool		✓	
Pond		✓	
Shallow Marsh (MAS) or Open Water	✓		
Swamp		✓	**All Swamps:** Always search for Heron Nest Bowls. Record if active (April-June only) - Evidence includes egg shells, guano, dead young. Map colony/nests if found.
Fields	**Yes**	**No**	**Applicable to All:** Height of vegetation. Evidence of small mammals. Size of site. Frequency and source of disturbance. Location and abundance of raptor perches (scattered trees, snags, fenceposts). Abundance of nectar-producing plants (e.g. goldenrods and asters). Adjacency to forest and forest size
Non-rotational Hay or Weakly Grazed Pasture		✓	
Meadow		✓	
Thicket, Woodland, Hydro Corridor		✓	
Substrate and Topography	**Yes**	**No**	
Sand or Fine/Loose Gravel		✓	Evidence of use (turtles in or near the area, turtle tracks, raided nests). Proximity to Shallow Marsh (MAS) or Open Water
Banks, Steep Slopes, Sand Piles		✓	Count swallow nest holes and indicate location. Estimate number of breeding pairs. Sources of disturbance. Draw extent if not indicated through ELC.
Cliffs		✓	Height of cliff. Rock type. Presence of ledges or crevices and their size. Draw extent of cliffs if not indicated through ELC.
Karst		✓	Depth of crevices
Cave		✓	Depth of cave, bedrock type
Natural Rock Piles / Talus Slopes		✓	Age. Rock/soil type. Draw extent of talus slopes if not indicated by ELC. Adjacency to large water body with productive fish population (otters).
Exposed Unvegetated Lake/River/Wetland Edge		✓	Source of disturbances. Presence of shorebird food sources (snails, worms, clams, insects). Percent vegetation cover. Distance to a Great Lake.
Seeps or Springs		✓	Ecosite. Number or area of extent. Presence of indicator plants. Iron staining. Water temperature. Degree and length of slope. Soil types.
Islands or Peninsulas in Open Water		✓	Natural or artificial. Record any gulls or terns observed. Draw extent of island or peninsula if not indicated through ELC.
Anthropogenic Features	**Yes**	**No**	**Applicable to All:** Age. Rock size. Evidence of Use. Depth into the ground. Vegetation present. Amount of sun exposure (or direction the slope faces). Substrate composition (or bedrock type). Proximity to water and estimated subterranean influence or potential for winter water fluctuation.
Abandoned Mine Shaft		✓	
Old Rock or Debris Pile, Old Stone Fence	✓		
Abandoned Road or Rail Bed		✓	
Abandoned Well		✓	**Abandoned Wells Only:** Presence and type of capping
Old Foundation		✓	**Abandoned Road or Rail Bed Only:** Extent in the landscape. Connectivity to other natural features. Overhead vegetation cover.
Burrows or Dens	**Yes**	**No**	**Applicable to Mammal Burrows or Dens:** Diameter of entrance. Ecosite of location. Soil Type. Proximity to water and type of water. Availability of aquatic vegetation or fish. Evidence of use, or tracks or digging marks
Small - Rodent or Snake		✓	
Medium		✓	
Large		✓	
Log Jams, Old Beaver Lodges		✓	Adjacency to large water body with productive fish population. Evidence of otter (observed, tracks, scat, predated fish, turtles, eggs, frogs).
Crayfish Chimney (7E only)		✓	Ecosite of location. Soil type. Source of site moisture (meadow marsh, creek/river edge, swamp etc).
Evidence	**Yes**	**No**	
Extensive Browse and/or Ungulate Scat		✓	Vegetation species browsed. Ecosite. Other evidence of ungulate use. Presence of seeps/springs. Barriers to movement to and from the area.
Nest Bowl or Stick Nest (herons or raptors)		✓	Quantity. Ecosite of location. Evidence of use. Species if known or bird group. Size. Height in tree. Tree species.
Outstanding Trees	**Yes**	**No**	
Large DBH, Outstanding Tall Snag		✓	Tree species. Evidence of perch usage or nesting. DBH, height. Exposure above canopy. Distance from surrounding forest (m) or within.
Large DBH Cavity Tree (Live or Dead)		✓	Tree species. DBH. Number of cavities. Size and type of cavities. Evidence of use by bats (abundant guano) or other mammals or wood ducks.
Rare Communities or Species	**Yes**	**No**	
Old-Growth Forest		✓	Average age of trees. Range of DBH or prism sweep. Sources of disturbance (includes presence of exotics).
Tallgrass Prairie or Savannah		✓	Soil type. Percent cover of trees, shrubs, forbs, and grasses. Sources of disturbance (includes presence of exotics).
Bog		✓	Soil type and depths.
Red Spruce or White Oak Forest		✓	Soil type and drainage regime. DBH range or prism sweep. Approximate Canopy Cover. Source of disturbance or evidence of forestry.
Coastal Marshes (Great Lakes/Shallow Atlantic)		✓	Substrate type (bedrock or soil type). Water level. Evidence of water fluctuation. Presence of Beaver Pond. Amount of exposed shoreline.
Dunes / Beaches / Bars / Ridges		✓	Soil or substrate type. Sand class. Sources of disturbance (includes presence of exotics). Percent cover of trees, shrubs, forbs, and grasses.
Sand Barren		✓	Sand class. Sources of disturbance (includes presence of exotics). Percent area of exposed rock, vegetation, and sand. Sources of erosion or fire.
Alvar		✓	Bedrock type. Soil type and depth. Percent area of exposed rock and vegetation. Sources of disturbance (includes presence of exotics).
Rare Species (Not Species At Risk)		✓	Number of individuals and locations. Ecosite or Vegetation Type.
Rare Vegetation Community		✓	Sources of disturbance (includes presence of exotics).

Characteristics of Identified Wildlife Habitat

Date: May 17, 2016

Project Name: Nation Rise | Project #: 1756 | Area and/or Polygon ID: 84

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Indicate the location of the habitat feature on the Field Map.

Identified Habitat Feature	# Observed:	UTM(s)	Photo Numbers	Habitat Details (refer to Page 1)	Associated Wildlife Observed and Evidence
Rock pile.	2	0492995 ± 6m 4996244.	110	• 5m long x 3m wide x 1.5m tall • soil with pasture grasses growing on it between the rocks. Cows likely climb on it.	
		0493277 ± 5m 4996071	115	10 x 2 x 1.5 • both new - not suitable.	
Open aquatic	1	0493378 ± 4m 4995762	116-117	• see ELC sheet for veg • open water ~ 0.5 ha •	• Red-winged bb. (OB)

TY	Species	EV	#	Notes	TY	Species	EV	#	Notes
B	Killdeer	OB	1						
B	Red-winged bb	OB	4						
B	Tree Swallow	OB	2						
B	Song sparrow	OB	2						
B	Robin	OB	1						

Faunal Type Codes (TY)
B=Bird
M=Mammal
H=Herpetofauna
L=Lepidoptera
F=Fish
D=Dragonfly or Damselfly

Evidence Codes (EV)

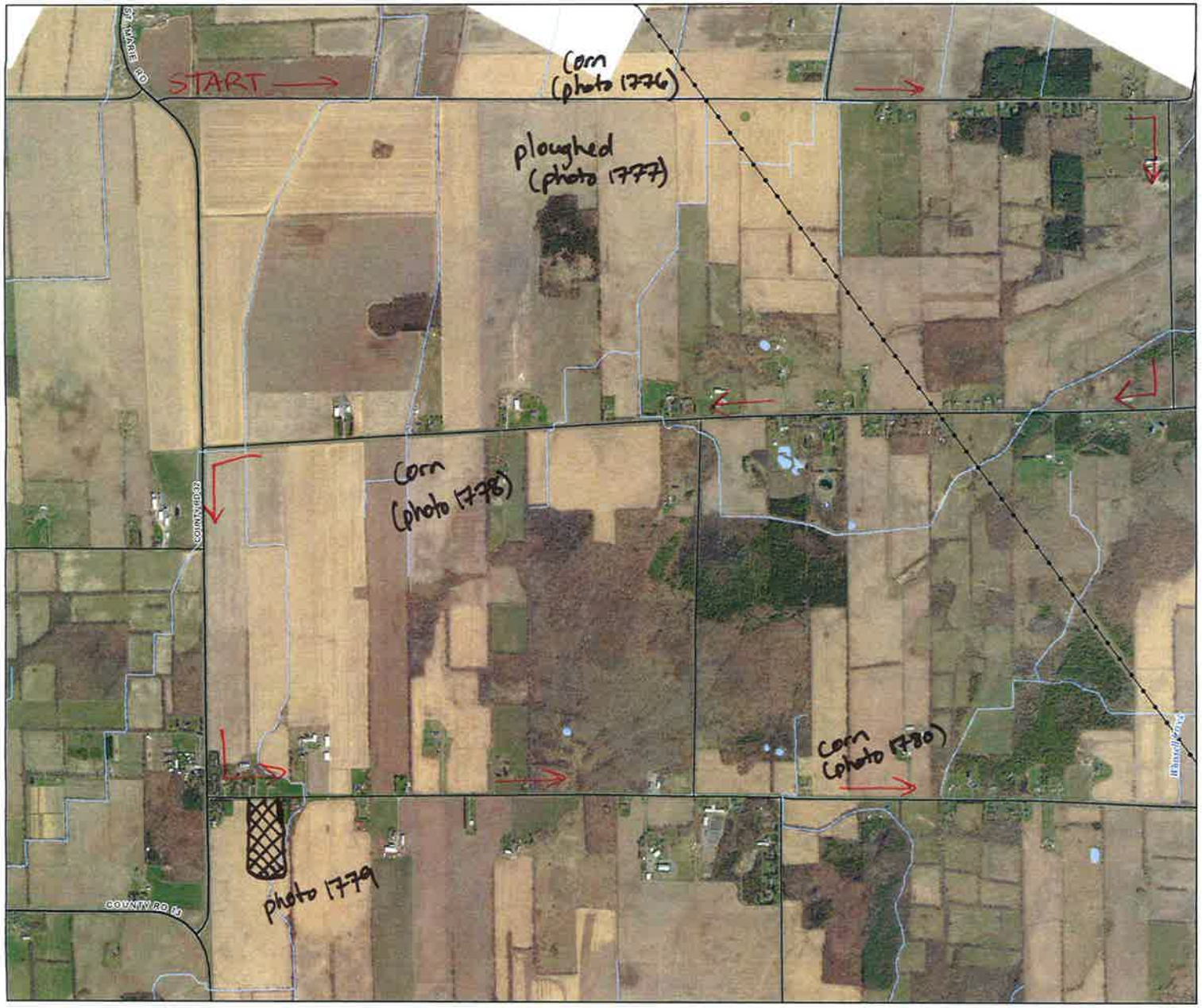
Breeding Birds
H- Suitable Habitat
S- Singing Male
P- Pair
T- Territory
D- Courtship Display
V- Visiting Nest
A- Anxienty Behavior
N- Nest Building (not wren or woodpecker)
NB- Nest Building (not wren or woodpecker)
DD- Distraction Display
NU- Used nest
FY- Fledged Young
FS- Food/Fecal Sac
CF- Adult carrying food
NE- Nest with eggs
NY- Nest with young
AE-Adult entering/leaving nest

Other Wildlife
OB- Observed
DP- Distinctive Parts
TK- Tracks
VO- Vocalization
HC- House/Den
FE- Feeding Evidence
CA- Carcass/Bones
FY- Eggs or young
SC- Scat
SI- Other Signs (Specify)

March 2, 2017

J. Barber

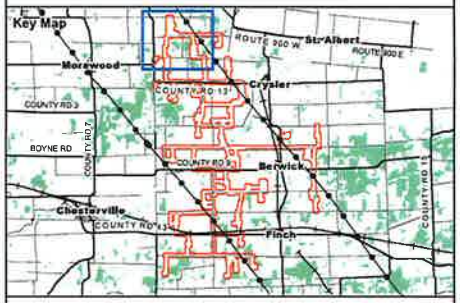
fields mostly snow/iced over w crops poking through



Map X - 1

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : route

▨ : flooded but frozen

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

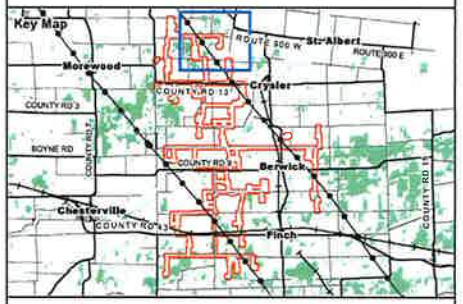
March 2, 2017

J. Barber

Map X - 2

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

▨ : flooded but frozen

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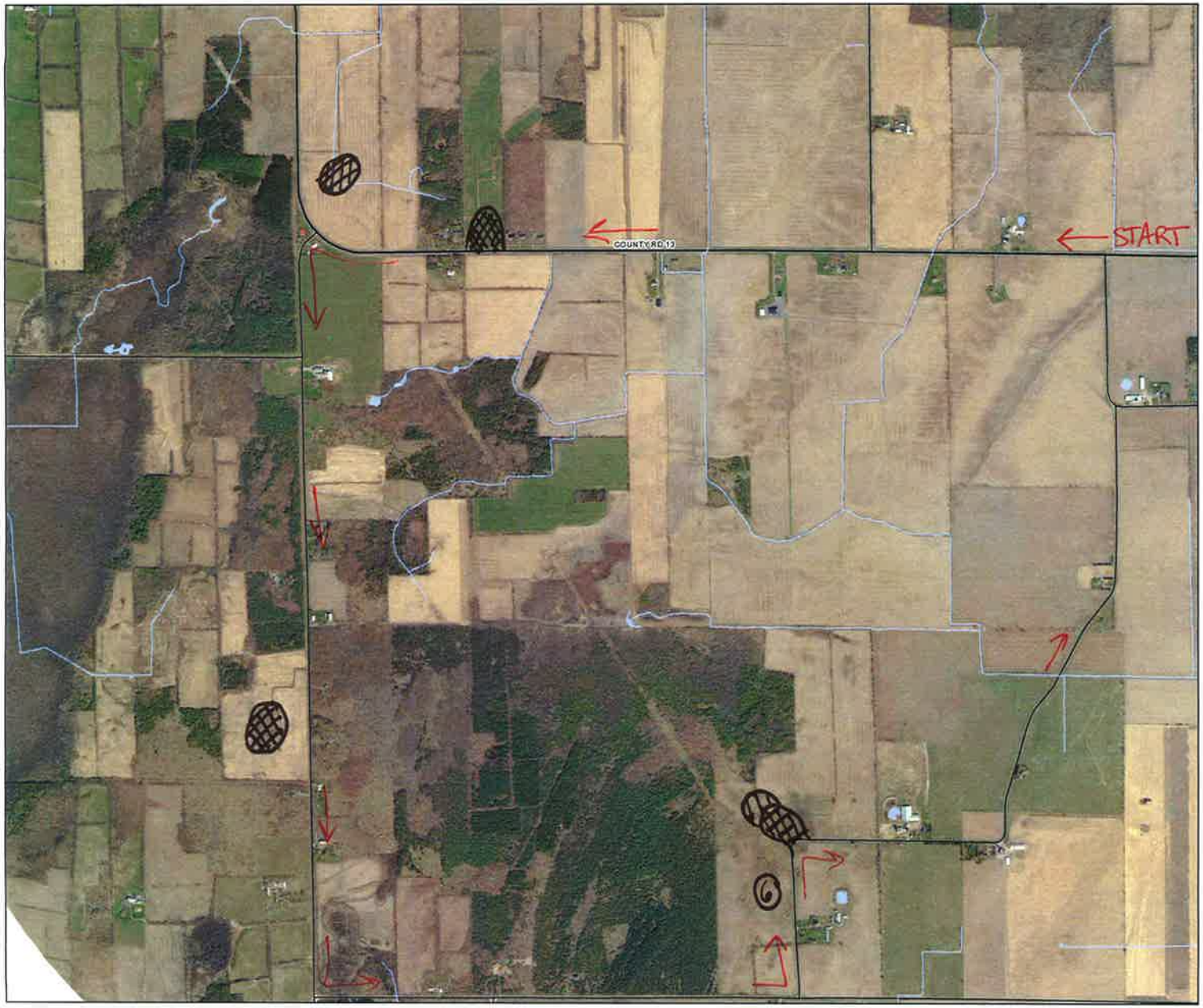
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

March 2, 2017

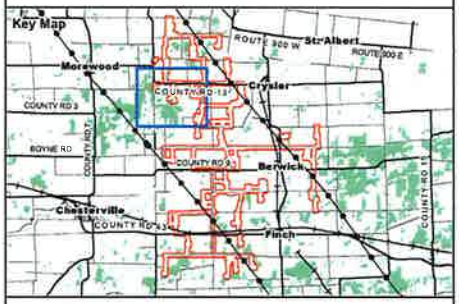
J. Barber



Map X - 3

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

: flooded area

: flooded but frozen

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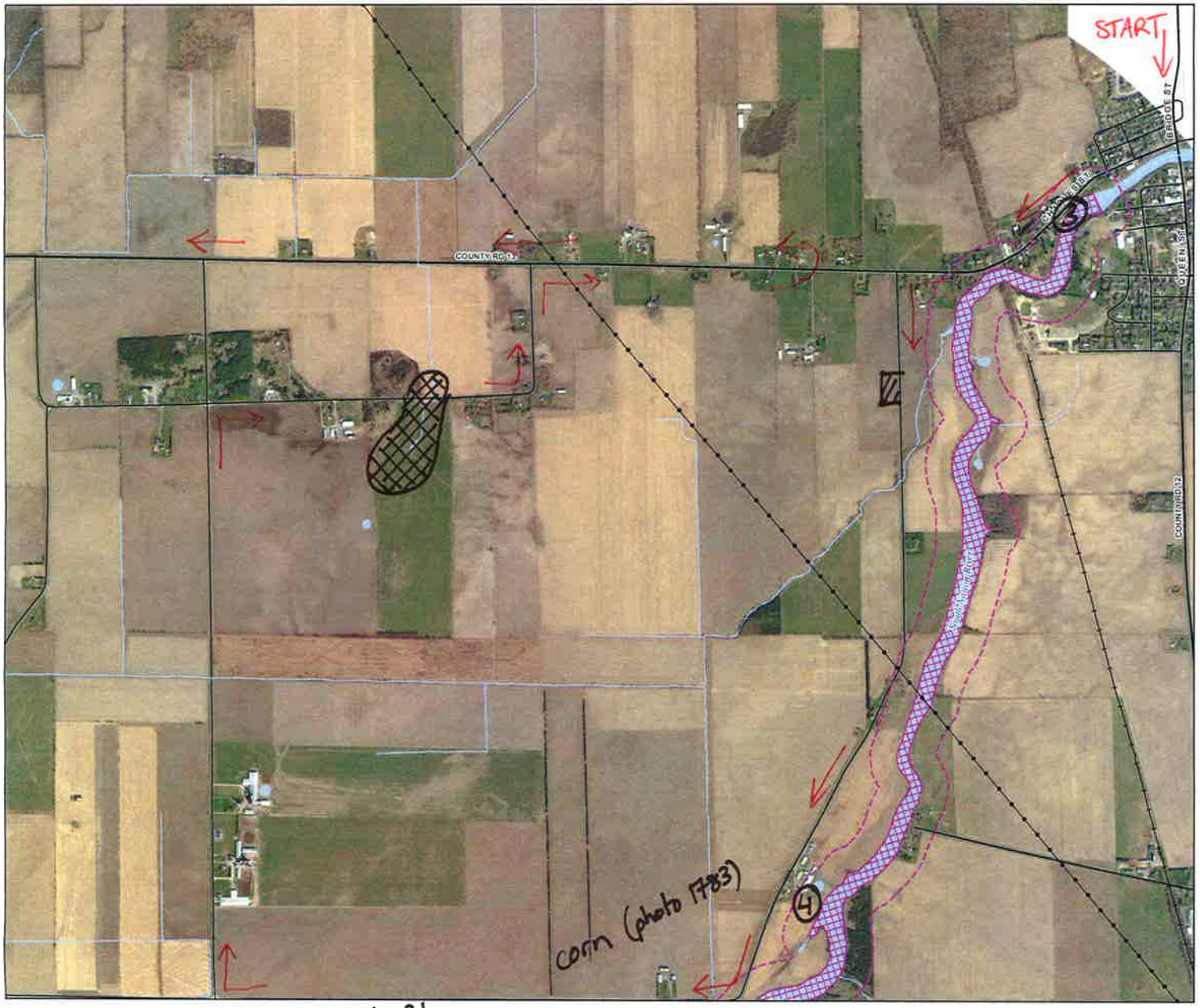
Project: 1750
Date: March 28, 2017

NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

0 200 400 600 800 Meters

March 2, 2017

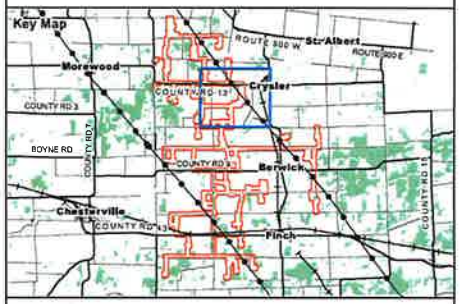
J. Barber



Map X - 4

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : route

① : sighting

▨ : flooded area

▩ : flooded but frozen

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

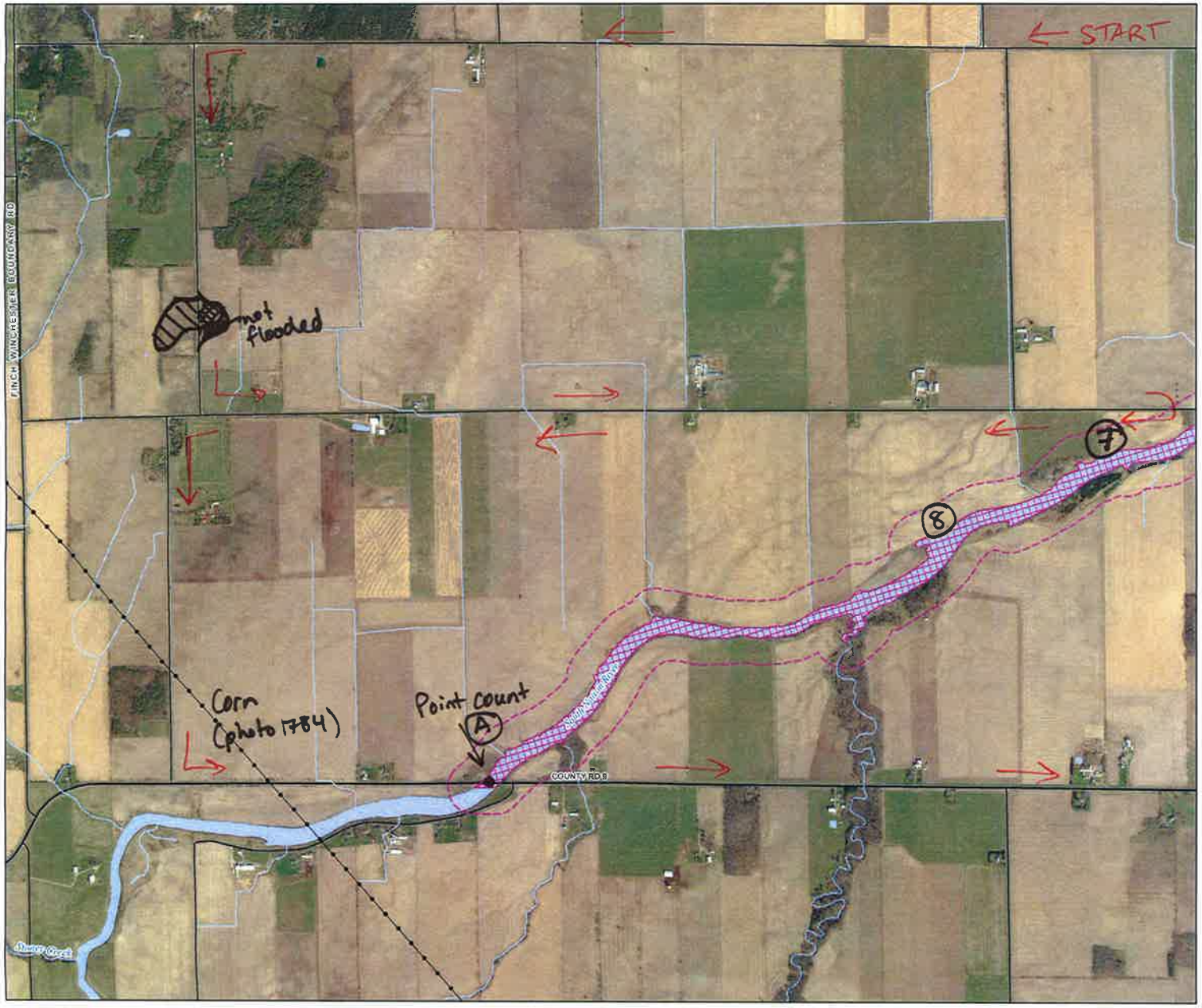
~1km S ↓
~800 snow geese
flying West @ 09:55

↓ 400m
(5)

↓ to map #6

March 2, 2017

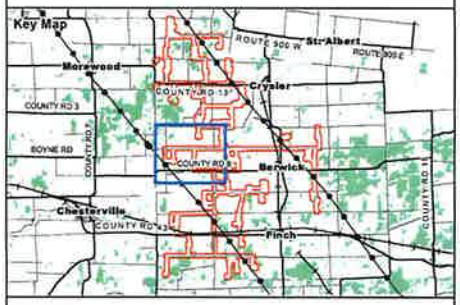
J. Barber



Map X - 5

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

(7) : sighting

: flooded area

: flooded but frozen

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

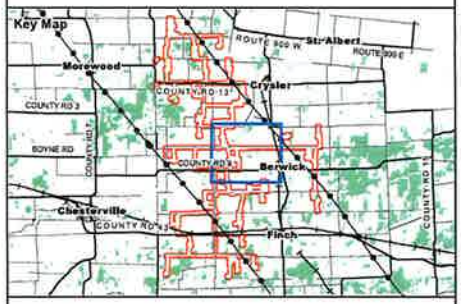
March 2, 2017

J. Barker

Map X - 6

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

① : Sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

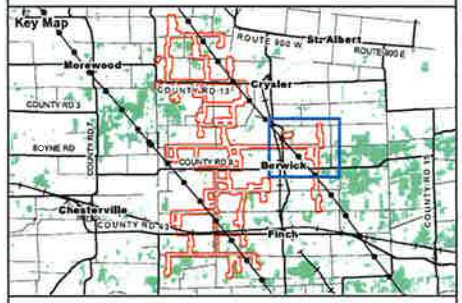
March 2, 2017

J. Barber

Map X - 7

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→: Route

①: Sighting

: flooded but frozen

McMillan Rd

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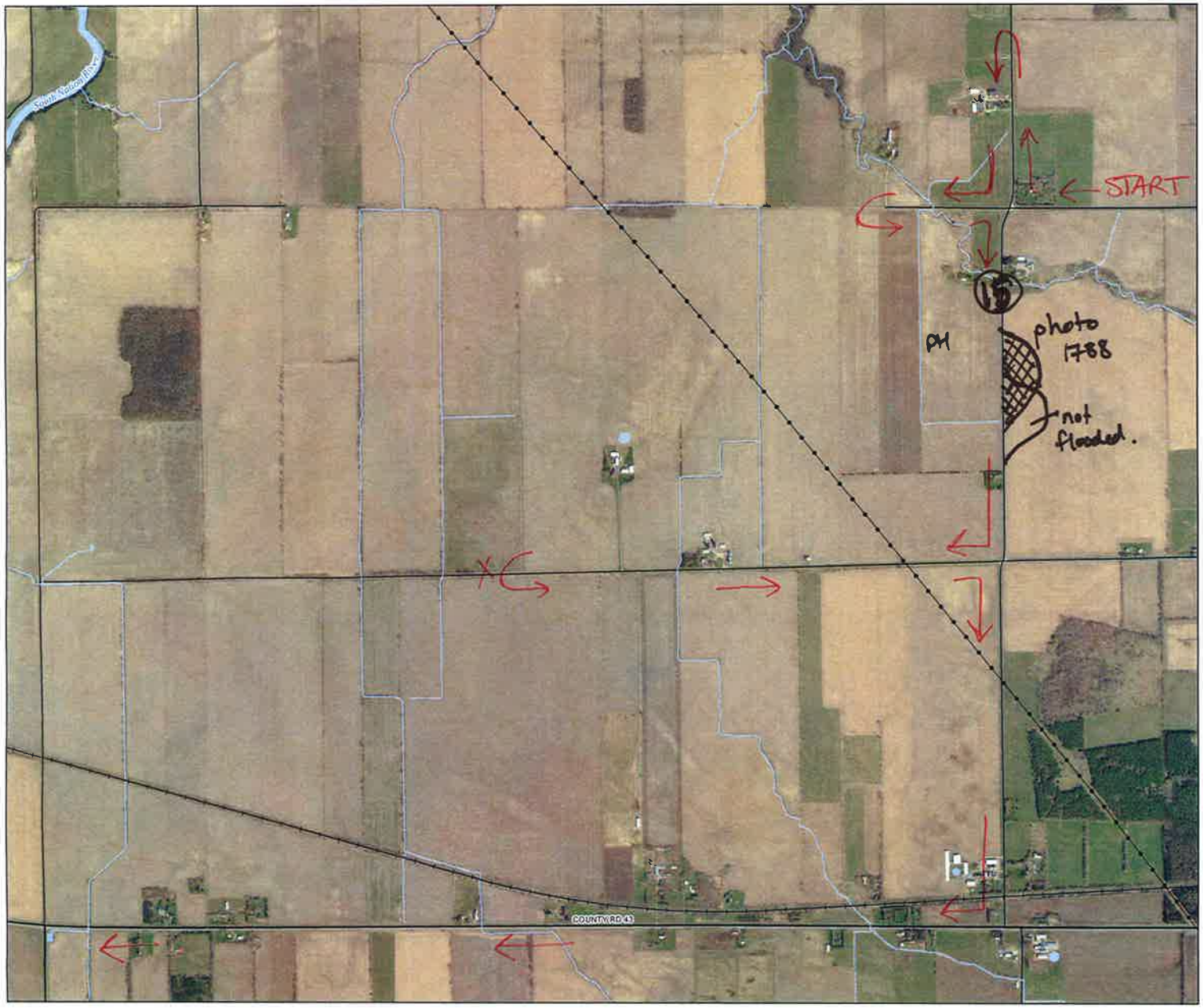
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

March 2, 2017

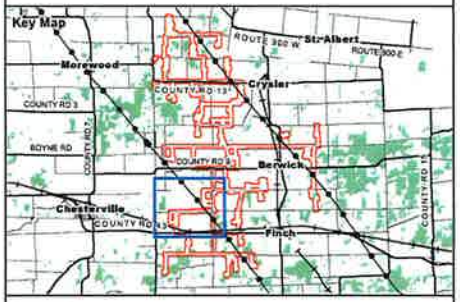
J. Barber



Map X - 8

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

: flooded but frozen

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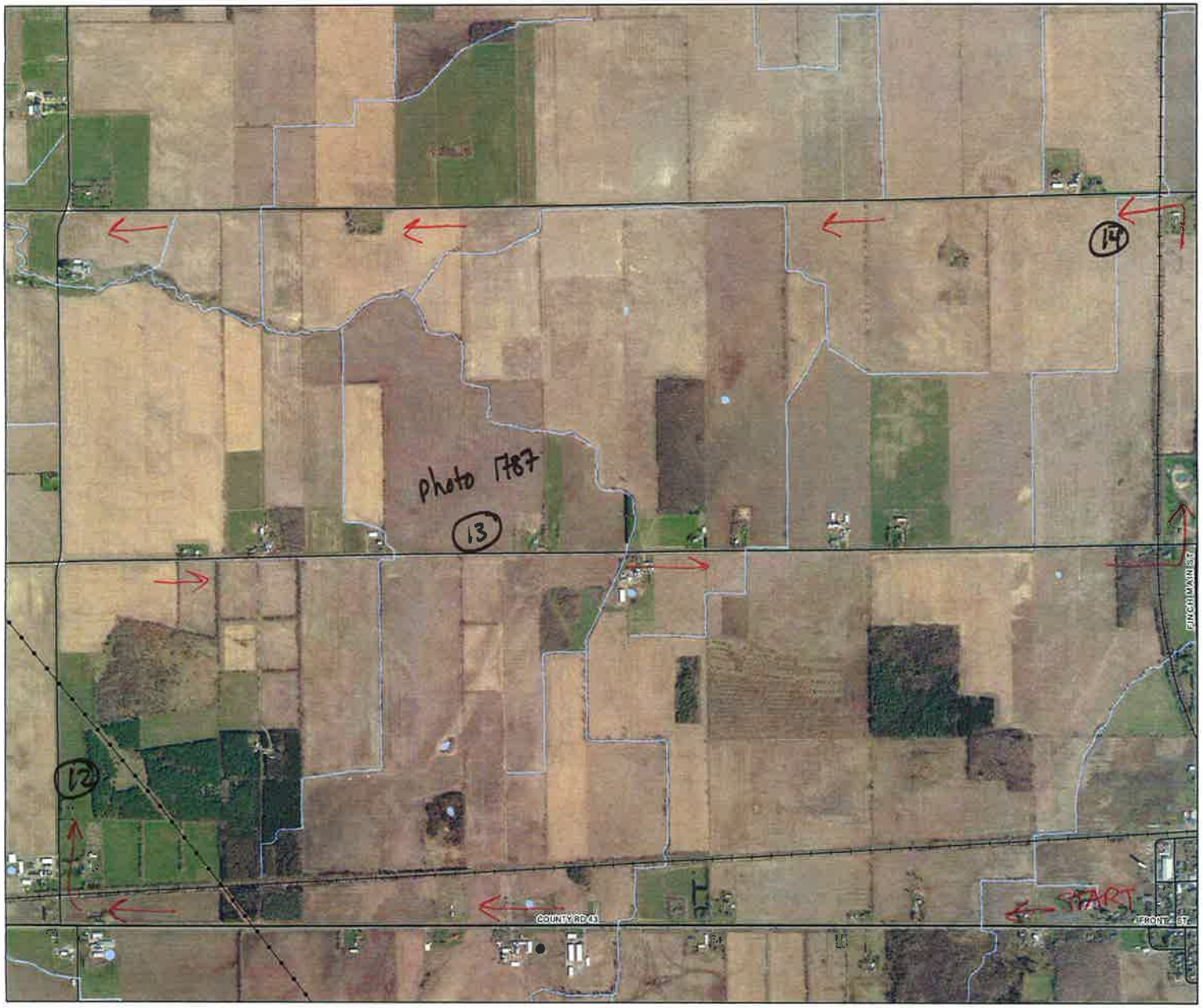
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

March 2, 2017

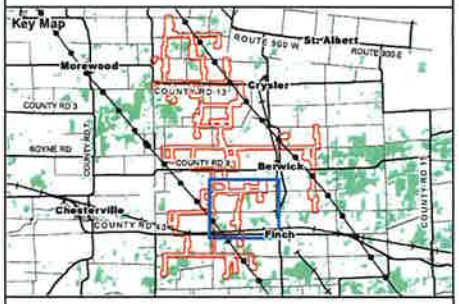
J. Barber



Map X - 9

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

(1) : sighting

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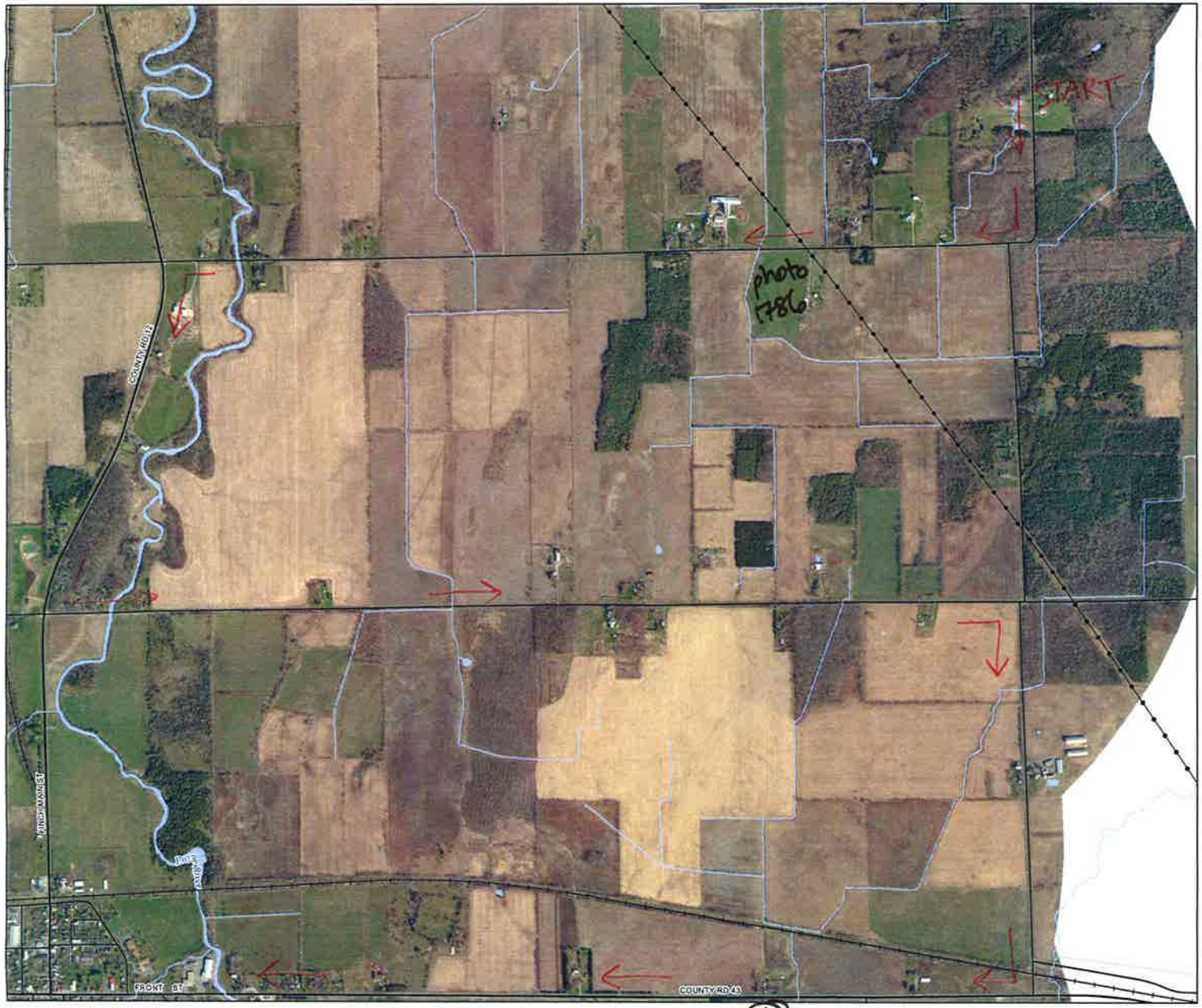
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

March 2, 2017

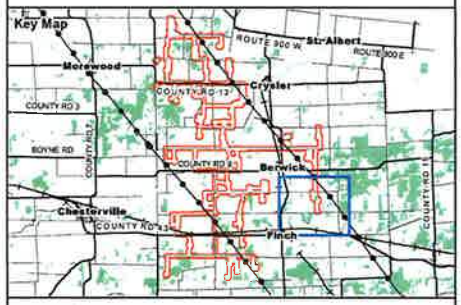
J. Barber



Map X - 10

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

(1) : sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

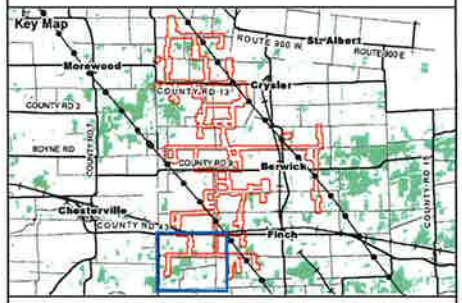
March 2, 2017

J. Barber

Map X - 11

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

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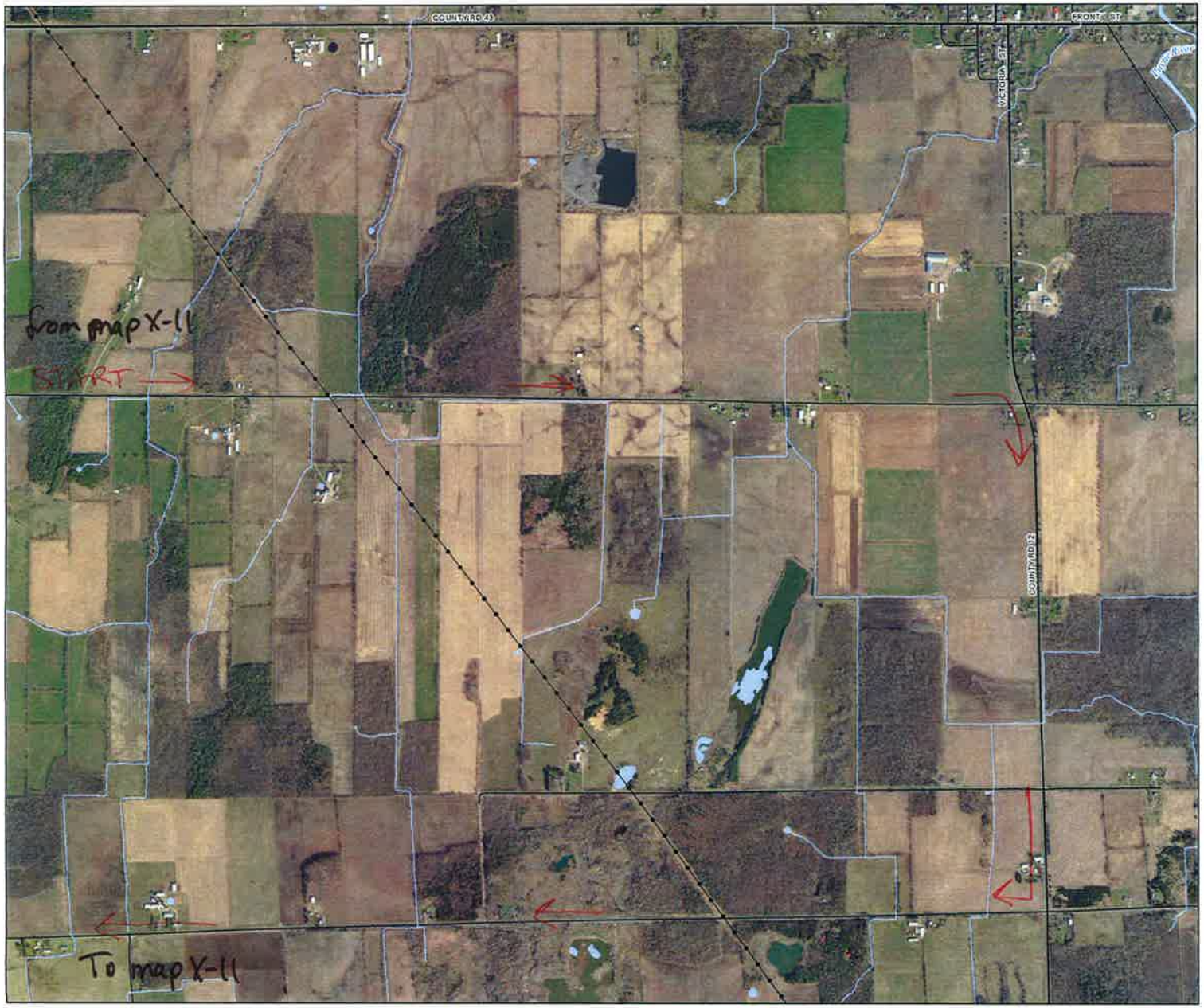
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

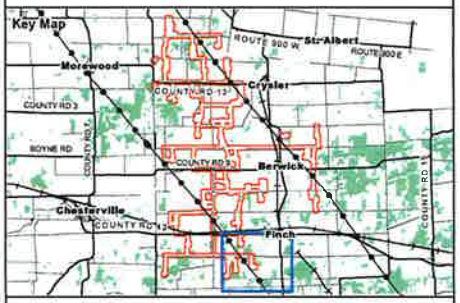
March 2, 2017
J. Barber



Map X - 12

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

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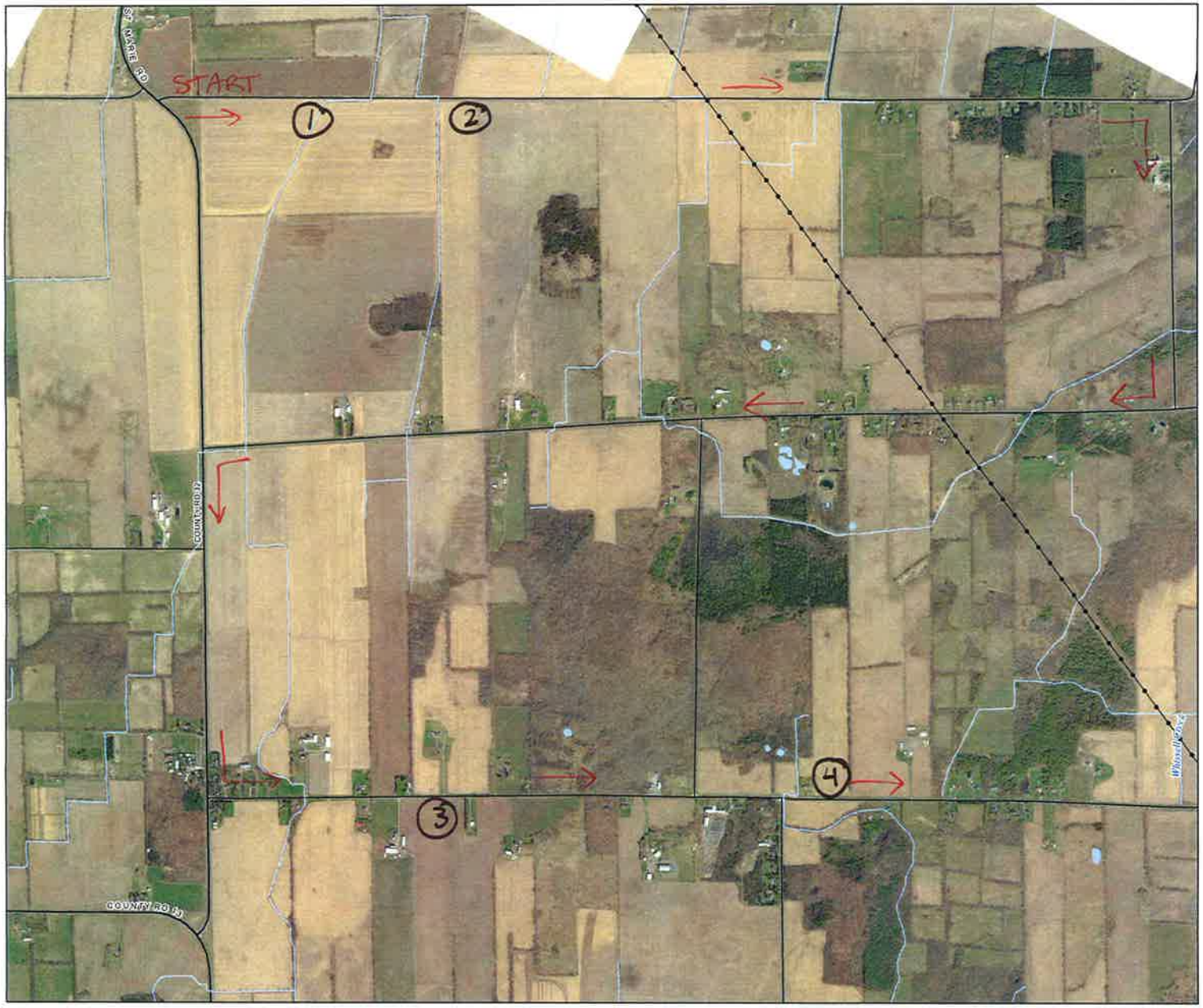
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

Mar 8, 2017

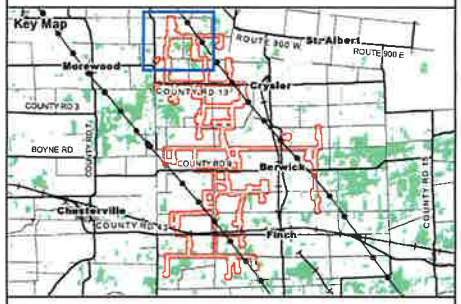
J. Barber



Map X - 1

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17 1:14,000

0 200 400 600 800 Meters

N

Mar 8, 2017

J. Barber

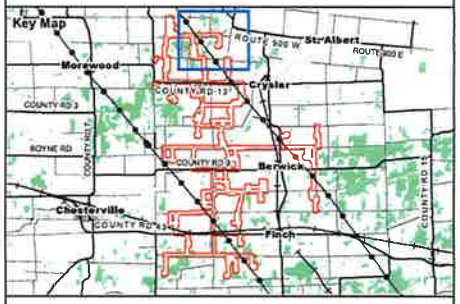
09:05

+5°C

Map X - 2

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

: flooded but frozen

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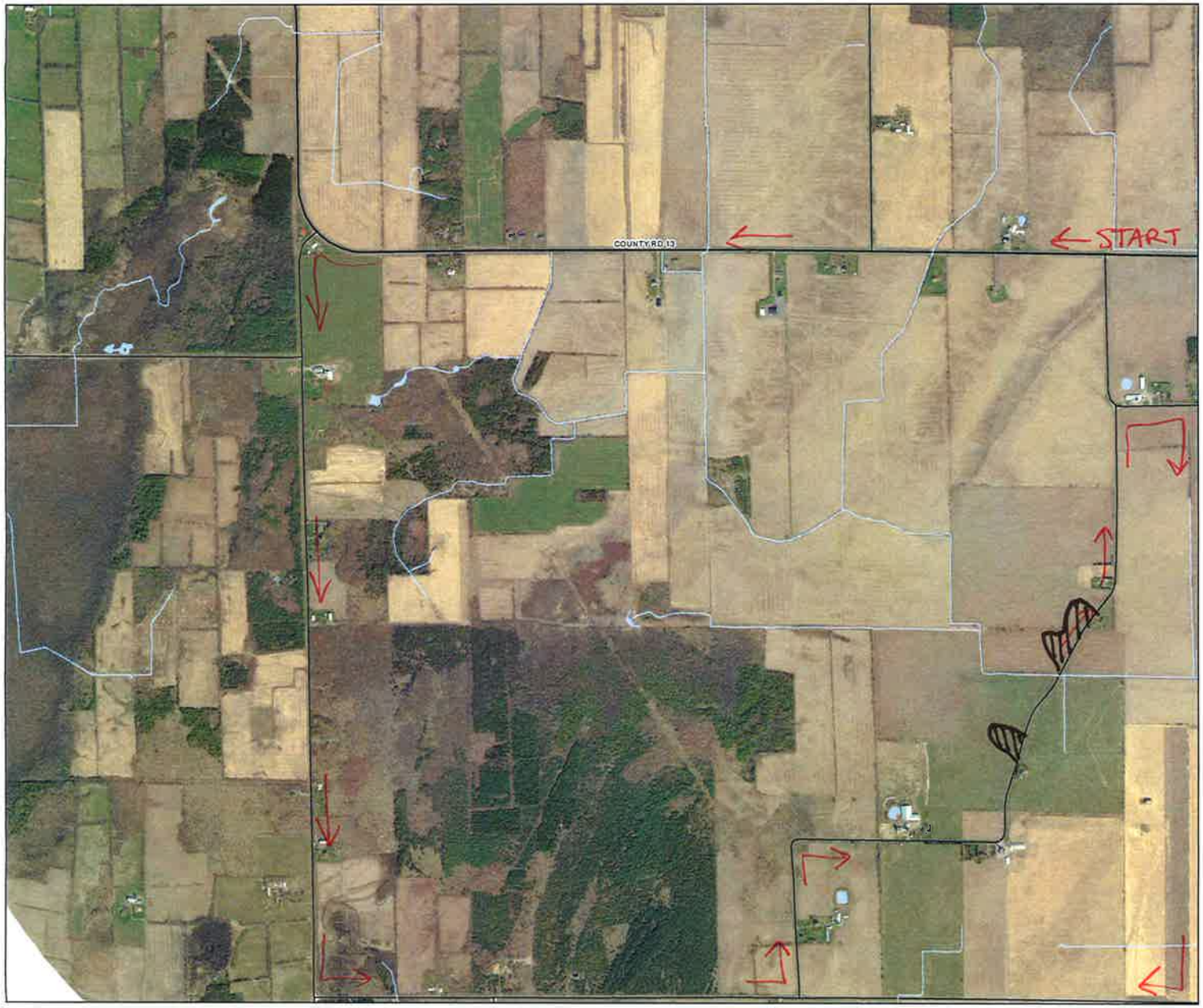
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

Mar. 8, 2017

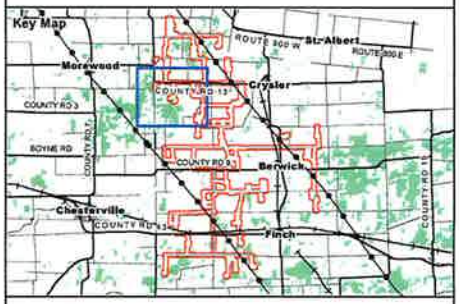
J. Barber 11:05 +7°C



Map X - 3

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

▨ : flooded area

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Project: 1756
Date: March 28, 2017

NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

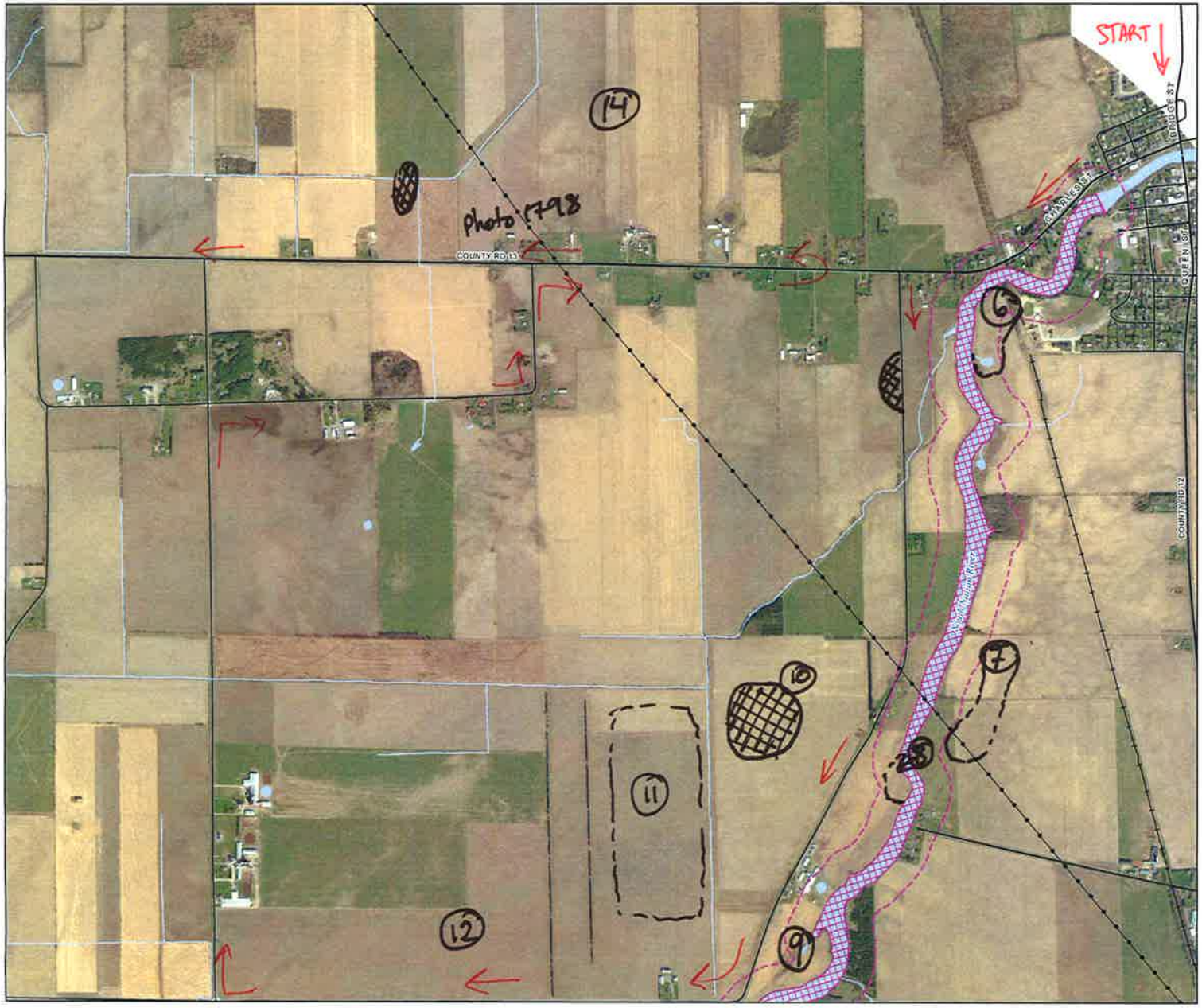
0 200 400 600 800 Meters

N

to map X-5

Mar 8, 2017

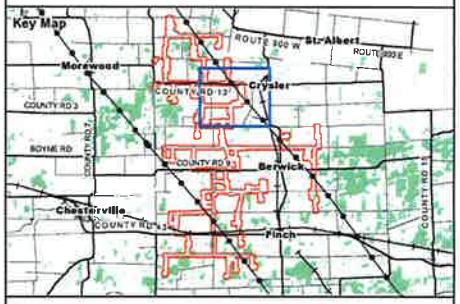
J. Barber 09:40 +6 °C



Map X - 4

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

(1) : Sighting

: flooded but frozen

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11"x17" 1:14,000

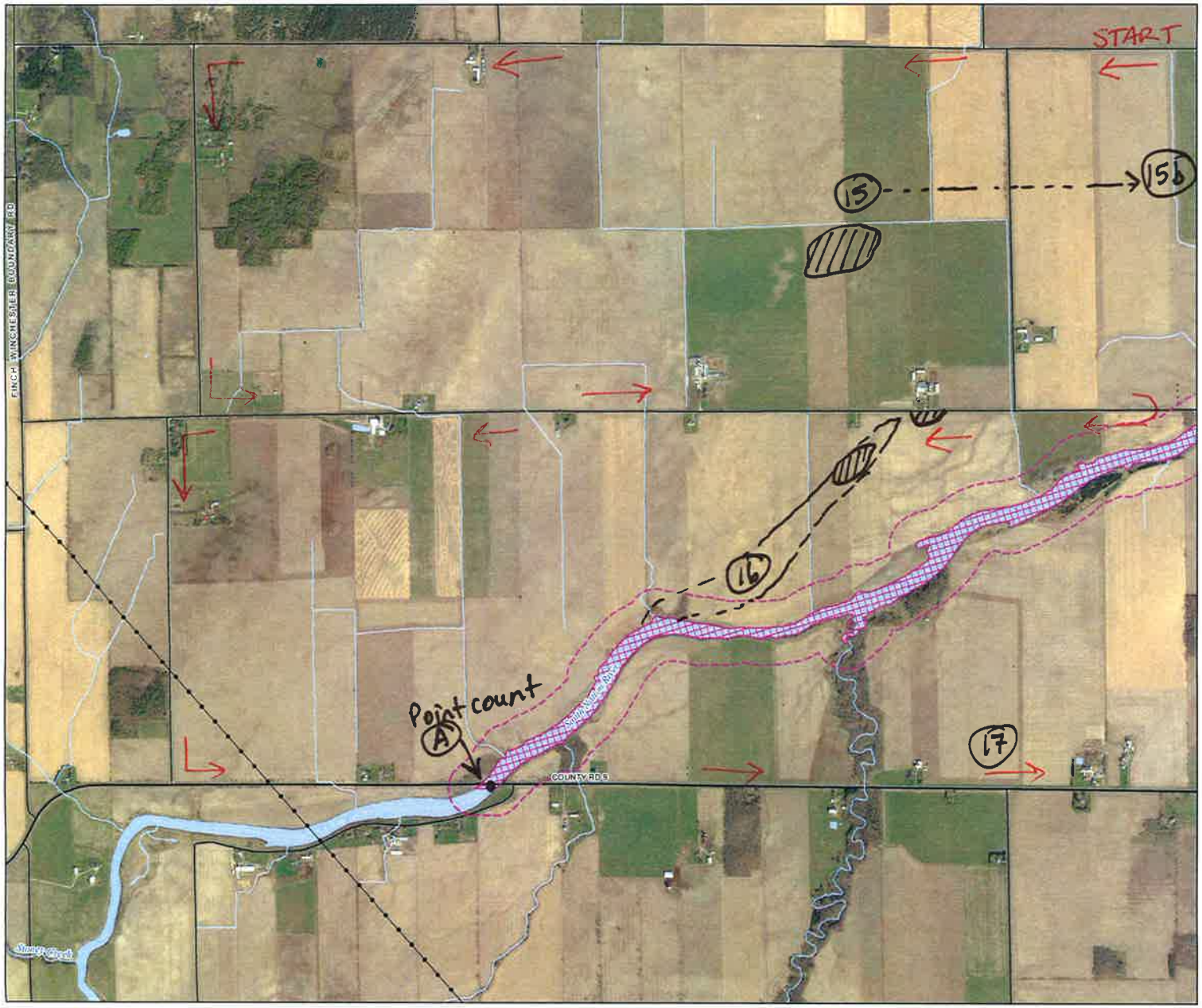
0 200 400 600 800 Meters

N

Mar. 8, 2017

J. Barber

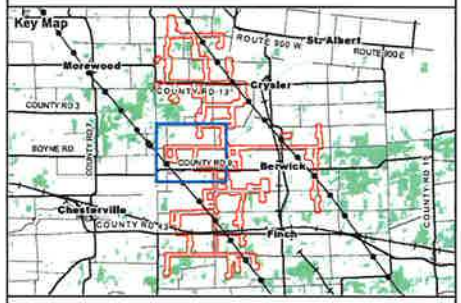
11:25



Map X - 5

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

① : sighting

▨ : flooded area

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

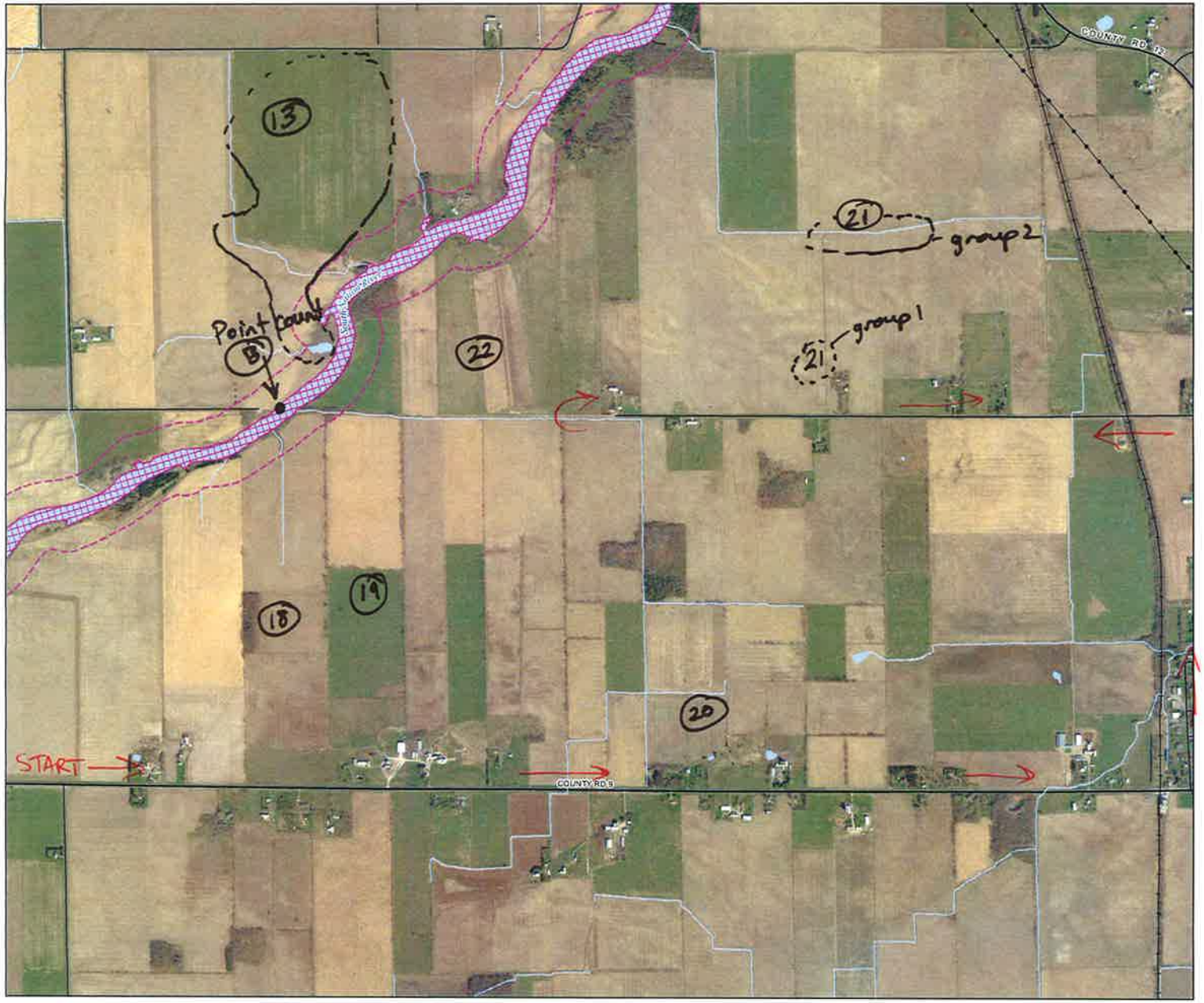
Mar 8, 2017

J. Barber

13:10

Wind 5-6 SW

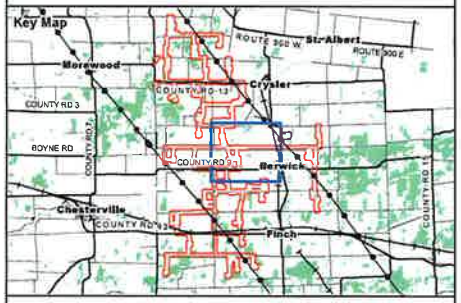
+9°C 65% CC



Map X - 6

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

(1) : sighting

(B) : point count location

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Project: 1756
Date: March 28, 2017

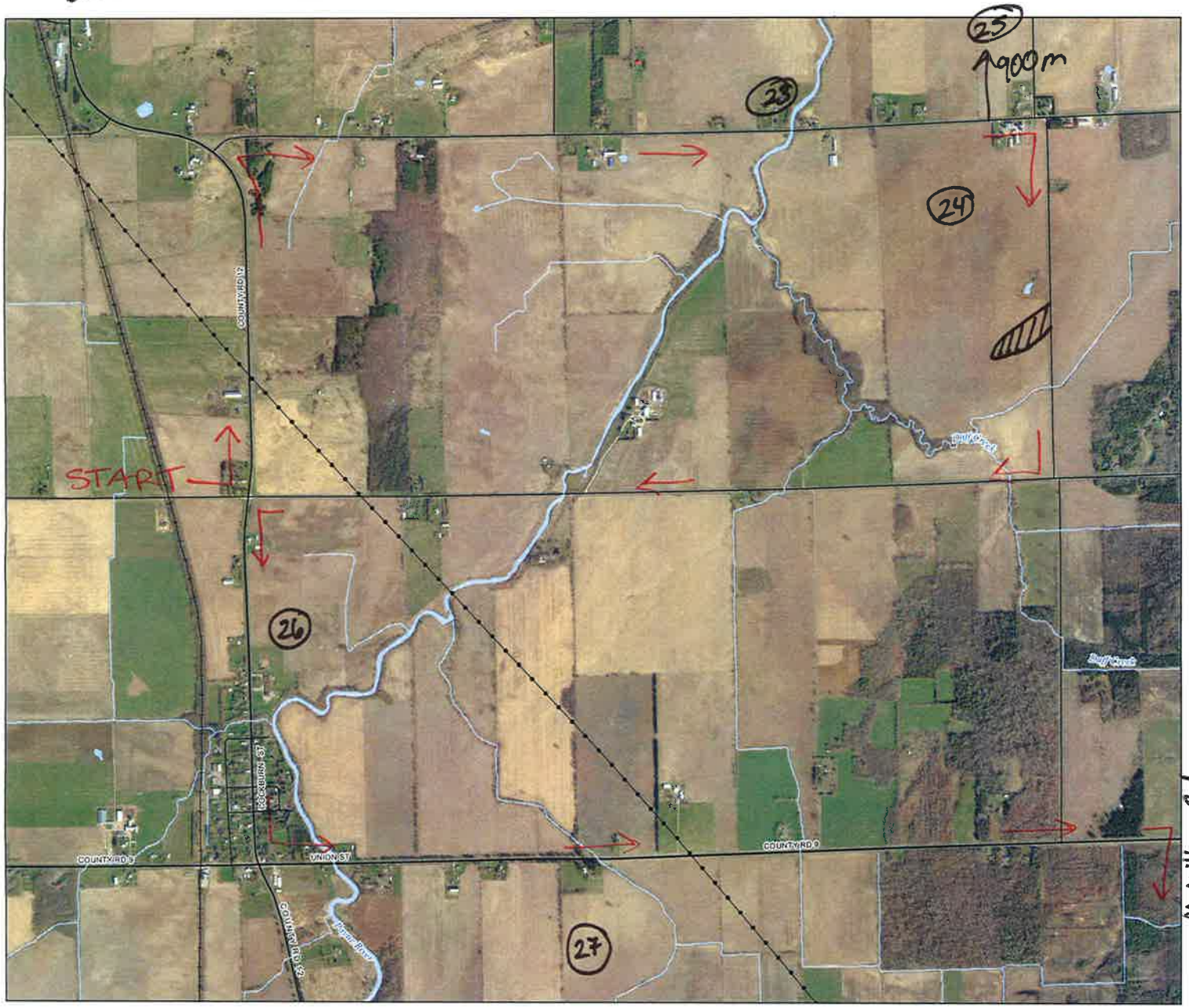
NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

0 200 400 600 800 Meters

N

Mar 8, 2017

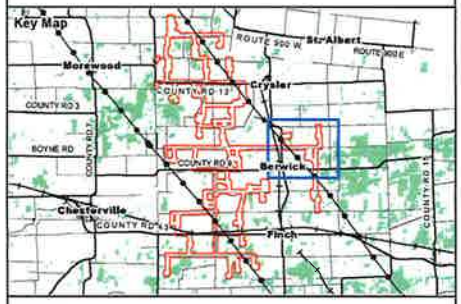
J. Barber 13:40



Map X - 7

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

▨ : flooded area

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17 1:14,000

0 200 400 600 800 Meters

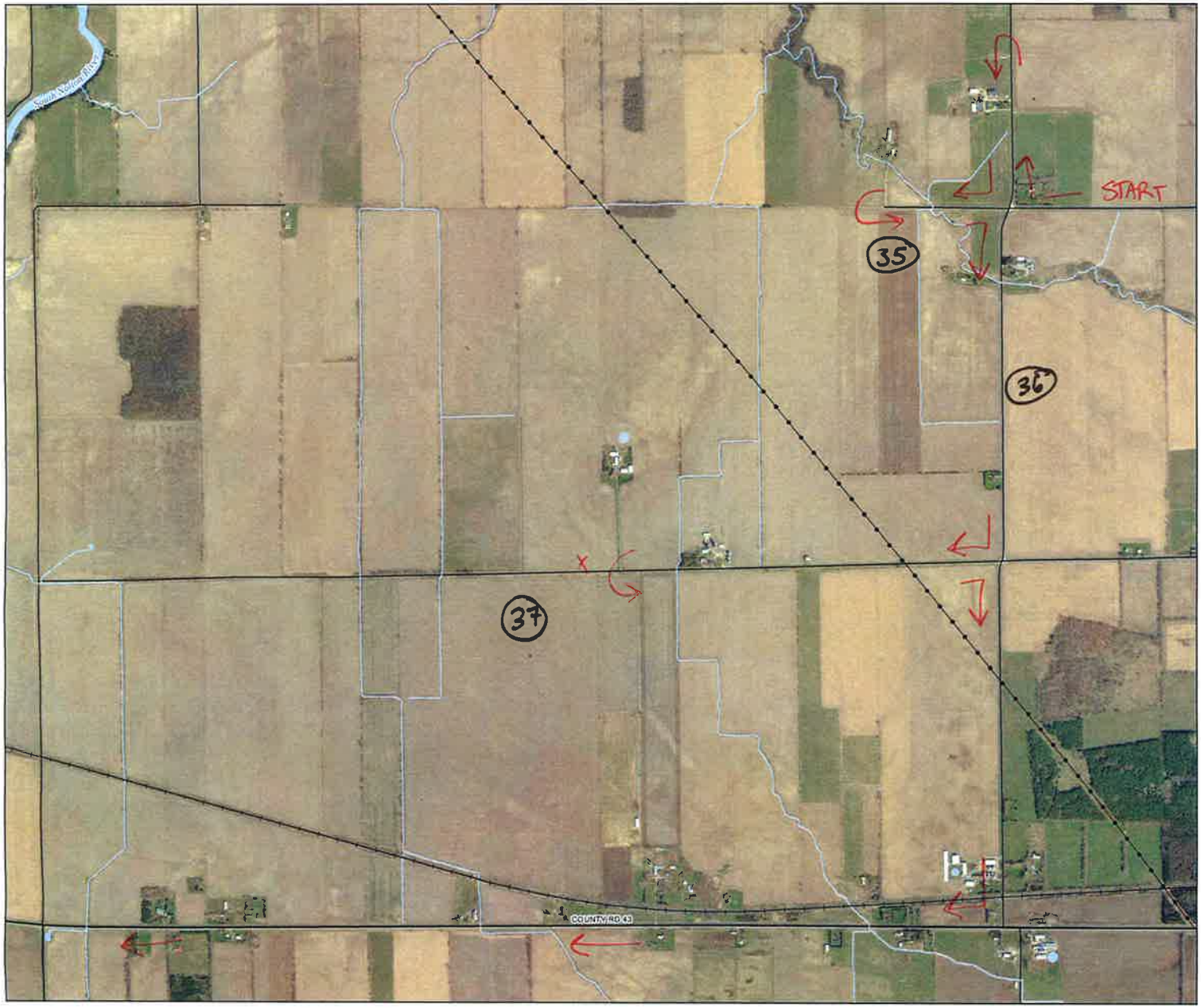
N

to map X-10

Mar. 8, 2017
J. Barber

15:45

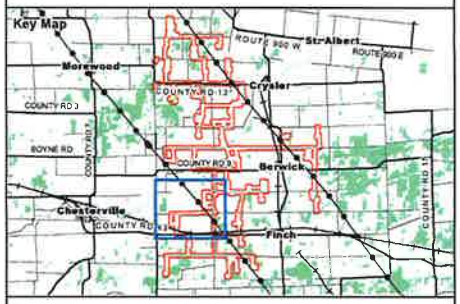
+9°C wind 6-7 SW



Map X - 8

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

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Project: 1756
Date: March 28, 2017

NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

0 200 400 600 800 Meters

N

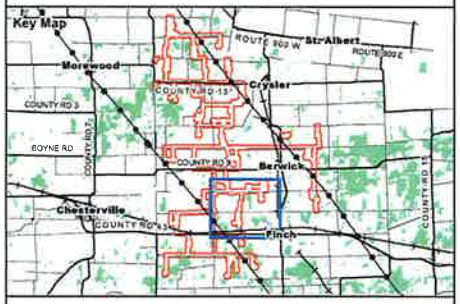
Mar. 8, 2017

J. Barber 14:50 +10°C wind 6-7 SW

Map X - 9

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

①: Sighting

▨: flooded area

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Project: 1756
Date: March 28, 2017

NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

0 200 400 600 800 Meters

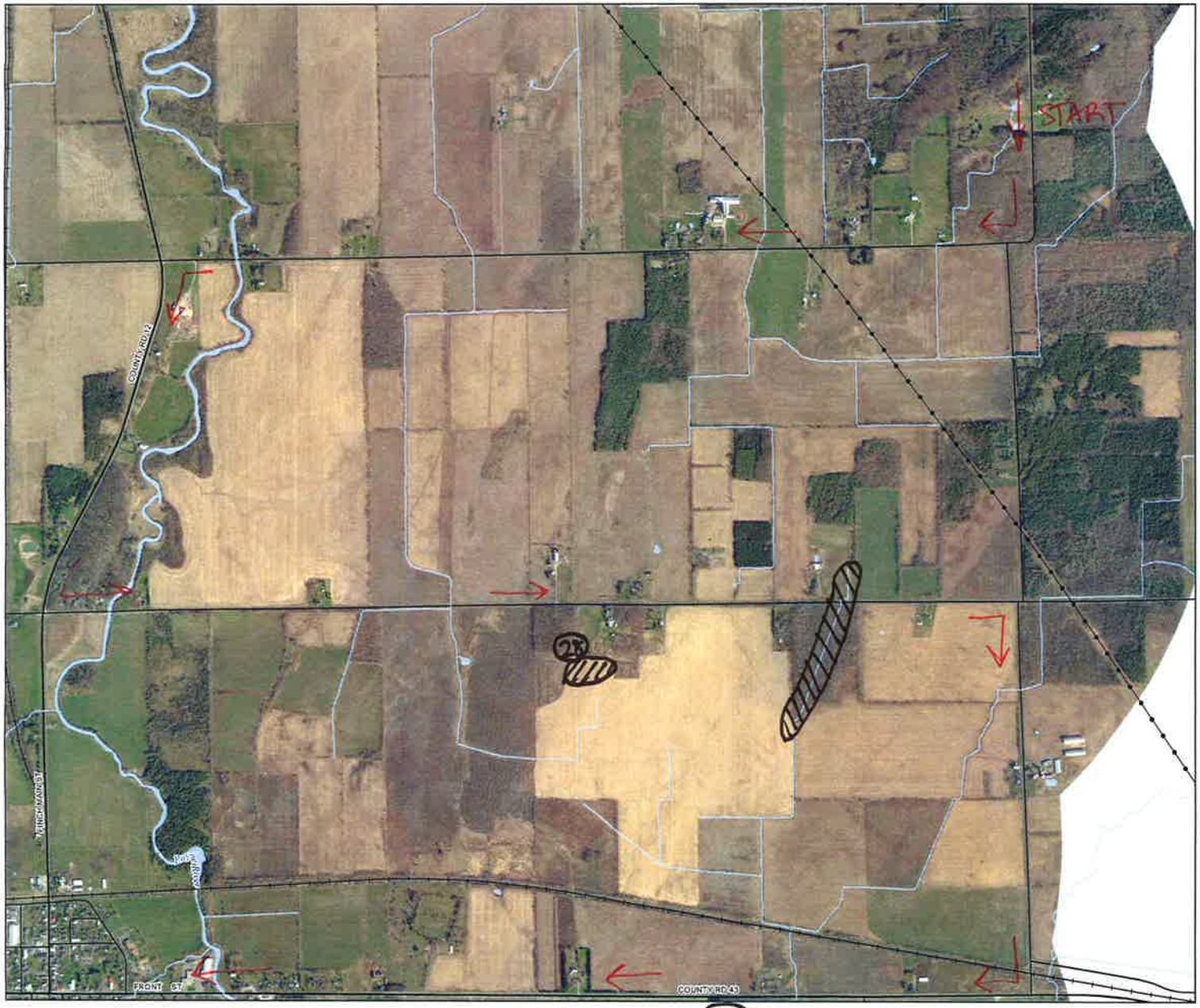
N

Mar. 8, 2017

J. Barber

14:30

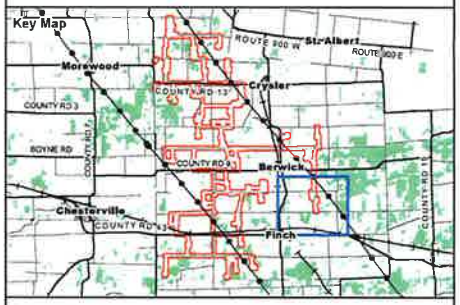
+10°C



Map X - 10

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

: flooded area

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Project: 1756
Date: March 28, 2017

NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

0 200 400 600 800 Meters

N

Mar 8, 2017

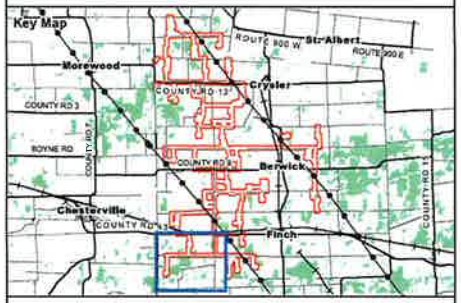
J. Barber

16:05

Map X - 11

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

: flooded area

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

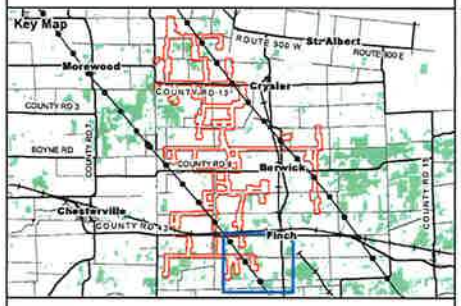
Mar. 8, 2017
J. Barber

16:15

Map X - 12

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→: Route

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Project: 1756	NAD83 - UTM Zone 18
Date: March 28, 2017	Size: 11x17"
	1:14,000

0 200 400 600 800 Meters

21-Mar-2017

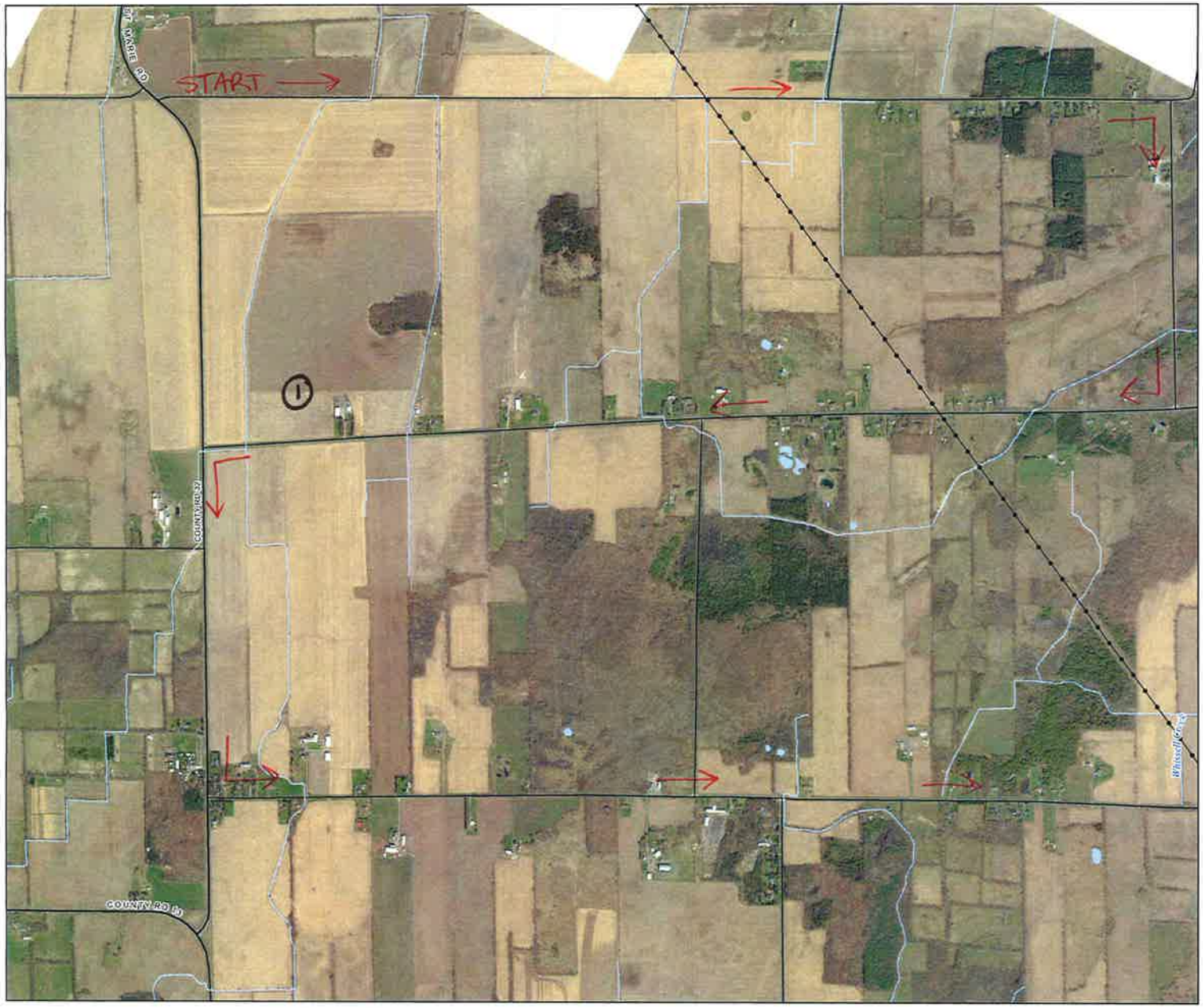
J. Barber

09:10

+1°C

Light wet snow
wind 1 SW

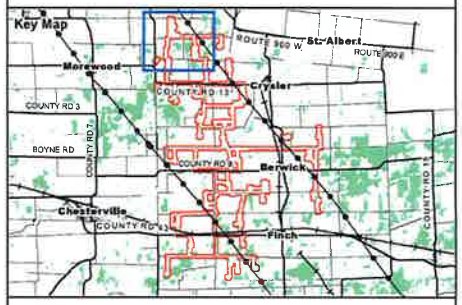
100% cc



Map X - 1

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

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Project: 1756
Date: March 28, 2017

NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

0 200 400 600 800 Meters

N

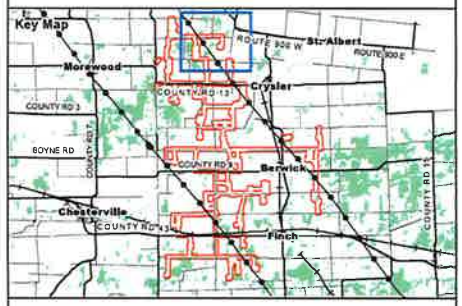
21-Mar-2017 J. Barber

09:45

Map X - 2

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

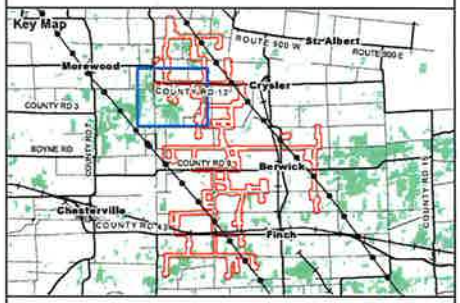
21-Mar-2017 J. Barber 10:25

+ ~~2~~ °C 100% cc

Map X - 3

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

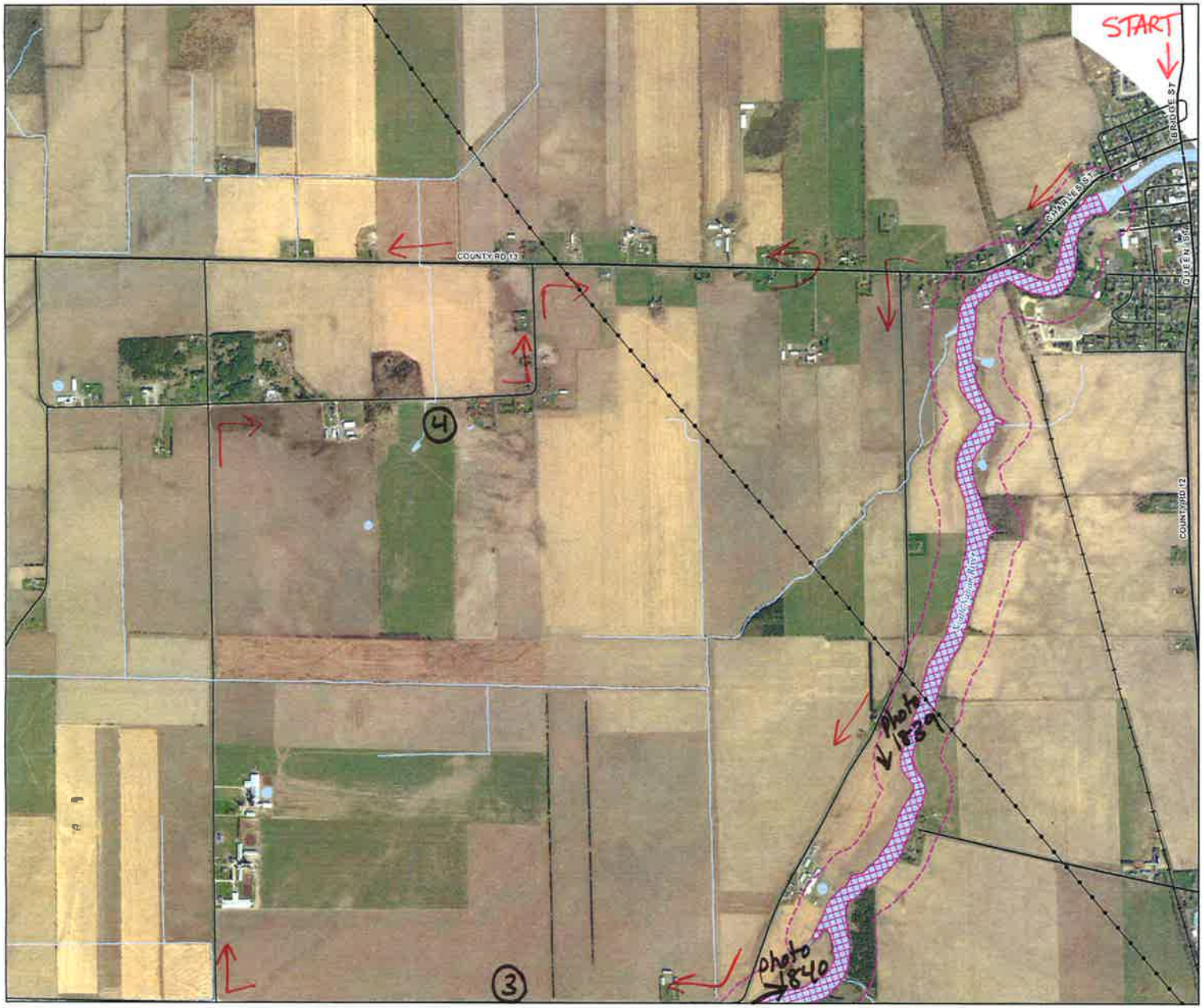
0 200 400 600 800 Meters

N

→ map X-5

21-Mar-2017 J. Barber

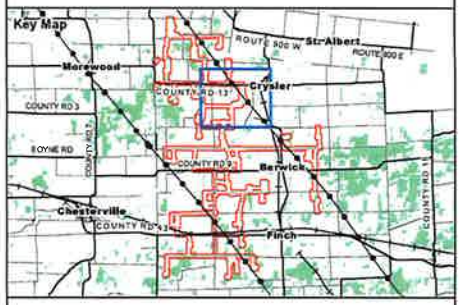
10:00



Map X - 4

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

① : Sighting

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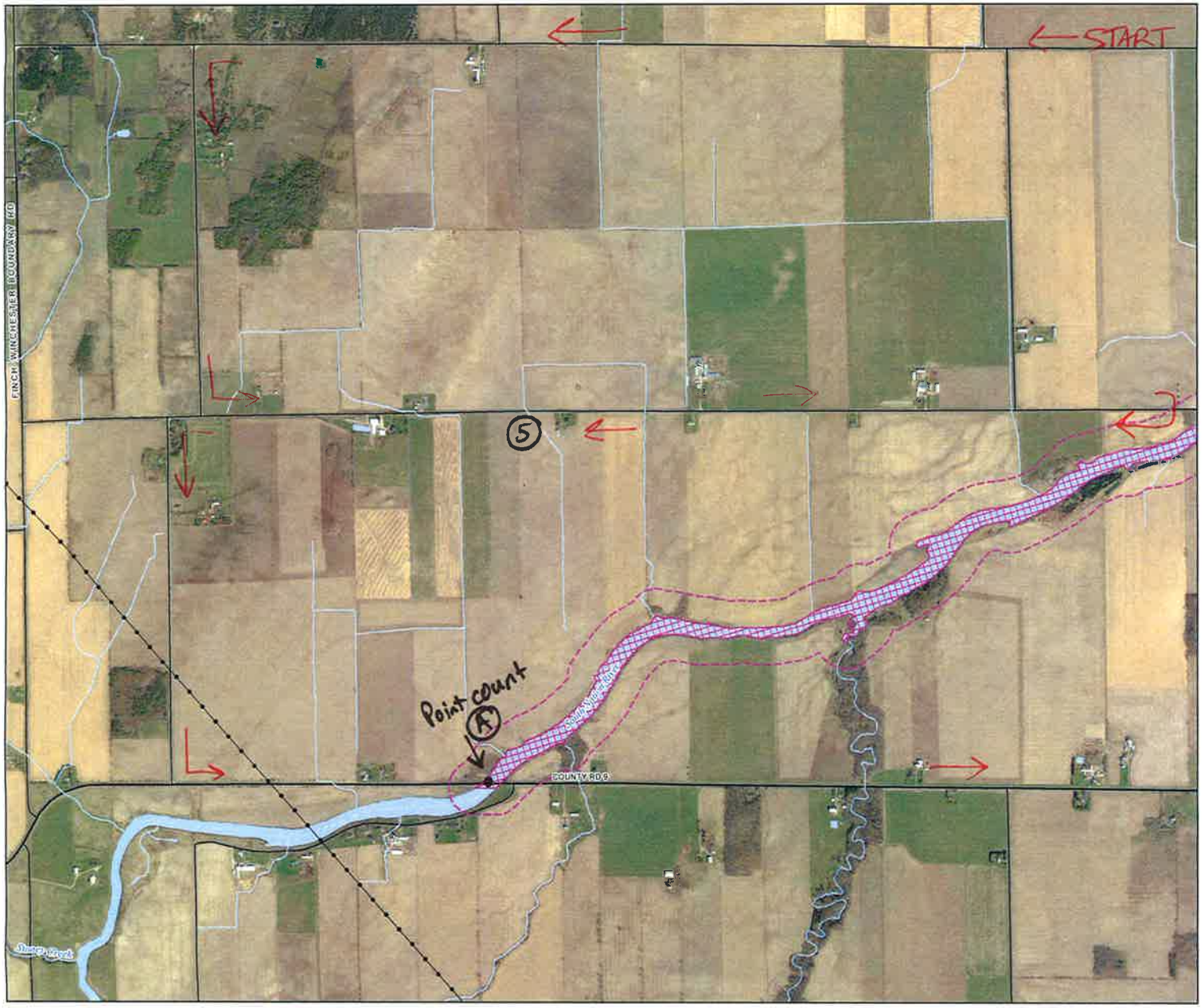
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

21-Mar-2017

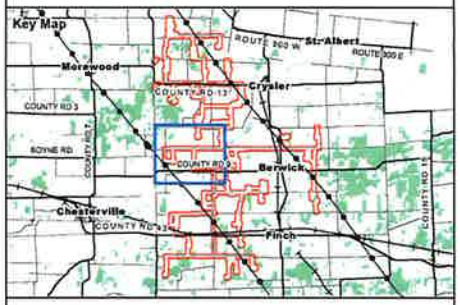
J. Barber 10:45 +2°C 95% cc



Map X - 5

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

① : sighting

Ⓐ : point count location

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17 1:14,000

0 200 400 600 800 Meters

N

21-Mar-2017 J. Barber

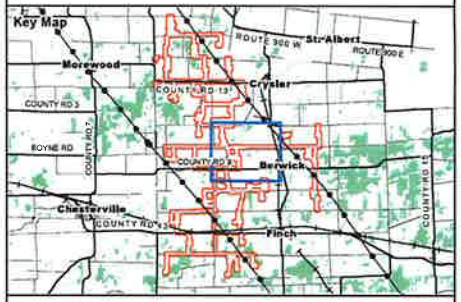
100% cc

+3°C occasional light rain shower

Map X - 6

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

Ⓑ : point count location

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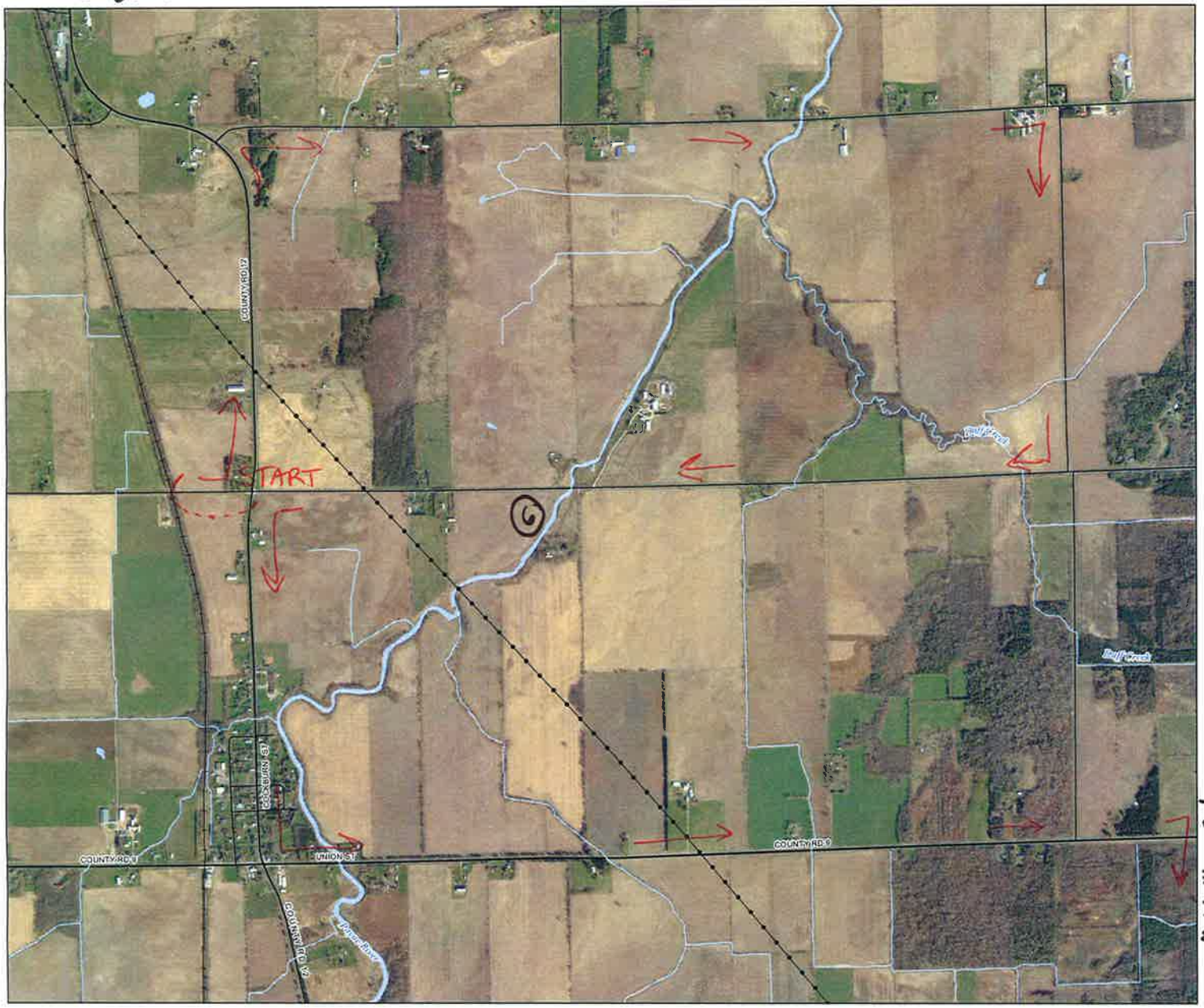
Project: 1756	NAD83 - UTM Zone 18
Date: March 28, 2017	Size: 11x17"
	1:14,000

0 200 400 600 800 Meters

N

21-Mar-2017
J. Barber

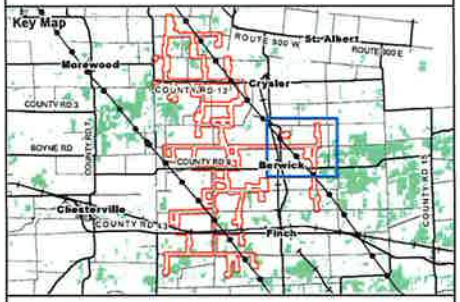
12:20



Map X - 7

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

McMillan Rd.

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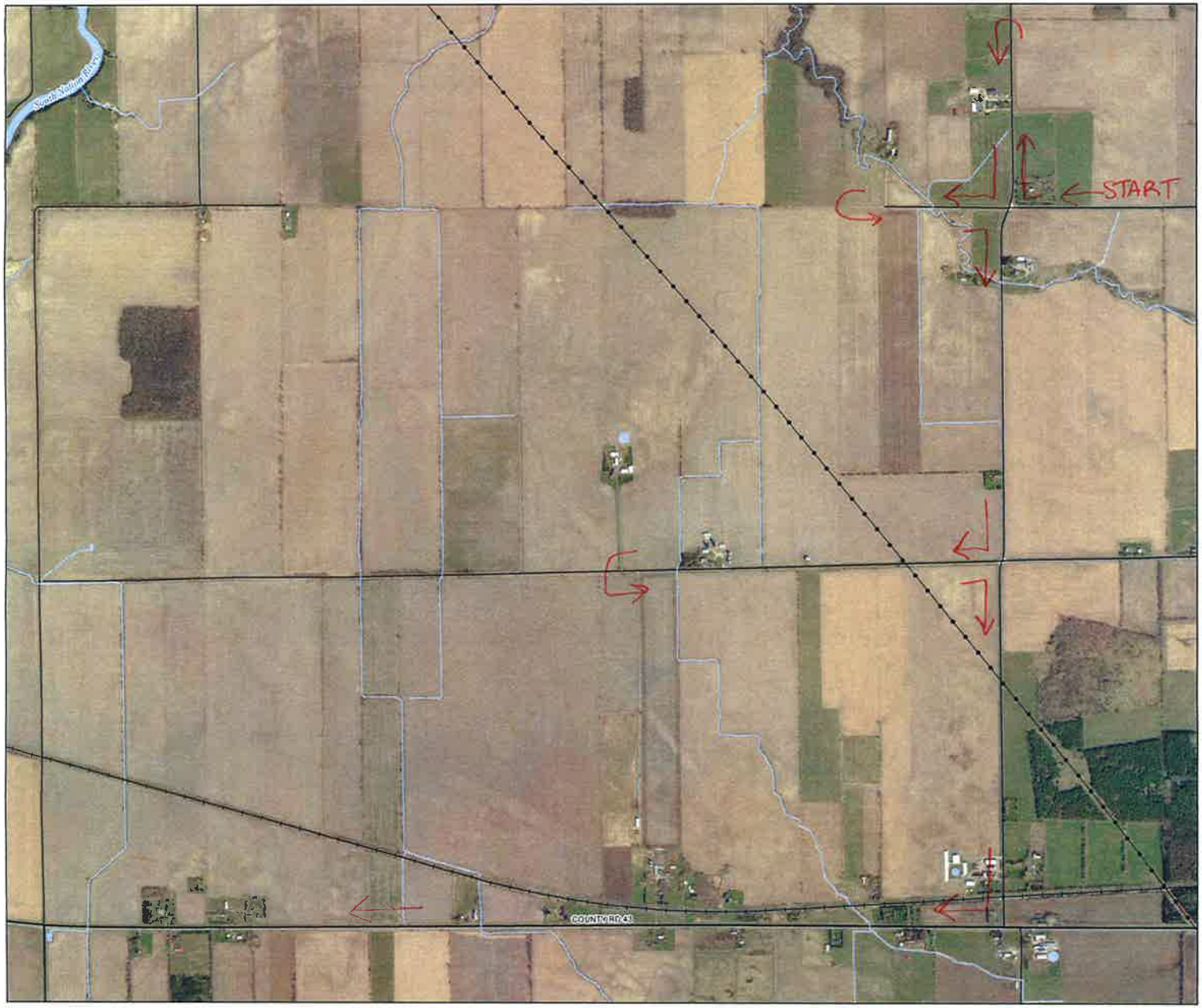
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

to map X-10

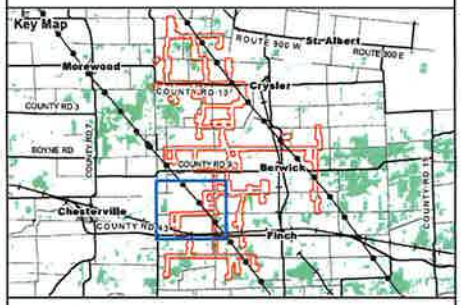
21-Mar-2017 J. Barber 13:25



Map X - 8

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

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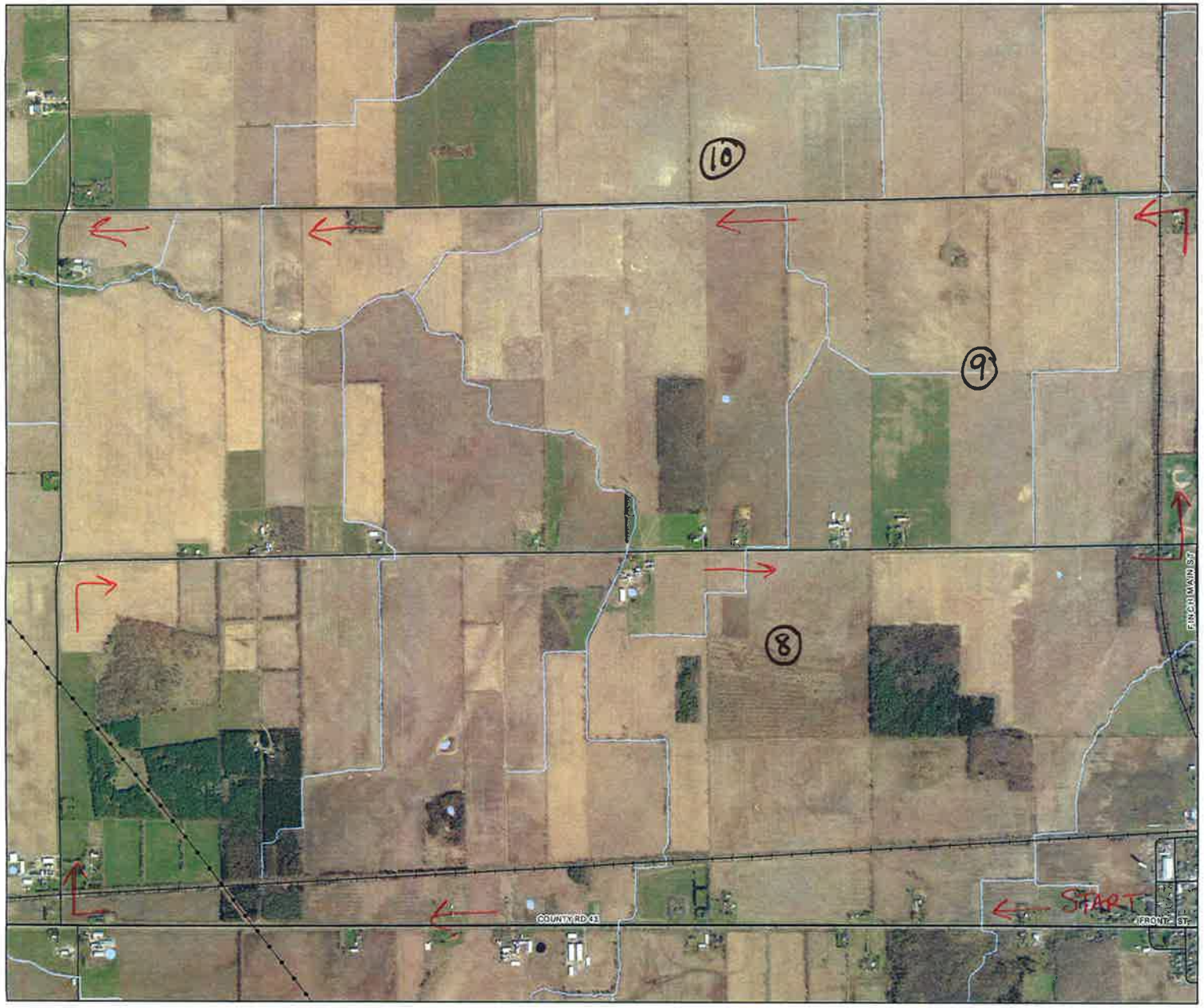
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

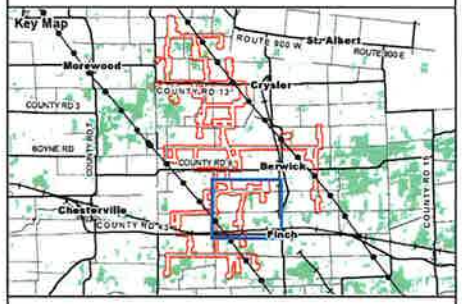
21-Mar-2017 J. Barber 13:00



Map X - 9

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

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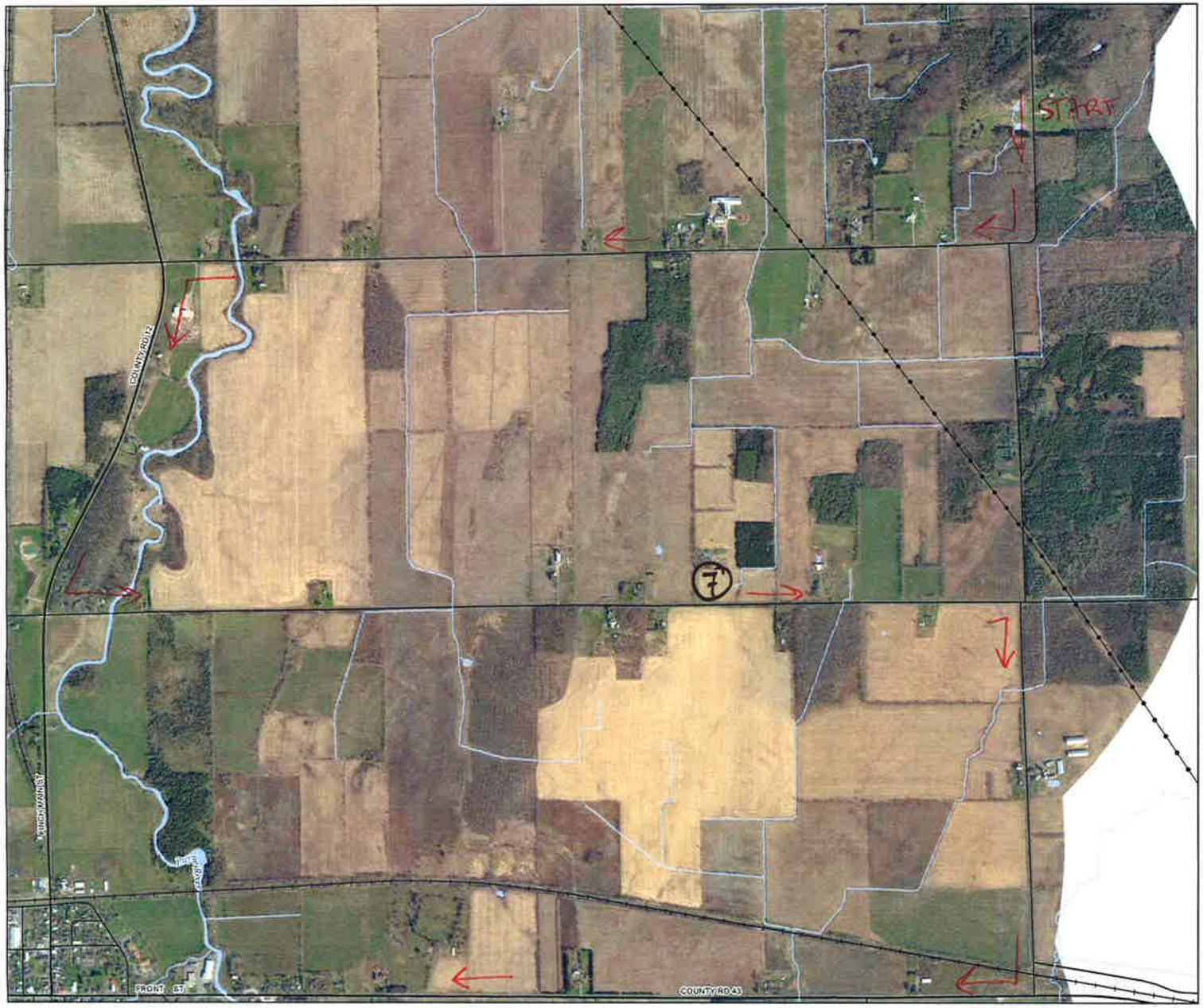
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

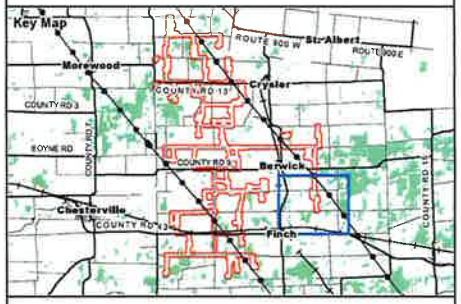
21-Mar-2017
J. Barber
12:40
+3°C 100% CC wind: 1 SW



Map X - 10

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

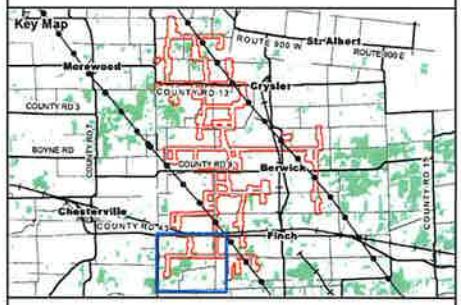
21-Mar-2017
J. Barber 13:46

+4°C 100% cc

Map X - 11

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

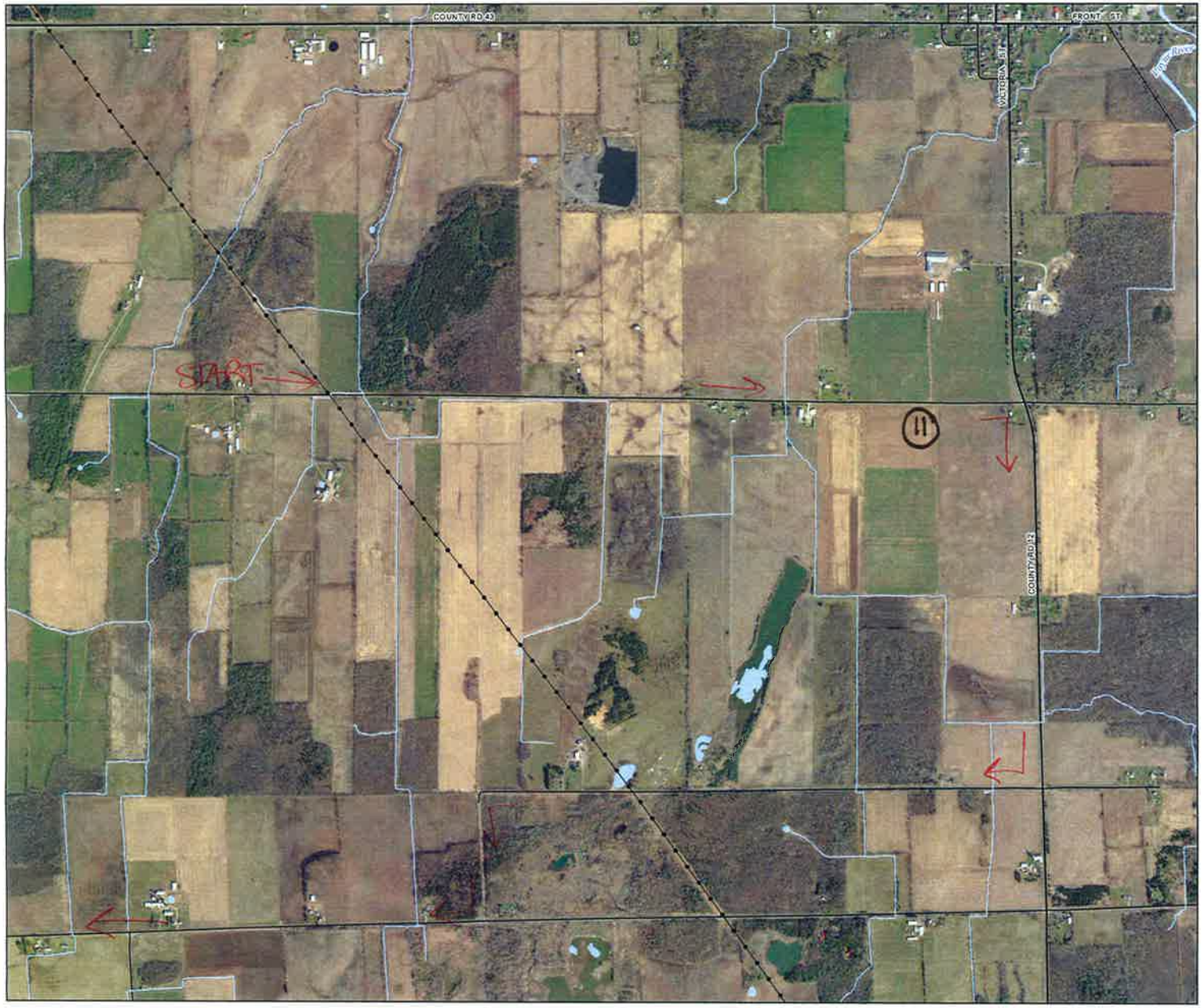
0 200 400 600 800 Meters

N

21-Mar-2017

J. Barber

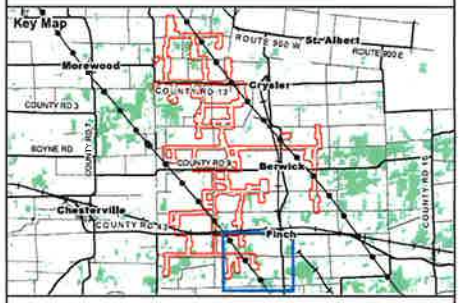
13:50



Map X - 12

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route.

① : Sighting

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Project: 1750	NAD83 - UTM Zone 18
Date: March 28, 2017	Size: 11x17"
	1:14,000

0 200 400 600 800 Meters

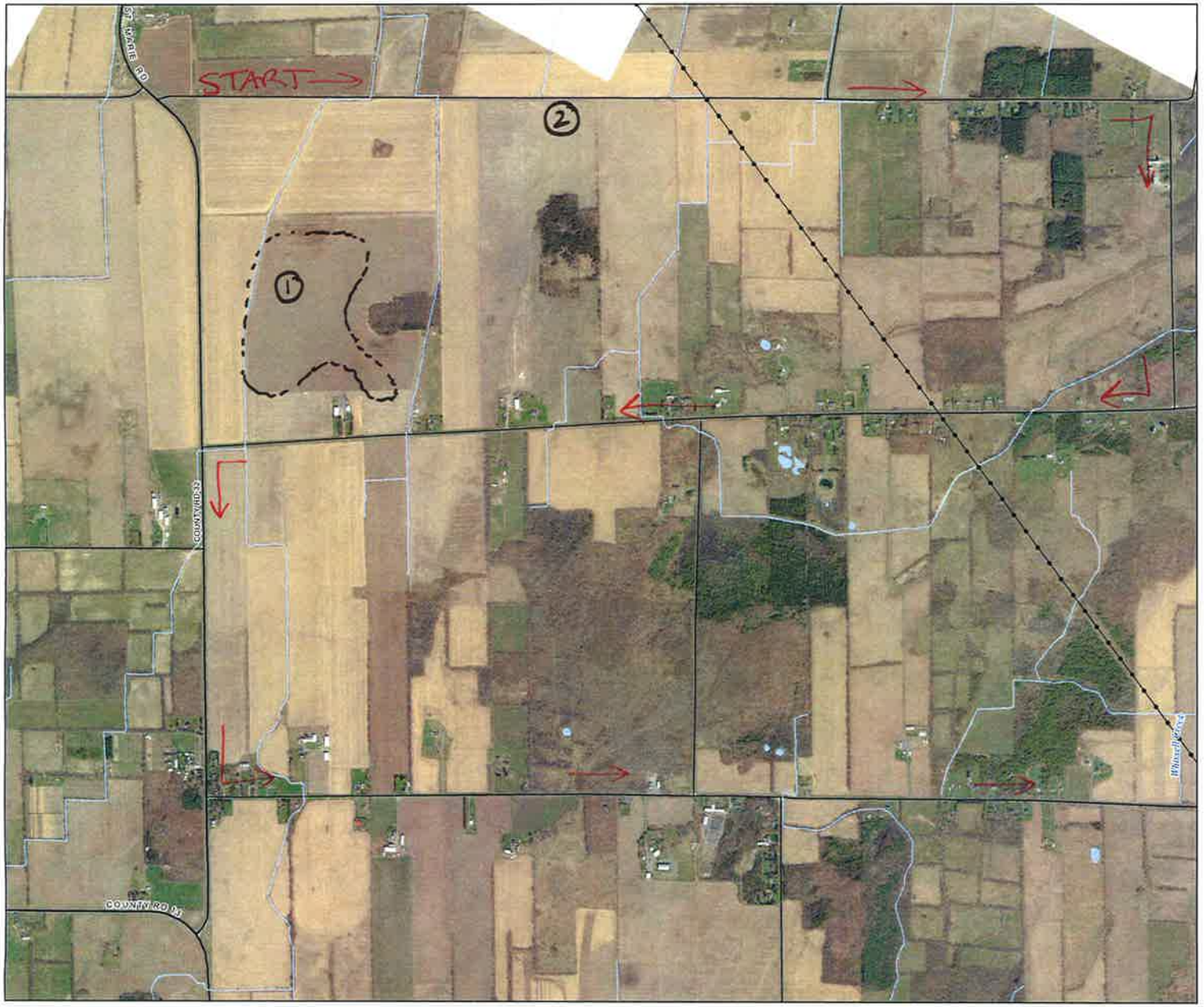
N

29-Mar-2017

J. Barber

08:00

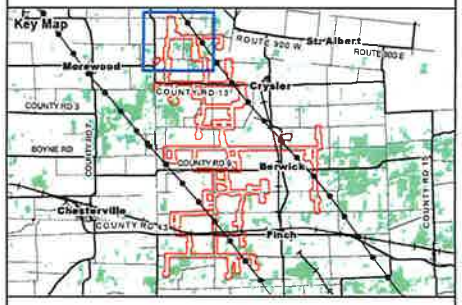
+2°C, wind 2 NW 100% cc no precip.



Map X - 1

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

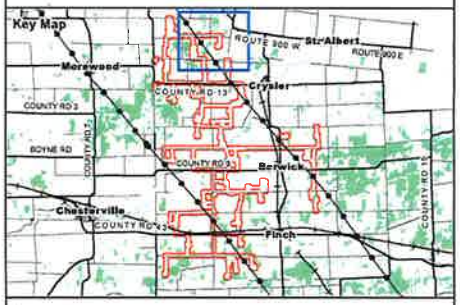
29-Mar-2017

J. Barber 08:35

Map X - 2

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

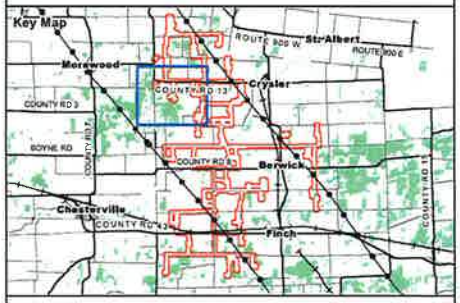
29-Mar-2017

J. Barber 09:40

Map X - 3

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

: flooded area

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Project: 1755	NAD83 - UTM Zone 18
Date: March 28, 2017	Size: 11x17"
	1:14,000

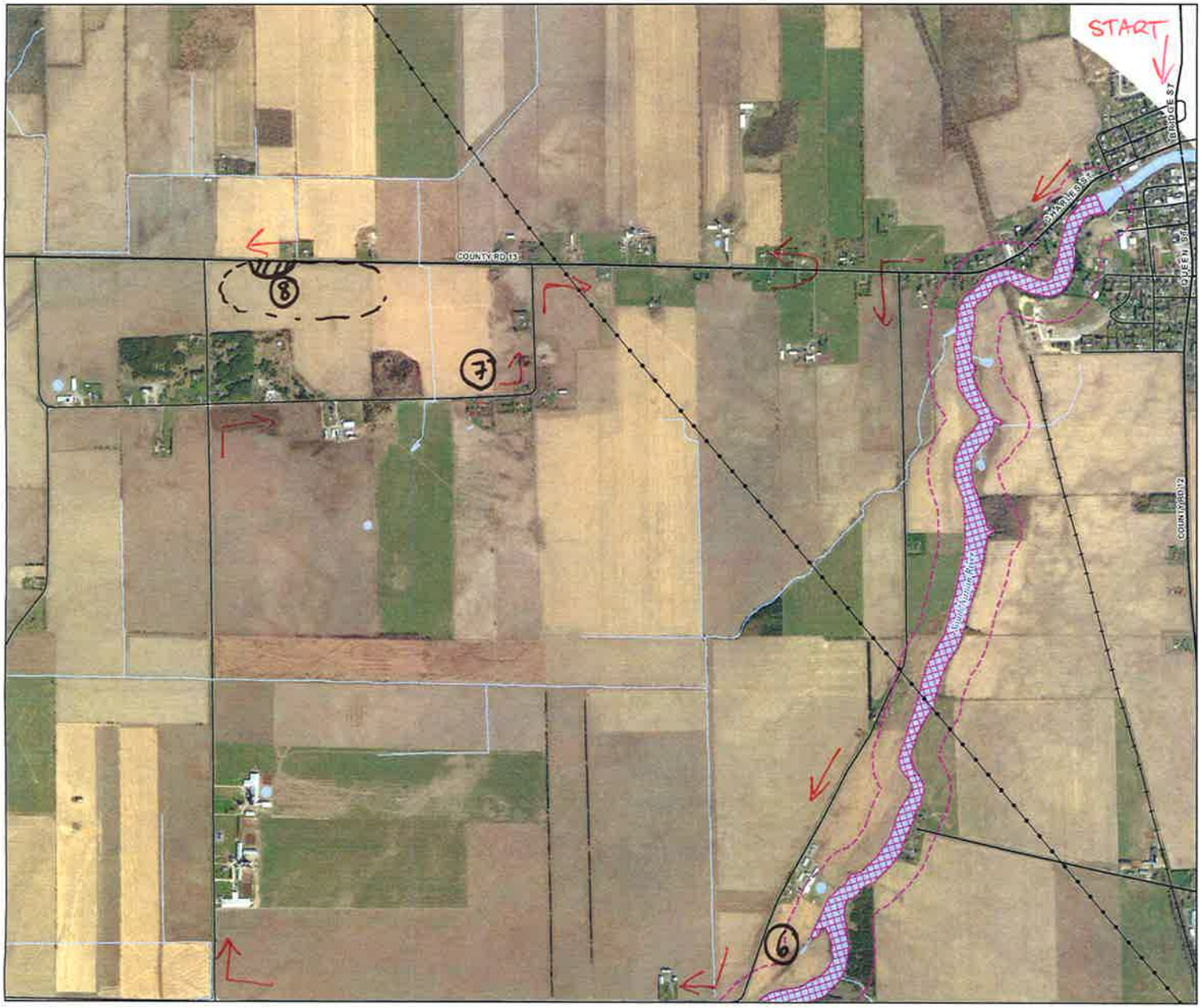
0 200 400 600 800 Meters

N

to map X-5

29-Mar-2017

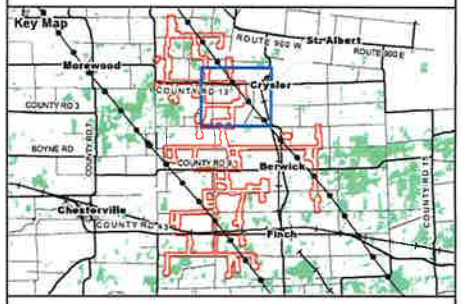
J. Barber 08:55



Map X - 4

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

① : Sighting

▨ : flooded area

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Project: 1756
Date: March 28, 2017

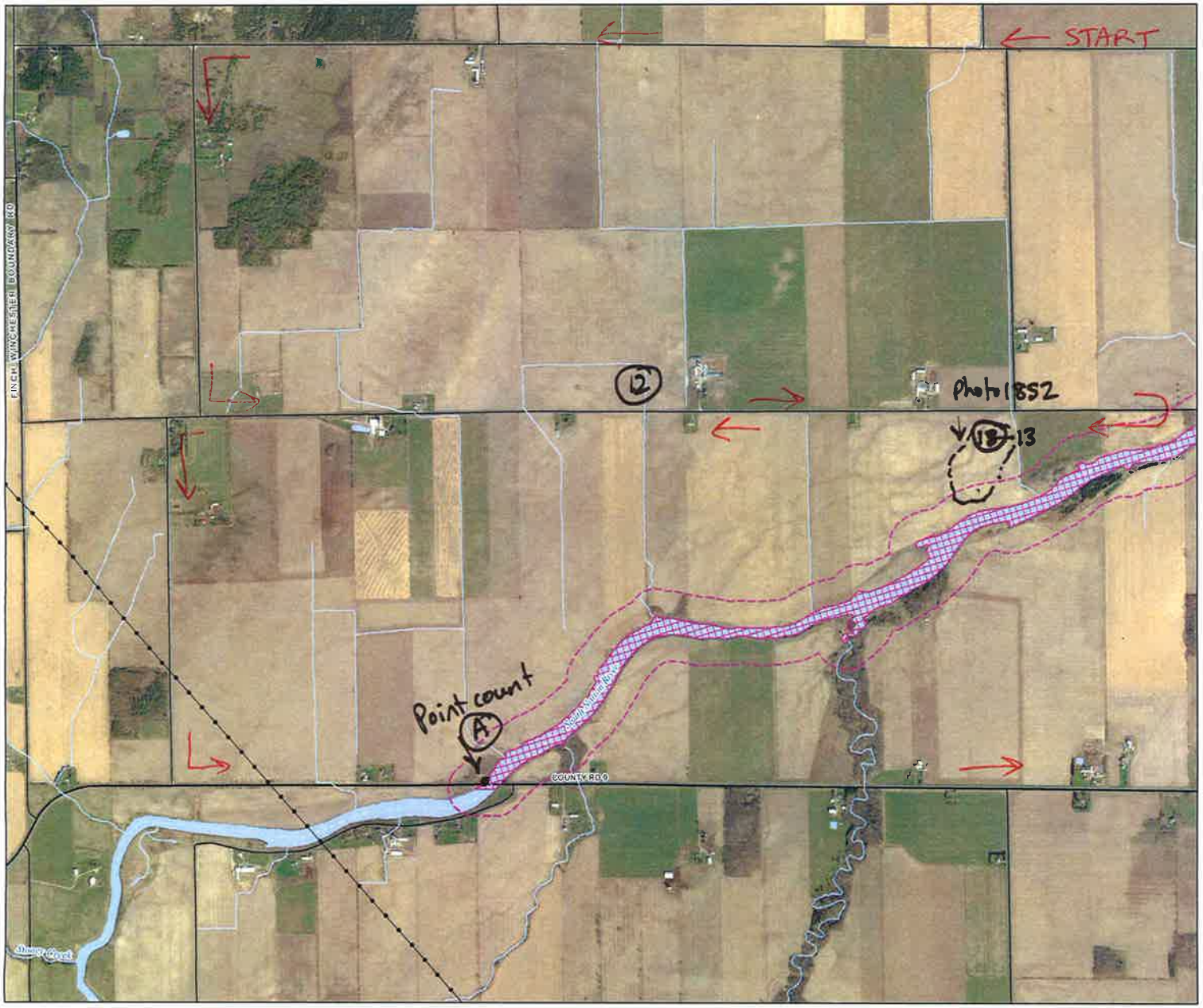
NAD83 - UTM Zone 18
Size: 11x17"
1:14,000

0 200 400 600 800 Meters

N

29-Mar-2017

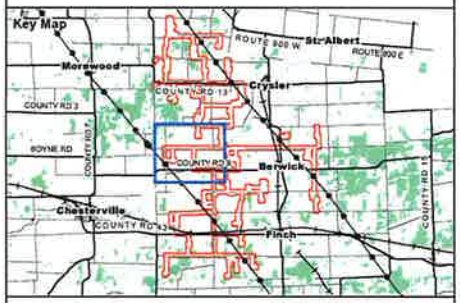
J. Barber 10:20



Map X - 5

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

(1) : sighting

(A) : point count location

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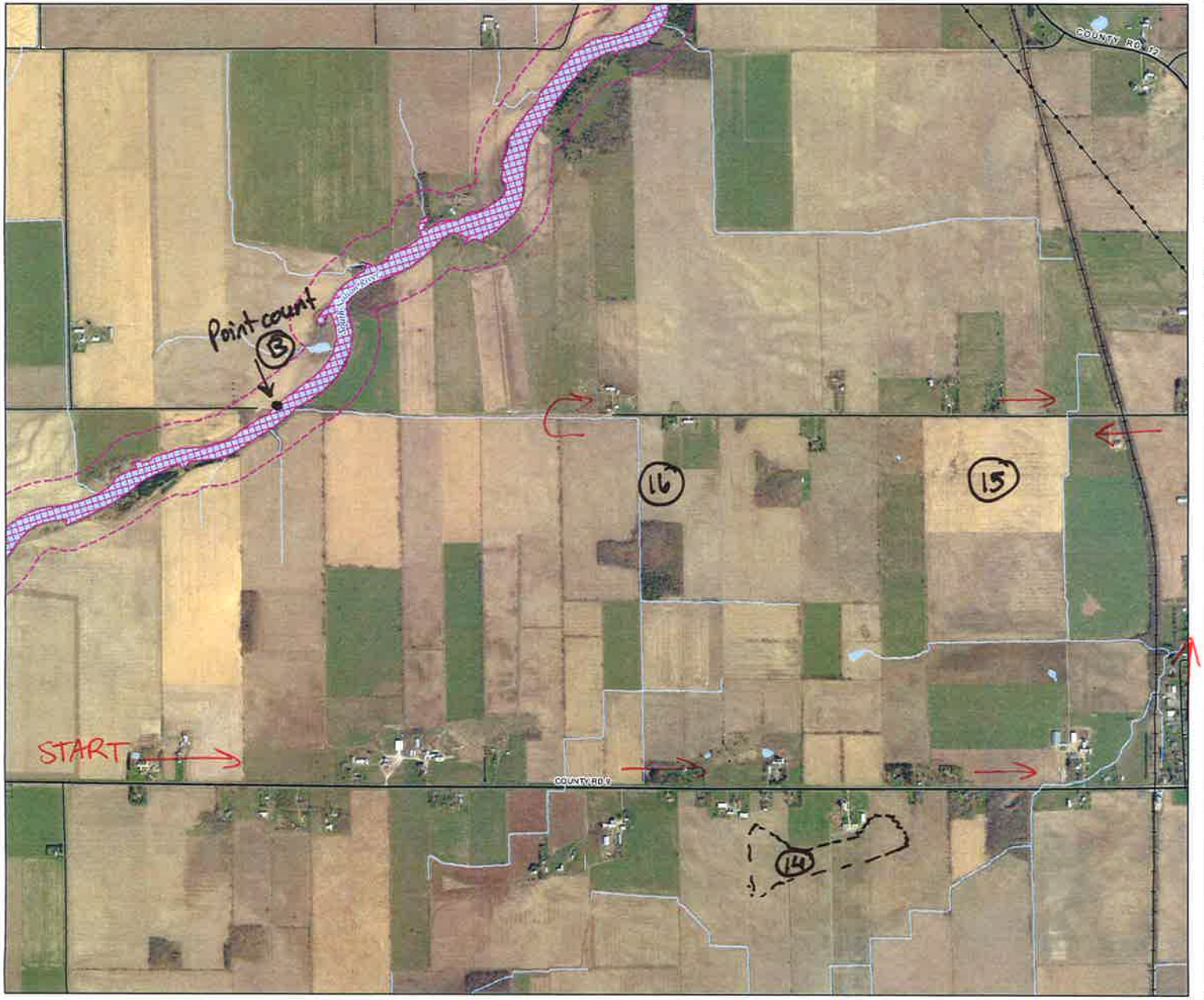
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

29-Mar-2017

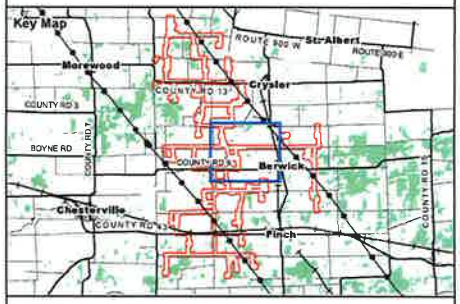
J. Barber 11:50



Map X - 6

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA)
- Waterfowl Stopover and Staging Area (Aquatic) (WSA) - Buffer

→ : Route

① : Sighting

Ⓑ : point count location

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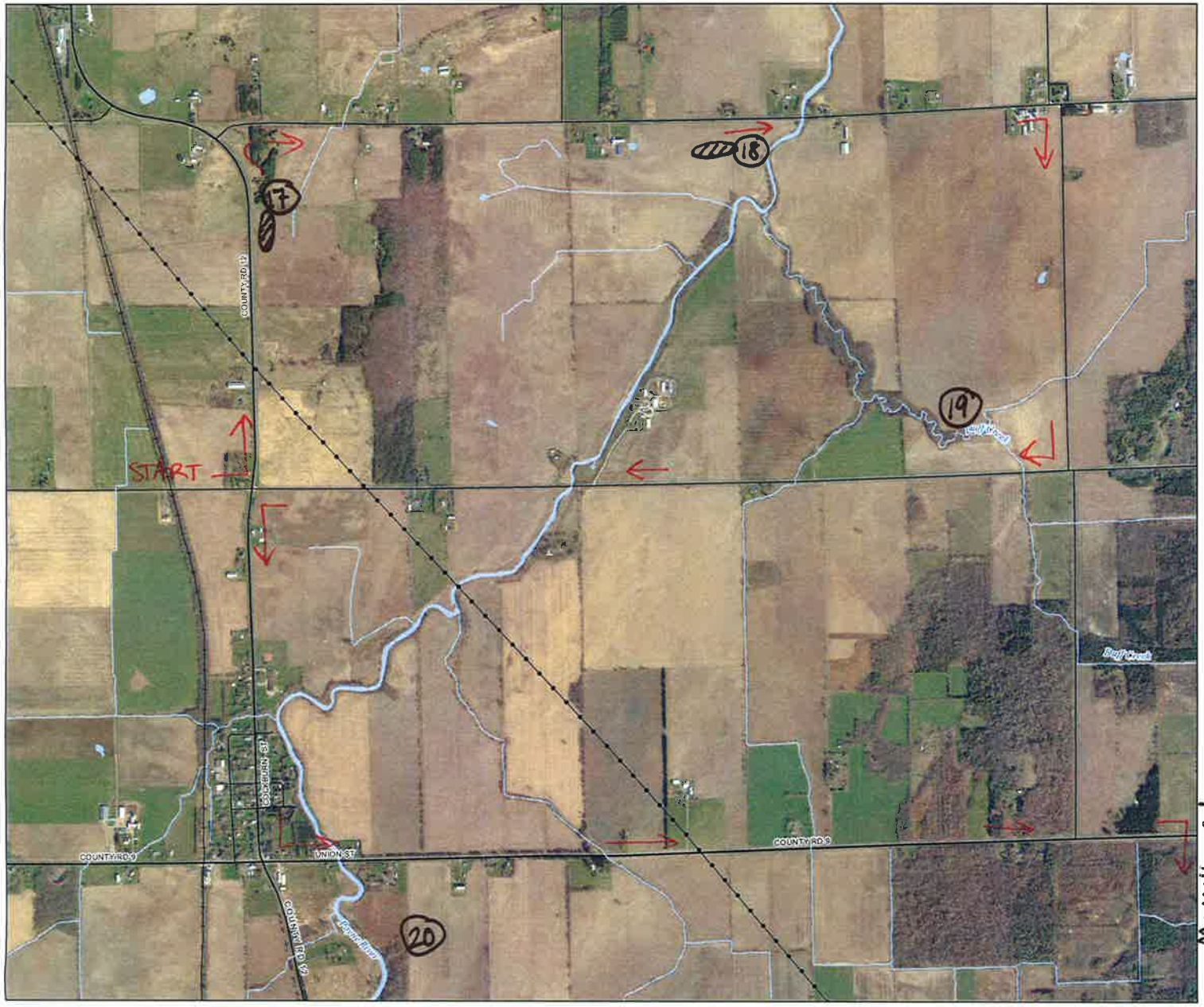
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

29-Mar-2017

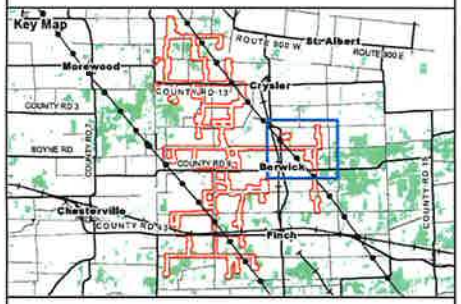
J. Barber 12:10 +5°C wind 2 NW 90% cc no precip.



Map X - 7

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

▨ : flooded area

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

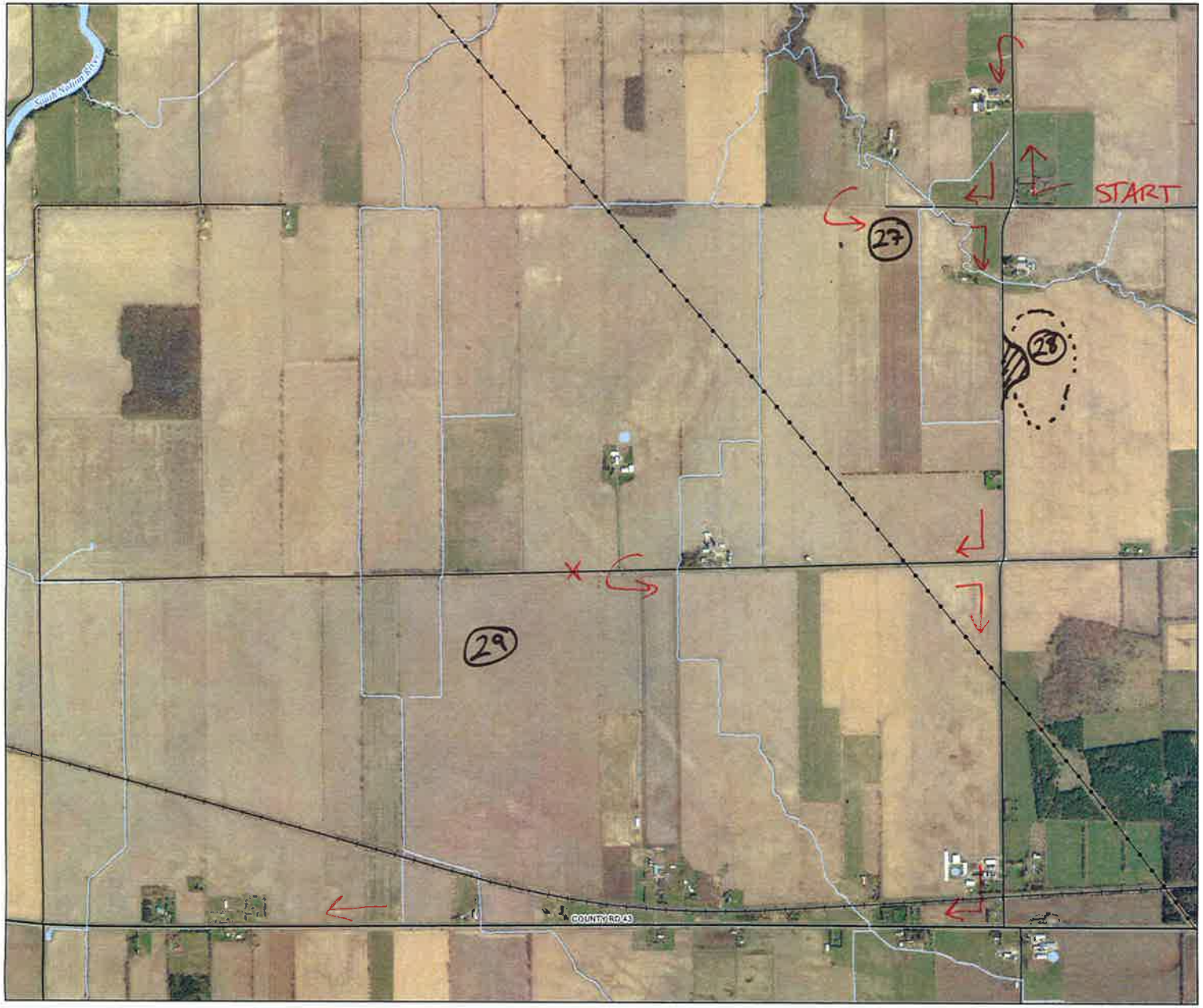
0 200 400 600 800 Meters

N

to map X-10

29-Mar-2017

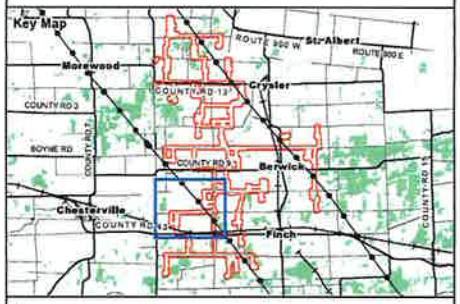
J. Barber 13:45



Map X - 8

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

▨ : flooded area

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17 1:14,000

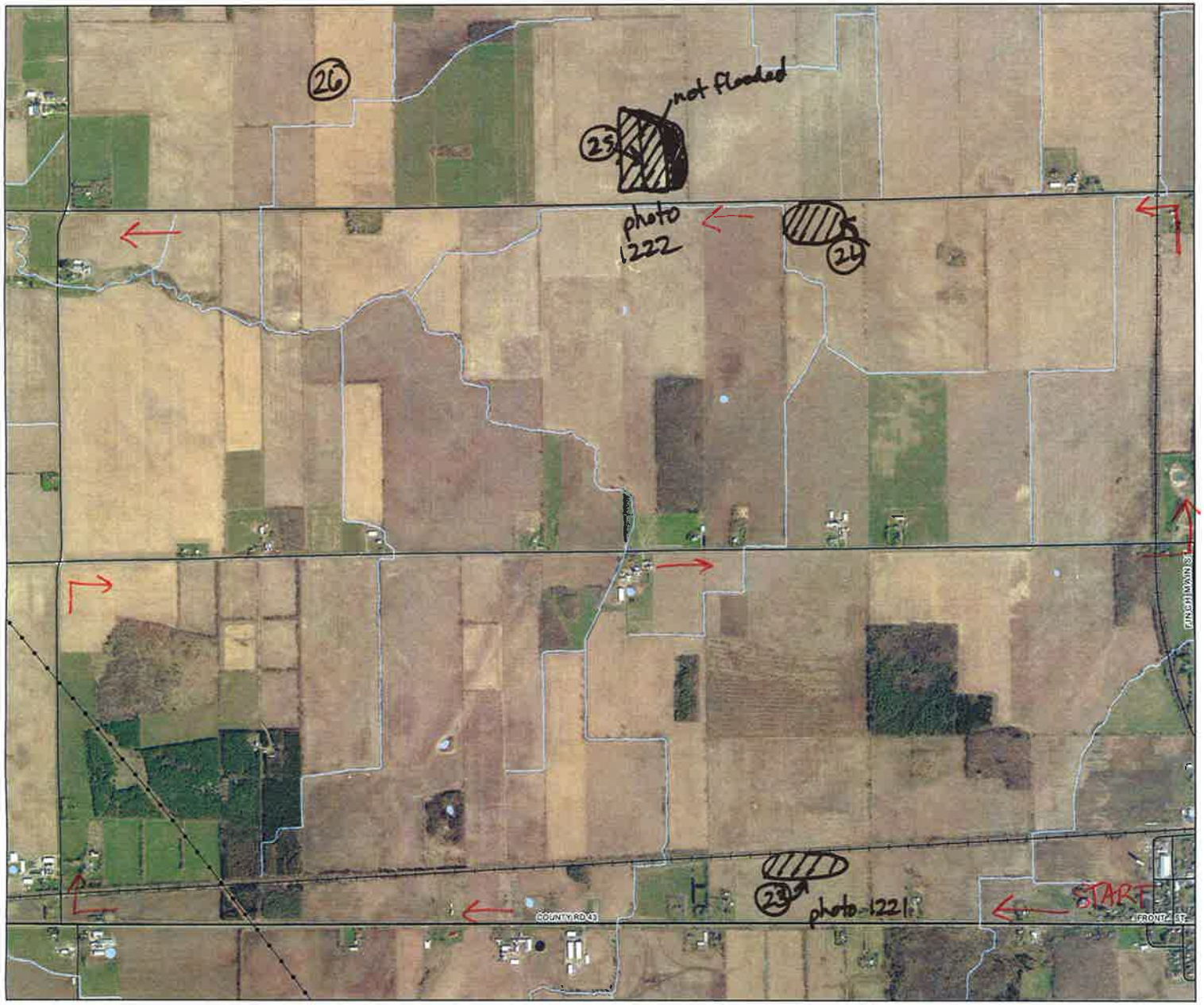
0 200 400 600 800 Meters

N

29-Mar-2017

J. Barber

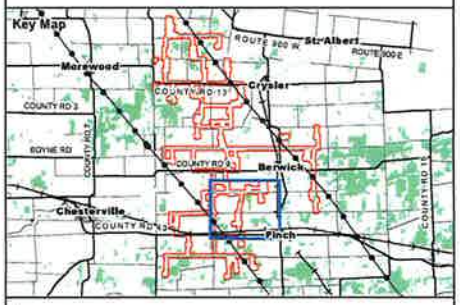
13:05



Map X - 9

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

▨ : flooded area

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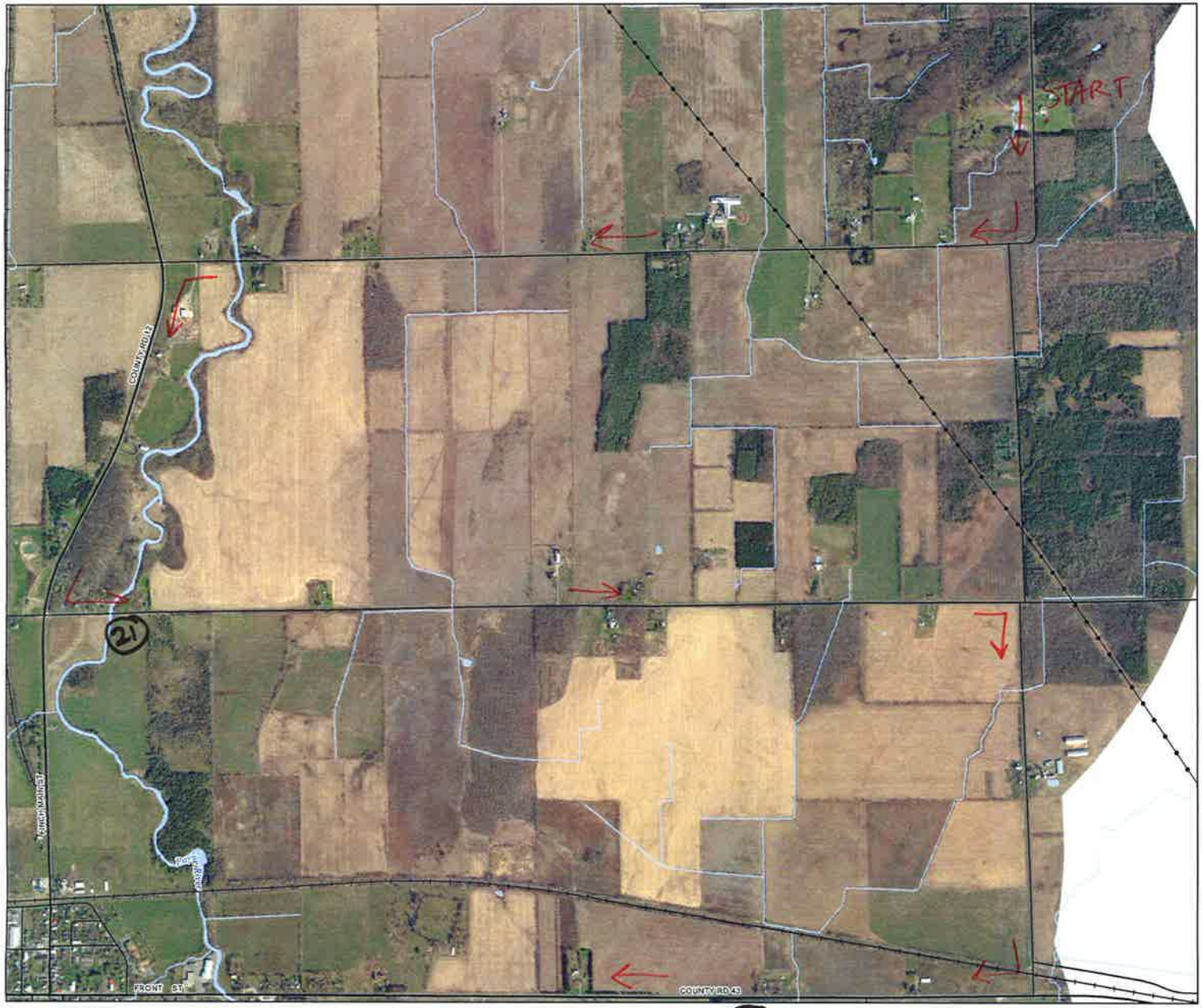
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

29-Mar-2017

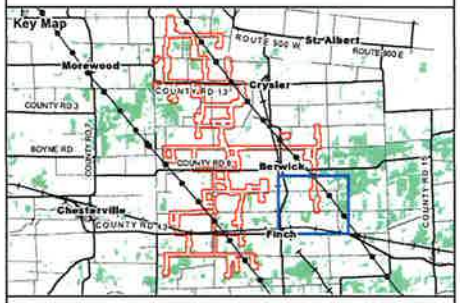
J. Barber 12:45



Map X - 10

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

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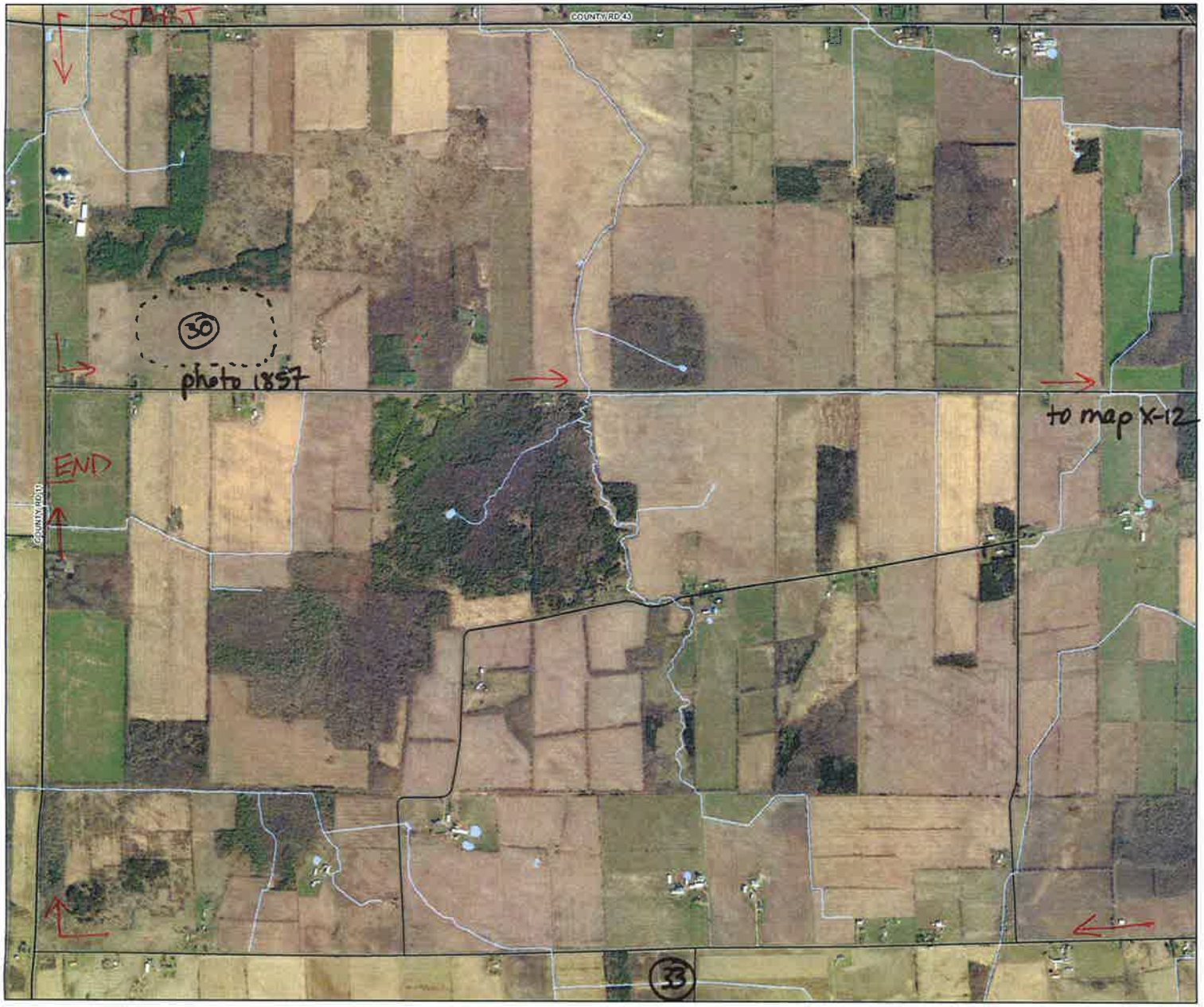
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

29-Mar-2017

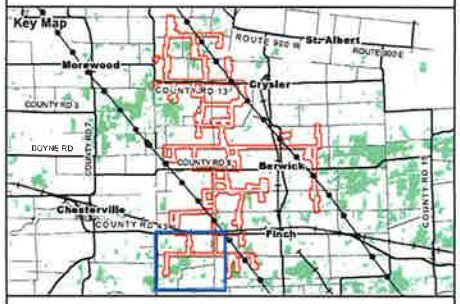
J. Barber 14:10



Map X - 11

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : Sighting

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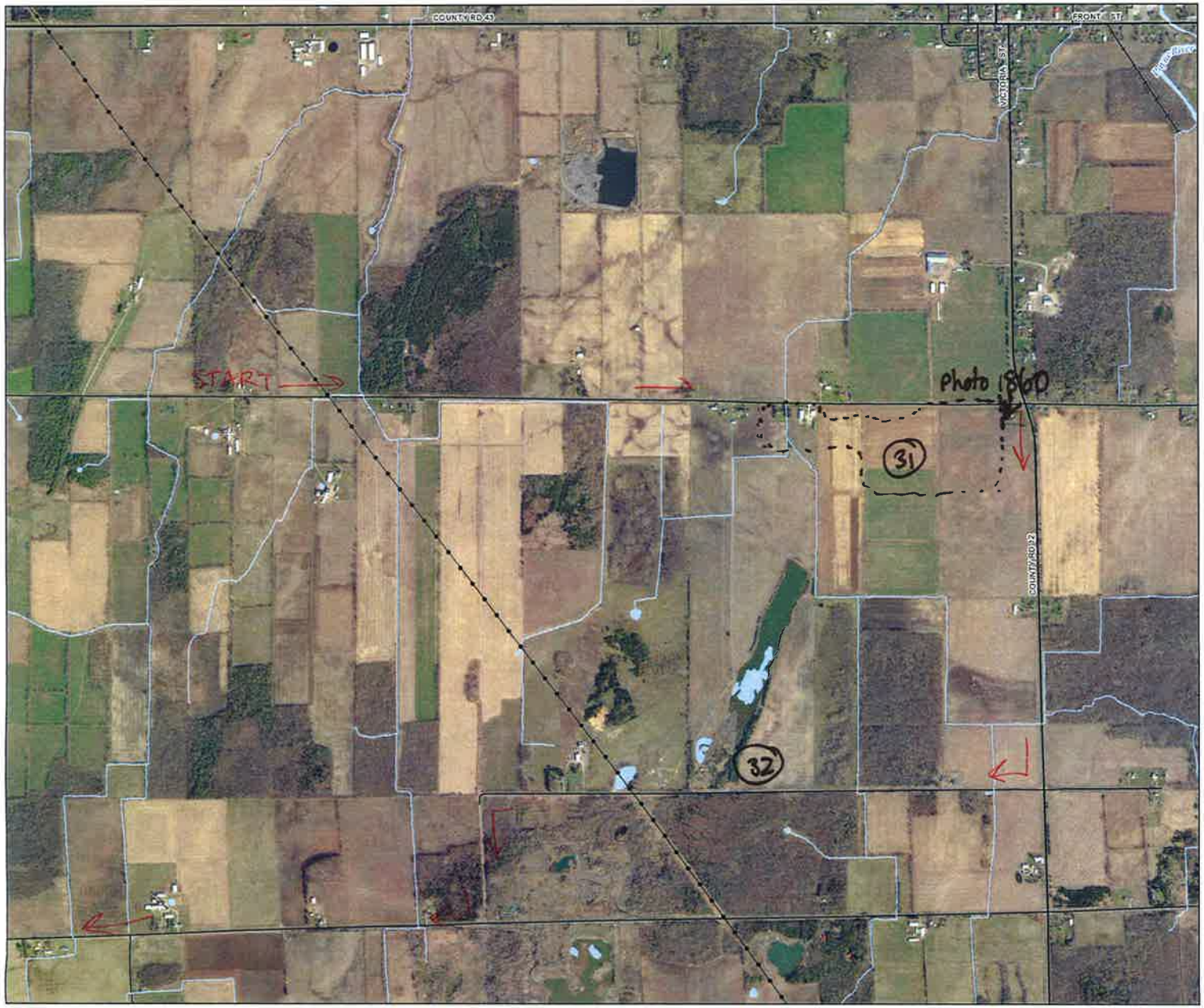
Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N

29-Mar-2017

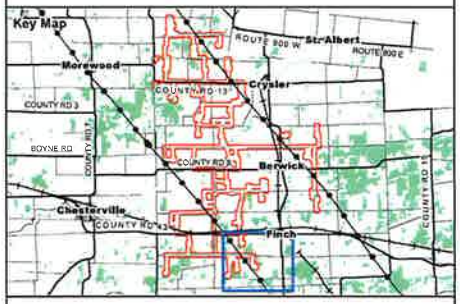
J. Barber 14:25



Map X - 12

Nation Rise Wind Farm

Waterfowl Stopover and Staging Area Surveys



Legend

- Utility Line
- Railway
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

→ : Route

① : sighting

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Project: 1756 Date: March 28, 2017	NAD83 - UTM Zone 18 Size: 11x17" 1:14,000

0 200 400 600 800 Meters

N